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Are there neighborhood effects on young adult neighborhood attainment? Evidence from mixed-logit models

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ABSTRACT

Studies of racial residential attainment show an intergenerational transmission of racial contexts from youth to adulthood, but it is unclear why this transmission is so robust. It is possible that experiences in racial contexts during youth have lasting effects on neighborhood selection in adulthood, but evidence for this claim has come from research using statistical methods that suffer from problems of ecological dependence and conflation of other neighborhood characteristics. In this study, we address these limitations using mixed-logit models, a form of discrete choice analyses, allowing us to control for differences across metropolitan areas and for multiple characteristics of neighborhoods that may affect the selection of destination neighborhoods. Data for the analyses come from the National Educational Longitudinal Study, the 1990 and 2000 Censuses, and other sources. We find that most of the intergenerational process results from young adults moving to neighborhoods short distances from their origin ones, but the models also suggest a contextual effect of youth experiences in racial compositions on neighborhood selection. The latter finding indicates that policies promoting integration among youth can have long-lasting effects on residential attainment.

The Fair Housing Act of 1968 outlawed racial discrimination in housing markets, but since 1970, the segregation of whites from African Americans has declined only modestly and the segregation of whites from Latinos has increased (Charles, 2003; Frey, 2012). This racial segregation has pernicious effects on African Americans and Latinos because it concentrates poverty in their neighborhoods and reduces their life chances (Massey and Denton, 1993). Understanding the persistence of racial residential segregation may help identify policies that can lead to greater integration.

Sociologists attempting to understand the persistence of residential segregation rely heavily on residential attainment models. In these models, researchers use a characteristic of movers' destination neighborhoods as a dependent variable (such as percent white) in a regression model to answer questions about who tends to move to desirable or undesirable neighborhoods. This research shows that whites move to much “whiter” neighborhoods than those of African Americans and Latinos and that these racial differences cannot be completely explained by differences in income, wealth, education, or English fluency (e.g., Alba and Logan, 1993; Charles, 2003; Crowder et al., 2012; Crowder et al., 2006; South et al., 2005). Researchers suggest that two factors usually unobserved in these studies, preferences for neighborhood compositions and

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racial discrimination in housing markets, may also contribute to racial differences in residential attainment (See Charles, 2003 for a review).

We contribute to this literature in two ways. First, we investigate how individuals' histories may also contribute to aggregate levels of residential segregation. We focus on these histories because research has shown that individuals experience similar racial and social class contexts in their neighborhoods across generations. Goldsmith (2010) estimates an intergenerational elasticity coefficient of 0.74 between the percent white in people's neighborhoods during the high school years and at age 26 in a sample of young adults. Similarly, Sharkey (2008) estimates one of 0.64 for income contexts between youth and adulthood with a sample containing a larger age range.

In particular, we examine whether or not part of the intergenerational continuity of racial context results from a neighborhood effect from the racial compositions experienced in adolescence. According to perpetuation theory, the experiences that youth have in racial compositions in places like neighborhoods and schools lead them towards neighborhoods (and other institutions) with similar racial compositions in adulthood (Braddock, 1980; Braddock and McPartland, 1989; Stearns, 2010; Goldsmith, 2016; Gamoran et al., 2016). If experiences in racial compositions have effects as perpetuation theory predicts, then it may be possible to reduce residential segregation by pursuing policies that increase racial integration among youth in their schools and neighborhoods. It may also be that past efforts to desegregate these institutions have had long-term effects on the individuals that were integrated. In addition, it suggests that racial segregation is particularly damaging for youth, making it more difficult for them to move into integrated neighborhoods in adulthood.

Second, we contribute by replacing the often used residential attainment models with a form of discrete choice analyses (DCA) called mixed-logit models (Train, 2003). As we explain below, residential attainment models may overestimate the continuity of racial contexts. Mixed-logit models are better suited for the analyses because they can completely account for ecological differences across metropolitan areas and for numerous characteristics of destination neighborhoods that movers may consider (Bruch and Mare, 2012; Quillian, 2015). We use data on large samples of Latinos, African Americans, and whites from the National Educational Longitudinal Survey (NELS), which follow individuals from 8th grade to about age 26. Studying residential mobility during these ages is ideal because nearly all people move at least once when they transition from their parental home to independent, adult residence (Schachter, 2001). We link the NELS to information about neighborhoods in the 1990 and 2000 Censuses and other data sets. With these data, the mixed-logit models allow us to use multiple individual and neighborhood characteristics to estimate the probability of individuals moving to each of the neighborhoods in their metropolitan area.

1. Theoretical explanations

Conceptually, residential segregation results from two processes. The first includes macrolevel, historical, and current factors related to urban planning that produce a metropolitan area's housing market. The second includes factors affecting microlevel decision makers who search for housing within a set of opportunities and constraints in the existing housing market. In our study, we focus our attention on the second, or microlevel set of mechanisms. We begin by discussing alternative explanations for the intergenerational transmission of racial context (distance, spatial assimilation, preferences, and discrimination) and then turn to perpetuation theory.

Distance matters because many residential moves cover short distances. The median distance moved for homebuyers is only 12 miles (National Association of Realtors, 2011). Sharkey (2008, 2013) contends that short distance moves are common because of an 'inheritance of place' where many neighborhood residents have attachments to the people and places where they grew up. These include emotional or sentimental bonds to physical spaces (Gieryn, 2000). For example, when young people engage in culturally shared processes that require numerous personal interactions (such as schooling), they assign an emotional meaning to the buildings and neighborhoods where they took place, thus increasing their attachment to a geographical space (Cuba and Hummom, 1993). Local social capital is also reduced with long-distance moves (Kan, 2007). Distance moved relates to the intergenerational inheritance of context because neighborhoods with the same racial composition are usually clustered together in metropolitan areas. When racially similar neighborhoods are near each other and many moves cover short distances, it is likely that many people will be moving to and from similar neighborhoods (Shuttleworth et al., 2014).

To understand how distance and the intergenerational transmission of neighborhood contexts are related, researchers have compared this transmission for people who live short and long distances from where they grew up. They do this by estimating correlation coefficients or slopes in regression models among people who do and do not live within their original neighborhood or other spatial unit. They find that this transmission is very high among those nearby and weaker but still often present among those far away (Britton and Goldsmith, 2013; Goldsmith, 2016; Sharkey, 2008).

Researchers have also investigated whether or not spatial assimilation produces the intergenerational transmission of neighborhood racial compositions. The spatial assimilation model (Alba and Logan, 1993; South et al., 2005) maintains that individuals with more income and education are more likely than their less privileged counterparts to move to predominantly-white neighborhoods, which contain more amenities and are of higher quality. The spatial assimilation model also contends that acculturation to Anglo culture, especially by learning English, promotes mobility into predominantly white neighborhoods. Spatial assimilation may account for the intergenerational transmission of racial context because the socioeconomic status and cultural background of young adults will correlate with that of their parents, increasing the chances that young adults live in similar neighborhood contexts in youth and adulthood. However, research suggests that little of the intergenerational transmission of neighborhood racial context can be attributed to spatial assimilation (Goldsmith, 2010, 2016; Sharkey, 2008).

Researchers have also suggested that preferences and discrimination may be responsible for the intergenerational transmission of racial contexts. There are large racial differences in preferences for neighborhood racial compositions (see Charles, 2003; Fossett, 2006 for reviews). This literature suggests that all groups evince some level of in-group preference. Whites prefer nearly all white neighborhoods, while African Americans and Latinos both prefer neighborhoods where their own group is about half of the neighborhood's composition. Studies have also shown that individual's preferences can predict (at least modestly) the racial and ethnic composition of movers' destination neighborhoods (Charles, 2006; Ihlanfeldt and Scafidi, 2002). If young adults have similar preferences to that of their parents, these preferences may result in an intergenerational transmission of racial context.

Discrimination is seen in the place stratification model (Logan and Alba, 1993; Massey and Denton, 1993; South and Crowder, 1998) as a significant cause of racial residential segregation at the macrolevel of urban development and at the microlevel of residential attainment. At the microlevel, African Americans and Latinos are expected to encounter discrimination when attempting to enter desirable neighborhoods, which are monopolized by white residents. Studies show evidence of discrimination in housing markets to the disadvantage of African Americans and Latinos, although the forms it takes may be changing (Turner et al., 2012; Massey et al., 2016). Discrimination can potentially explain the continuity of context because African American and Latino parents and their adult offspring will both encounter discrimination, reducing their chances of moving to a predominantly white neighborhood.

Nevertheless, studying discrimination in national data is difficult because it is often unmeasurable and its effects are similar to those of preferences. For example, Crowder et al. (2006:87) state that the continuity of racial compositions may occur because, …neighborhood-of-origin racial composition is at least partially capturing the residential preferences of blacks and Anglos, with members of both groups tending to reside in neighborhoods of their preferred racial composition. This explanation implies that blacks are less likely than Anglos to move to “more Anglo” neighborhoods because blacks have a stronger preference than Anglos for racially mixed or predominantly black neighborhoods. In addition to preferences, residential segregation may also be related to racial discrimination.

That is, these researchers suggest that the continuity of context observed in their regression models could result from discrimination and/or preferences (or distance, which they emphasize elsewhere). They cannot tell the extent to which each is responsible because they are both unobserved, a common limitation in research studying residential mobility with large data sets. Studying discrimination in this way is also difficult because some forms of discrimination in housing markets occur at the individual level (by loan officers, real-estate agents, appraisers, landlords, homeowners, and so on), and these studies only capture the discrimination that varies with a neighborhood characteristic (e.g., percent white).

While researchers have used spatial assimilation, preferences, and discrimination as explanations for the continuity of racial contexts, it is possible that the mobility processes they describe will actually suppress this continuity. These concepts only help explain the continuity of racial contexts when it is assumed that individual's origin neighborhoods have the same racial compositions as the ones the theories expect individuals to move to. The theories cannot account for the continuity of context when people begin in neighborhoods different from their predicted outcomes. For example, the concept of discrimination can account for the continuity of contexts for African Americans who begin in and end in predominantly African American neighborhoods. However, discrimination should also result in African Americans from predominantly white neighborhoods experiencing downward mobility into less “white” neighborhoods. In the latter case, the theory predicts that discrimination will reduce (that is, suppress) the continuity of racial contexts. Similarly, if adults do not prefer the racial compositions experienced during youth or if they are led away from that racial composition by processes of spatial assimilation, then preferences and spatial assimilation will also suppress the continuity of racial contexts from youth to adulthood.

Finally, the continuity of racial compositions from youth to adulthood may be an effect from the racial composition of the initial neighborhoods that lead individuals to move to racially similar neighborhoods in adulthood. This is the primary claim of perpetuation theory, which maintains that individuals experience the same racial compositions in all of their institutions and over the life course (Braddock, 1980; Braddock and McPartland, 1989; Goldsmith, 2010, 2016; Stearns, 2010; Wells and Crain, 1994). Feagin (2006:247), although not writing from this theory's perspective, captures its view and the centrality of neighborhoods when he states that, “Residential segregation reinforces, even creates, segregated schools, religious organizations, recreational facilities, and workplaces. All such organizations in turn reinforce residential segregation …”

There is evidence that the racial compositions that people experience in different institutions and over time are correlated and likely to be causally related. Research using regression models with statistical control and propensity score models have shown that the racial contexts (such as percent white) of adolescent neighborhoods and high schools can predict the same thing in the colleges attended, places of employment, occupations, and adult neighborhoods (Gamoran et al., 2016; Stearns, 2010; Goldsmith, 2010; Braddock, 1980; Wells and Crain, 1994). Evidence from the Gautreaux and Moving to Opportunity (MTO) programs are also consistent with a causal effect (Keels et al., 2006). In MTO for example, households from high-poverty neighborhoods were randomly assigned to a control group, a group receiving section 8 housing vouchers, or a group receiving restricted housing vouchers that could only be redeemed in low-poverty neighborhoods. These assignments, although not explicitly requiring voucher holders to move to neighborhoods with lower percentages of African Americans and Latinos, did so for the latter two groups, and they maintained this advantage ten to fifteen years later despite a great deal of residential mobility in all groups (Sanbonmatsu et al., 2011).

Perpetuation theorists have proposed three mechanisms to explain the causal relationship. The first consists of social-psychological effects on individuals' attitudes and fears about out-group members which Braddock (1980) developed relying heavily upon Allport (1954)'s theory of group contact. The second mechanism suggests that people develop distinct types of knowledge and skills for a person with their identity in particular kinds of racial contexts. Evidence of the existence of these knowledge and skills come from interviews with whites and African Americans who attended integrated schools (Wells et al., 2005; Eaton, 2001), Asians and Latinos in integrated schools (Ochoa, 2013), from whites in predominantly white neighborhoods (Bonilla-Silva et al., 2006), middle-class African Americans in various contexts (Lacy, 2007), and African Americans and whites living in or close to predominantly African American neighborhoods (Anderson, 1999). In effect, the development of the tools and strategies necessary for a person with their racial identity to navigate specific racial contacts draws them to that type of context more than same-race peers with other experiences. The third mechanism proposed focuses on social networks. Unlike the work stemming from contact theory, people working in the tradition of perpetuation theory have relied upon Granovetter (1986) to emphasize how individuals can acquire valuable information from weak interracial ties. In perhaps the best example, Wells and Crain (1994) explain how high school teachers and counselors more often inform African American and Latino students about integrated colleges and occupations in integrated than in segregated high schools. Given the intensity of racial segregation in housing markets, it is likely that neighborhoods with different racial compositions will also contain different information about housing. For example, residents will know different real-estate agents and loan officers or recommend different neighborhoods, and people use such information from their social ties in housing searches (Krysan, 2007).

To date, no comprehensive test of perpetuation theory exists, and some research finds that interracial contact produces negative outcomes like racial conflict that pose potential challenges for the theory (Dixon, 2006; Goldsmith, 2004). For example, interracial friendships are uncommon even in diverse schools (Quillian and Campbell, 2003), and interracial contact in neighborhoods reduces whites' friendships with Latinos and African Americans (Britton and Goldsmith, 2013).

Notwithstanding these critiques, it is possible to test predictions from perpetuation theory. Perpetuation theory maintains that the racial composition of a youth's neighborhood affects the racial composition of all of their other institutions, and all of these compositions together have long-term effects on adult neighborhood attainment. Particularly important to perpetuation theorists is the racial composition of the student's school, which powerfully affects the development of attitudes, social skills, and social networks with lasting importance in adulthood (Wells and Crain, 1994). According to perpetuation theory, the racial composition that youth experience in their neighborhoods will lead them to move to neighborhoods with similar racial compositions in adulthood, and this will in part result from youth often attending schools with racial compositions like that of their neighborhoods.

In addition, perpetuation theory makes different predictions than the concept of place attachment and inheritance of place. The latter two concepts predict that many young adults will live nearby where they grew up. This creates a spurious relationship between the racial compositions of youth and adult neighborhoods that should disappear if neighborhood distances are controlled or if the relationship is estimated among people who live far from their origin neighborhood. Perpetuation theory, in contrast, predicts that the racial compositions that youth experience have contextual effects that lead them towards neighborhoods with the same racial composition in adulthood net of distance and for people who live far away from their origin. Using DCA, it is possible to test these predictions.

2. Accounting for neighborhood options and additional neighborhood characteristics

As mentioned earlier, the continuity of contexts has been demonstrated in a bivariate situation with a correlation coefficient between the racial compositions of the origin and destination neighborhoods. In multivariate regression (sometimes with a Heckman correction for selection on movers), it is shown by a positive slope coefficient for the origin racial composition on the destination one net of controls (Crowder et al., 2006; Goldsmith, 2010; Sharkey, 2008). Racial composition is usually measured as percent white, and the other independent variables include characteristics of the origin neighborhoods, MSAs and individuals. There are two reasons these methods may overestimate the continuity of racial contexts that can be overcome with DCA. First, regression models do not adequately account for the neighborhood options that households

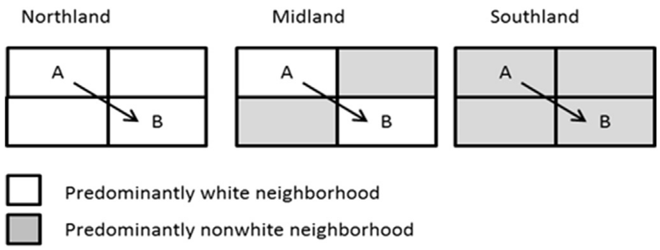


Fig. 1. Three towns, each with an individual moving from neighborhood A to neighborhood B.

consider, which Quillian (2015) describes as the "ecological dependence" problem. Second, they only examine one characteristic of destination neighborhoods at a time, which Quillian (2015) refers to as the "bundling" problem.

Fig. 1 helps explain the first limitation. The figure shows an individual moving from neighborhood A to neighborhood B in three towns: (1) Northland, which is predominantly white, (2) Midland, which is diverse and segregated, and (3) Southland, which is predominantly nonwhite. In OLS regression models, the racial composition of neighborhood A is used to predict the racial composition of neighborhood B. OLS does not use information on other neighborhoods in the towns (except as MSA characteristics, as explained below). Since the composition of A equals the composition of B in all three towns, the correlation between the racial composition of the origin and destination neighborhoods will be unity. Nevertheless, the high correlation is largely an artificial estimate created by the nature of the comparisons. In Northland, people will be moving from one predominantly white neighborhood to another. In Southland, people will be moving from one predominantly nonwhite neighborhood to another. Combining information from all three towns into a single analysis will result in differences between towns inflating the estimated continuity of racial composition. The best solution for this problem in OLS models is to include control variables which capture differences across metropolitan areas. With national data on hundreds of MSAs, this is a daunting task.

In DCA, the continuity of contexts is estimated with a difference-in-difference method instead of a correlation. In the figure, the question would be, is the difference in the racial composition between neighborhoods A and B smaller than the differences in neighborhood racial compositions between A and each of the other neighborhoods in the MSA. In Northland and Southland, the difference between A and B is not smaller (or larger) than the differences between A and any of the other neighborhoods, so there is no evidence of a continuity of context. In Midland, the figure does show evidence of continuity because neighborhood B is more like A than the other neighborhoods. The advantage of using a difference-in-difference method is that it inherently controls for differences in MSAs, and MSA control variables are not needed. This advantage also applies to individuals who are not from the MSA but move to it from elsewhere. The neighborhood where they grew up can always be defined as Neighborhood A, even if it is in another MSA or outside of an MSA, because its characteristics can be compared to those of all of the potential neighborhoods in their destination MSA.

The second limitation of linear regression models is that the dependent variable is a single characteristic (such as percent white) of destination neighborhoods. For Quillian (2015), this is a problem because neighborhoods have bundles of characteristics. For example, some predominantly nonwhite neighborhoods will be predominantly African American, while others will be predominantly Latino. This critique of regression models is echoed by Bruch and Mare (2012) who conceive of the problem in terms of household choices. They argue that OLS models treat residential movers as if they only pay attention to one characteristic of neighborhoods, such as its percent white, when deciding where to move. But, "Any single dimension, when considered by itself, may be confounded with other distinct but correlated dimensions (2012:109)" that households attend to.

Researchers using residential attainment models have attempted to account for these bundles of characteristics with discrete measures of neighborhoods as dependent variables (e.g., at least 80 percent white, at least 40 percent African American, etc.). However, the number of neighborhood characteristics captured by these types remains small and there are large racial differences within these neighborhood types. Researchers also estimate separate models for each neighborhood characteristic of interest. For example, they estimate separate models for percent white, percent African American, and percent Latino. While this provides more information, the underlying problems are still in place because multiple characteristics of neighborhoods, such as their social class composition, the availability of housing, their distance from the origin neighborhood, and so on may be confounded with the dependent variable.

In DCA, it is possible to account for multiple characteristics of neighborhoods and individuals simultaneously. It is this characteristic of DCA models which allow us to, among other things, examine whether or not mobility processes related to distance, spatial assimilation, discrimination, and preferences account for or suppress the continuity of neighborhood racial composition from youth to adulthood.

3. Methods

3.1. Data

Data for this project are from the National Education Longitudinal Study (NELS), File 3b of the 1990 and 2000 Censuses, the Census Gazetteer, and the Integrated Postsecondary Education Study (IPEDS). The NELS,[1] which we use to measure characteristics of individuals and schools, are panel data with a base-year sample of 8th-graders in the United States in 1988 with follow-ups in 1990, 1992, 1994, and 2000. Most of the respondents are age 26 in year 2000. NELS data are linked to the Census with five-digit residential ZIP-Code numbers, which are in the first three panels and the last panel. The 1990 Census provides information about the composition of ZIP-code tabulation areas (ZCTAs) in 1988, 1990, and 1992. The 2000 Census provides it

[1] We use the NELS for multiple reasons. The PSID does not contain enough Latinos for this analysis. The NLSY is very costly to use with tracts and ZCTAs. The ADD-Health data suppresses actual tract numbers, making it impossible to locate people in space. The Educational Longitudinal Study has more recent data than the NELS, but its sample reached young adulthood during the great recession, an atypical era.

Table 1
The number of individuals, MSAs, ZCTAs per individual, and cases by race and ethnicity.

	Individuals	MSAs	ZCTAs/Individual	N (long form)
Whites	4790	280	120	553,680
African Americans	590	120	130	79,250
Latinos	990	140	130	131,990

Note: Sample sizes are rounded to the nearest tens place.

in the final panel. IPEDS provides information on the racial composition of NELS respondent's first college or university, if they attended one.

From the NELS, we omit respondents who live with their parents in the final panel because their residential attainment is still determined by their parents. Omitting them reduces estimates of the continuity of racial context because most of them live in the same ZCTA as that of their youth. We also omit respondents who lived outside of MSAs at age 26 and Asians and Native Americans. These groups have small populations relative to the size of our areal units (ZCTAs) and most of their spatial variation will exist within rather than between units. We include all whites, African Americans, and Latinos living in an MSA at age 26, including those that did not grow up in the MSA. We include them because the spatial assimilation model, preferences, discrimination, and perpetuation theory (with some caveats described later) make similar predictions for young adults from nearby and far away origins. In addition, omitting them could inflate estimates of the continuity of racial contexts by limiting the sample to people who all live in the same MSA where they grew up (Britton and Goldsmith, 2013). Because residential segregation varies by MSAs (e.g., Massey and Denton, 1993), we treat MSAs as independent housing markets and use the ZCTAs within them to define an individual's neighborhood risk set, as others have done (Bruch and Mare, 2012; Quillian, 2015).[2]

After the above omissions, we deleted cases with missing data. The ones missing the most were respondent's 1999 income, whether or not they completed a bachelor's degree, and spoke English at home in 8th grade. Altogether, missing data reduced the sample another nine percent. The final sample of 6360 is 64 percent of the African American, white, and Latino respondents in the NELS who participated from the base year through the final panel. (Sample sizes are rounded per NCES rules of disclosure of restricted data.) Table 1 shows the number of individuals, MSAs, ZCTAs per person (which is the average number of ZCTAs in an individual's risk set), and number of cases (in long form—a case for each neighborhood option for each person) for the African Americans, whites, and Latinos.

3.2. Analytic model

Discrete choice analysis (DCA) is a family of models that estimate the probability of individuals selecting one outcome from a mutually exclusive, exhaustive and finite set of options (Train, 2003). The probabilities are based upon observed characteristics of the options, the choosers, and unobserved factors. DCA is most often used in marketing research to predict which products are selected by which consumers. In sociology, this and similar approaches are often used to study friend selection (Zeng and Xie, 2008). Sociologists (Bruch and Mare, 2012; Quillian, 2015) and researchers in other disciplines have also used DCA to study residential attainment (Bhat and Yinghchieh, 2004; Deng et al., 2003; Gabriel and Rosenthal, 1989). This study uses DCA to estimate the probabilities of 26 year olds living in each of the neighborhoods in their current MSA (including those that did not grow up in that MSA).

The following presentation of these models relies heavily on the work of Train (2003). Let n = 1, …N individuals who can move to $j = 1, \ldots J$ potential neighborhoods in their MSA. Assuming that young adults, confronted with opportunities and constraints, maximize utility (U) in the choice of neighborhoods, then $U_{\mathrm{nj}} = \beta X_{nj} + \varepsilon_{\mathrm{nj}}$, where X_{nj} and $\varepsilon_{\mathrm{nj}}$ are observed and unobserved factors affecting utility, respectively. Different DCA models have been developed primarily to handle $\varepsilon_{\mathrm{nj}}$ in different ways. In the most widely used DCA model, the conditional logit, $\varepsilon_{\mathrm{nj}}$ is assumed to be independent and identically distributed (iid) extreme value. Setting $y_{nj} = 1$ if individual n moves to neighborhood j and $= 0$ otherwise, the conditional logit is

$$\Pr\left(y_{nj} = 1\right) = \frac{e^{\beta' Xni}}{\sum_j e^{\beta' Xnj}}.$$

Train (2003) explains three limitations to the conditional logit model, two of which apply here. First, the iid assumption requires that the unobserved factors affecting one alternative be independent of the unobserved factors affecting another alternative. This may be false in our data. For example, discrimination (which is unmeasured) may affect moving into

[2] Because of the large size of ZCTAs, we examined findings from models that restricted the sample to respondents living in MSAs that 1) had at least 50 ZCTAs and 2) the racial group's size in the MSA was large (that is, at least three times larger than the average total population of the MSA's ZCTAs). These analyses produced nearly identical results, with the small differences between them attributable to increases in standard errors from using a smaller sample.

predominantly white neighborhoods and into high income neighborhoods. Second, the conditional logit model implies an independence from irrelevant alternatives (IIA). This implication allows researchers to reduce computing time by using a sample of alternatives rather than their population, but it creates strict requirements for substitution patterns due to changes in the alternatives that are not always appropriate.[3] The mixed-logit model overcomes both of these problems. It can be derived in multiple ways that are formally equivalent (Train, 2003). One way is by splitting the unobserved factors into two components, $€_{nj}$ and ε_{nj}, where the first allows for dependence and heteroskedasticity and the second is iid extreme value. Another way uses random coefficients to estimate β_n, a vector of parameters for each of the *n* adults selecting neighborhoods. Here, we are not interested in each individual's parameters but rather in their distribution, which we assume are normally distributed. In this formulation, mixed-logit probabilities are the integrals of a weighted average of the logit probabilities evaluated at values of β_n,

$$\Pr(y_{nj} = 1) = \int \frac{e^{\beta' nXni}}{\sum_j e^{\beta' nXnj}} \varnothing(\beta|b,\ w)d\beta,$$

with the weights given by the normal density $\varnothing(\beta|b,\ \ w)$ with mean *b* and covariance *w*. We report the means and standard deviations describing the distribution of parameters, as well as their statistical significance. The mean (or another value in the distribution) can be interpreted as a log-odds ratio because,

$$Log\left[\Pr\left(y_{nj} = 1\right) \Big/ \Pr(yn_{ni} = 1)\right] = (x_{nj} - x_{ni}).$$

And the coefficients can be converted into odds ratios by exponentiating them (Allison, 1999). Because the distributions are normal, 68 and 95 percent of the coefficients fall within plus or minus one and two standard deviations of the mean, respectively. For example, if the distribution of coefficients has a mean of 0.05 with a standard deviation of 0.02, then 95 percent of the respondents have coefficients between 0.01 and 0.09. The probabilities are estimated in the SAS procedure mdc (multinomial discrete choice) using Monte Carlo simulation with Halton quasi-random sequences.[4]

3.3. Measurement

The dependent variable is a dichotomous indicator describing whether or not the respondent moved to each neighborhood (i.e., ZCTA) in the MSA where the respondent resided at age 26. The independent variables consist of 1) characteristics of neighborhoods and 2) relationships between individual and neighborhood characteristics expressed as interactions or similarities. Interactions are the product of multiplying the characteristics. We define similarities with Formula 1:

$$-|m_n - r_{nj}|, \tag{1}$$

where m_n is an individual characteristic and r_{nj} is a characteristic of the *j* neighborhoods in the *n*th respondent's metropolitan area.

The logic of the formula can be explained using the key independent variable as an example. The intergenerational transmission of racial contexts is measured as the similarity between each neighborhood's percent white and the same thing in the neighborhoods that the respondent grew up in. In Formula 1, the individual characteristic m_n is the average percent white in the respondent's neighborhoods in the 8th, 10th, and 12th grade panels. The neighborhood characteristic r_{nj} is the percent white in each of the neighborhoods in the respondent's MSA when they are age 26. We take the absolute value of the difference because we are interested in the magnitude rather than the direction. Doing so also reduces its correlation with the neighborhood characteristic (r_{nj}). The sign is made negative so that the numbers closer to zero are larger values and indicate greater similarity, easing the interpretation of coefficients. The variable measures the *Similarity in Percent White between Youth and young Adult Neighborhoods*, which we refer to as SPWYAN.

Distance, a neighborhood characteristic, is measured as the natural log of the miles from the center points of each ZCTA in the young adult's MSA at age 26 to that of the ZCTA where the respondent lived in the 12th grade panel, estimated from longitude-latitude points reported in the Census Gazetteer. When the distance moved is estimated to be zero miles (i.e., when respondents live in the same ZCTA at these two time periods), distance is set to the natural log of 0.05 miles because the natural log of zero is undefined. The natural log transformation is ideal because it inherently weights differences between neighborhoods that are nearby more than distances between neighborhoods that are all far away. Other methods of estimating the relationship between neighborhood selection and distance, such as interactions and quadratic terms, do not fit the data as well.

[3] According to Allison (1999), the IIA assumption is particularly likely to be violated when the risk sets vary in size, which occurs in our data because the number of ZCTAs varies by MSA.

[4] SAS cannot estimate mixed-logit models and simultaneously account for the complex survey design of data like the NELS, so these analyses are not weighted or adjusted for clustering in primary sampling units.

Another neighborhood characteristic is the percent same race and its square. For whites, percent same race is likely to capture whites' preferences for predominantly white neighborhoods. For African Americans and Latinos, percent same race is potentially capturing the effects of in-group preference and racial discrimination. It includes racial discrimination because victims of discrimination are likely to move to same race neighborhoods as a secondary option. We also include percent white and its square in the models predicting the residential choices of African Americans and Latinos. A finding that African Americans and Latinos are less likely to move to "white" neighborhoods holding constant percent same-race and other factors is consistent with an effect of racial discrimination.

The spatial assimilation model contends that individuals with relatively more capital move to "whiter" neighborhoods. We test this with two measures of capital. The first, economic and human capital, is coded one (1) if the respondent has a bachelor's degree or is in the top quarter of income earners (in 1999) in the data and else zero (0). The second, cultural capital, is measured with a dummy variable equal to one (1) if the individual spoke English in their parental home and zero otherwise. We use language at home because it is an integral component of ethnic culture. In the NELS, the characteristics emphasized by the spatial assimilation model (e.g., parental education, educational achievement, origin neighborhood percent white) also differ more between Latinos that do and do not speak English at home than they differ between Latinos in the first/second generation in comparison to the third plus generation (Goldsmith, 2016), although it is important to note that they are correlated. The effects of spatial assimilation are estimated with interactions between these dummy variables and neighborhoods' percent white (and its square). The spatial assimilation model is confirmed if people with more capital move to "whiter" neighborhoods than their counterparts. In addition, racial differences in the ability to translate capital into residence in "whiter" neighborhoods suggests discrimination (Crowder et al., 2006).

Perpetuation theory predicts a contextual effect of the racial compositions experienced in youth on the racial composition of neighborhoods selected in young adulthood. This prediction would be supported by a positive coefficient for the SPWYAN when all other variables are controlled. We also use Formula 1 to estimate the similarity in percent white between student's schools and their adult neighborhood options. School percent white is averaged from the student's middle school, high school, and first college (if they attended college). Perpetuation theory predicts that this similarity will also have a positive coefficient and that it will explain part of the effect of the SPWYAN. Perpetuation theory also predicts an effect of SPWYAN for young adults who live a long-distance from where they grew up, who are defined as individuals who live in an MSA where all of its ZCTAs (the entire risk set) are at least 40 miles from the respondent's ZCTA in 12th grade. We use 40 miles because it is far enough away that attachments to people and places in the origin neighborhood are likely to be severed but not so far that the sample loses power. Setting the cut-off point at 20 and 30 miles produced substantively identical results.

Based on the work of Bhat and Yinghchieh (2004), we also use three similarities to control for social class segregation, each calculated with Formula 1. Our first measure is the similarity between the individual's 1999 income and the median rent in each of their potential neighborhoods. Because the formula takes the difference between these two variables, we first equalize their units by standardizing both variables to have a mean of zero and a standard deviation of one. This similarity controls for mobility processes driven by the link between income and housing prices because it will capture the extent to which people with above average incomes move to neighborhoods with above average rents and vice versa. The second and third measures also use standardized variables and are interpreted equivalently. They are the similarities between individual income and neighborhood median family income and between the average median family income of the neighborhoods that the person grew up in (in the 8th, 10th, and 12th grade panels) and adult neighborhood median family income. The last variable controls for the intergenerational continuity of social class context (Sharkey, 2008). Segregation on the basis of social class should make the coefficients for these variables positive. Controlling them partially corrects for the conflation of class and race in the estimation of coefficients.

We also control for the number of housing units that are within each ZCTA because there is a greater probability of movers selecting neighborhoods with more housing units. Because this probability will not vary across individuals, we estimate a fixed coefficient (rather than a distribution of coefficients) for this variable (see Train, 2003:152). We also control for the vacancy rate and its square. We expect that as vacancies rise, individuals will initially be more likely to move into the neighborhood, but as they rise further, individuals will be less likely to move to it.

4. Results

4.1. Descriptive statistics

A preliminary understanding of young adults' mobility patterns can be gained from Table 2, which compares the neighborhoods moved to and not moved to by race. Recall that the samples include individuals whose destination ZCTA is in the same MSA as their origin and individuals whose destination ZCTA is in a different MSA. The top of the table provides evidence for an intergenerational transmission of neighborhood percent white from youth to adulthood. Young adult Latinos, for example, live in neighborhoods with a percent white that differs from that of their origin neighborhoods by an average of 17 percentage points. The other neighborhoods in Latinos' MSAs, in contrast, differ from their origin neighborhoods by an average of 31 percentage points. Thus, the neighborhoods that Latinos move to are more like the ones they grew up in than the other neighborhoods they could have moved to. The extent of similarity is the difference in the differences, or (31−17=) 14 percentage points. For African Americans, the continuity in percent white from youth to adult neighborhoods is equally evident. Their actual destination neighborhoods differ from their origin ones by 20 percentage points, while their other

Table 2
Means of characteristics of neighborhoods moved to and not moved to by race and ethnicity.

Variable	Latinos		African Americans		Whites	
	Moved to	Not moved to	Moved to	Not moved to	Moved to	Not moved to
Similarity: %white youth$_n$-adult$_j$ neighborhood (SPWYAN)	−16.8	−30.8	−19.7	−37.9	−14.0	−20.9
Similarity: % white school$_n$-neighborhood$_j$	−16.6	−31.9	−21.7	−38.1	−13.3	−20.1
Neighborhood % white$_j$	42.0	54.4	44.1	66.7	77.1	73.2
Neighborhood % Latino$_j$	40.6	25.5	11.3	11.9	8.4	9.9
Neighborhood % African American$_j$	8.7	10.6	38.7	14.9	8.1	10.8
Similarity: income$_n$ to median rent$_j$ (Z-scores)	−0.7	−0.9	−0.6	−0.9	−0.7	−0.9
Similarity: income$_n$ to median family income$_j$ (Z-scores)	−0.7	−0.9	−0.7	−0.9	−0.7	−0.9
Similarity: median family income youth$_n$-adult$_j$ neighborhoods (Z-scores)	−0.4	−1.0	−0.5	−1.1	−0.6	−0.9
Number of housing units	15,079	10,099	13,858	8306	12,204	7698
% vacant	12.9	13.9	12.5	14.4	14.0	15.8
Neighborhood's distance in miles from origin$_j$						
90th percentile	328.2	204.5	383.0	395.4	777.3	797.3
75th percentile	20.1	38.8	38.1	65.9	139.6	163.3
Median	3.2	20.8	4.2	26.9	11.4	38.1
25th percentile	0.3	11.6	0.4	12.9	1.8	18.8
10th percentile	0.1	6.5	0.1	6.7	0.2	9.9
N	990	131,000	590	78,660	4790	548,890

Note: For the neighborhoods moved to, N is the number of individuals. In the neighborhoods not moved to, it is the sum of all of the neighborhoods options not chosen among the N individuals. Subscripts "n" and "j" indicate individuals and neighborhoods, respectively.

neighborhood options differ by 38 points. For African Americans then, the difference in the differences is 18 percentage points. For whites, the difference in the differences is smaller but still obvious at 7 percentage points.

As the table shows, young adults also select neighborhoods with a percent of white similar to that of their schools, with difference in differences estimates being 15, 16, and 7 for Latinos, African Americans, and whites, respectively. Most adults also move to a neighborhood nearby where they grew up. The median distances between origin and destination neighborhoods for Latinos, African Americans, and whites are 3, 4, and 11 miles, respectively. The median distances to the neighborhoods they did not select are 21, 27, and 38 miles, respectively. Also seen in the table are 10th, 25th, 75th and 90th percentiles of distance. They show that most respondents select among nearby neighborhoods, that whites tend to move longer distances than African Americans and Latinos, and that a minority of respondents live hundreds of miles from their origin neighborhood.

The table also shows that young adult African Americans and Latinos live in neighborhoods that are less "white" (at 42 and 44 percent, respectively) than those of whites (77 percent). Because the percent white in African Americans' and Latinos' neighborhoods are similar, it appears as if the two groups are equally segregated. To see why African Americans are more segregated, it is necessary to also look at their neighborhood options. Latinos choose from neighborhoods averaging 54 percent white and African Americans choose from neighborhoods averaging 67 percent white. Thus, African Americans' destination neighborhoods have far fewer whites than their neighborhood choices. Similarly, percent same-race is much higher in the neighborhoods that African Americans move to (39 percent) than the ones they do not (15 percent) move to. Percent same-race is also higher for Latinos in their chosen neighborhoods (41 vs 26 percent), but the difference is smaller than for African Americans. The difference in percent same-race among whites is even smaller (77 vs 73 percent).

The control variables also appear to capture individual mobility patterns. The difference between Latinos' incomes and the median rent (both transformed to mean = 0 and std = 1) in the neighborhoods they do and do not move to is 0.7 and 0.9, respectively. Thus, their difference in the differences is 0.2. Because all the variables about economic similarity have an underlying standard deviation of about one, a difference of 0.2 is a fifth of a standard deviation, which is large. The difference in the differences for this variable is 0.2 for whites and 0.3 for African Americans. The difference in the differences for the similarity between annual income and median family income is 0.2 for all three groups, but it is larger, at 0.6, 0.6 and 0.3 for Latinos, African Americans, and whites, respectively for the similarity between the median family income in youth and adult neighborhoods.

4.2. Mixed-logit models

4.2.1. Overview

Separate mixed-logit models for whites, African Americans and Latinos are shown in Tables 3–5. Each table shows the means and standard deviations of the distributions of coefficients plus two measures of model fit for five models. All models include the main independent variable, SPWYAN. Model 1 includes only this variable. Model 2 adds the control variables related to social class segregation and housing availability; model 3 adds variables related to spatial assimilation, discrimination, and preferences.

Model 4 adds distance from the original neighborhood. Because model 4 includes all of the exogenous variables, a positive effect of the SPWYAN in this model is interpreted as an estimate of the contextual effect of youth racial compositions on adult ones that is hypothesized by perpetuation theory. We also use model 4 to interpret the estimated effects of other variables because

Table 3
Means and standard deviations of the distributions of coefficients from mixed-logit models predicting neighborhood selection among white young adults.

Number		1	2	3	4	5
Similarity: %white $youth_n$-$adult_j$ neighborhoods (SPWYAN)	$\overline{X}$	0.0155***	0.0223***	0.0381***	0.0116***	0.0063*
	S	0.0000	0.0003	0.0008	0.0011	0.0003
% $white_j$	$\overline{X}$			0.0341+	0.0560*	0.0533*
	S			0.0080	0.0009	0.0035
% $white_j$ squared	$\overline{X}$			−0.0005**	−0.0005*	−0.0005*
	S			0.0000	0.0000	0.0000
High $status_n$ x % $white_j$	$\overline{X}$			0.0374**	0.0346**	0.0331**
	S			0.0157*	0.0055	0.0073
High $status_n$ x % $white_j$ squared	$\overline{X}$			−0.0003***	−0.0003**	−0.0003**
	S			0.0000	0.0000	0.0000
English at $home_n$ x % $white_j$	$\overline{X}$			−0.0117	−0.0096	−0.0126
	S			0.0021	0.0011	0.0022
English at $home_n$ x % $white_j$ squared	$\overline{X}$			0.0002	0.0001	0.0001
	S			0.0000	0.0000	0.0000
Neighborhood's miles from $origin_j$ (nl)	$\overline{X}$				−1.1313***	−1.1299***
	S				0.5838***	0.5839***
Similarity: % white $school_n$-$neighborhood_j$	$\overline{X}$					0.0104***
	S					0.0025
Similarity: $income_n$ to median $rent_j$ (Z-scores)	$\overline{X}$		0.3012***	0.3003***	0.3059***	0.3060***
	S		0.0710	0.0255	0.0181	0.0730
Similarity: $income_n$ to median family $income_j$ (Z-scores)	$\overline{X}$		0.1642***	0.1772***	0.1356**	0.1347**
	S		0.3444**	0.4328***	0.3435***	0.3533***
Similarity: median family income $youth_n$-$adult_j$ Neighborhoods (Z-scores)	$\overline{X}$		0.8521***	0.8217***	0.1049**	0.1117**
	S		0.9098***	0.9391***	0.0245	0.0833
Number of housing $units_j$			0.0001***	0.0001***	0.0001***	0.0001***
% $vacant_j$	$\overline{X}$		0.1092***	0.0913***	0.0309*	0.0290*
	S		0.0055	0.0168	0.0019	0.0001
% $vacant_j$ squared	$\overline{X}$		−0.0039***	−0.0032***	−0.0013***	−0.0013***
	S		0.0013***	0.0010***	0.0005*	0.0004*
(R) 2 * (LogL−LogL0)		287.0	4567.1	4847.2	11294.1	11312.1
(R/U) McFaddin's LRI		0.01	0.11	0.12	0.27	0.27

*, **, and *** indicate $p < 0.05$, 0.01, and 0.001 on two-tailed tests, respectively. + indicates $p < 0.05$ on a one-tailed test, which is only used when the coefficient is in the expected direction and it is not significant on a two-tailed test. Subscripts “n” and “j” indicate individuals and neighborhoods, respectively.

distance is the best predictor of neighborhood selection in our models, suggesting that an inheritance of place and place attachments exert powerful forces on neighborhood attainment.[5] If distance is not controlled, the coefficients for variables related to it will be biased. Distance explains between 59 and 70 percent of the mean of the coefficients for of the SPWYAN estimated in model 3 (and between 79 and over 100 percent of the similarity of median family income between youth and adult neighborhoods [Sharkey, 2008]).[6] Model 5 adds the similarity in percent white between schools and neighborhoods, which is an endogenous explanation for the contextual effect posited by perpetuation theory. We also used a model which combined the samples of whites, African Americans and Latinos and added interaction terms between race and all the independent variables (except the controls) to check the statistical significance of racial differences in slopes (not shown).

Before examining the results for each group, we will briefly summarize the findings about the control variables in model 4. The results vary by racial group, but there is evidence that all of the control variables are important. For example, the positive coefficient for the similarity between individual income and neighborhood median rent is positive and significant for whites, African Americans and Latinos. The positive coefficient indicates that those with above average incomes tend to move to neighborhoods with above average median rents and vice versa. For whites, the magnitude of the coefficient indicates that a one unit increase in this similarity results in individuals being (exp 0.3012 =) 1.35 times more likely to move to it, which is highly significant (as it is for Latinos and African Americans as well). The coefficients also show that all three groups tend to move to neighborhoods where their individual income is similar to the median family income and that whites and Latinos (but not African Americans) tend to move to neighborhoods with greater similarity between the median family income of

[5] When distance is added in model 4, R, which can be interpreted as a χ^2 statistic with *df* equal to the difference in the number of parameters in the model shown and a model with only the intercept, almost doubles for African Americans and more than doubles for whites and Latinos (in comparison to model 3). The same is true for R/U, the proportion of variance explained.

[6] In linear regression, estimates of coefficients depend solely upon the correlations among the variables, allowing researchers to discuss changes to coefficients as being “explained” or “suppressed” by other independent variables. As Train (2003:44–45) shows, estimated coefficients in mixed-logit models (as well as some other non-linear models) take the form of $B = B^*/\sigma$, where σ is the scale of the variance of unobserved factors affecting utility and B^* is the coefficient which is only influenced by the correlations among the variables. B is identified, but B^* and σ are not. To examine changes to B^*, he proposes looking at changes to ratios of B_i/B_j because these ratios cancel out σ. We looked at changes to the ratio between the B for SPWYAN to the B for housing units because the latter has low correlations with the other variables. We find that the percentage change to these ratios in models 2–4 are very similar to the percentage changes in SPWYAN reported in the paper, giving us additional confidence that the latter changes result primarily from the correlations among the variables.

youth and adult neighborhoods. In addition, all three groups tend to select neighborhoods with more housing units, and whites' and Latinos' neighborhood selections vary significantly with neighborhood vacancy rates. Thus, the findings for the control variables confirm the importance of social class segregation and housing availability in neighborhood selection. We now review the results related to race and ethnicity that are of greater interest in this particular study.

4.2.2. Whites

Means and standard deviations from the mixed-logit models for whites, displayed in Table 3, show that white young adults frequently move to neighborhoods with a percent white like that of their origin neighborhoods—as indicated by positive mean coefficient for the SPWYAN in all five models. The coefficient is larger (0.0223) in model 2 than model 1 (0.0155), indicating that the control variables suppress it. (We discuss magnitude below). Model 3 shows that holding constant the variables about percent white, its square, and its interactions with capital also suppress the mean value of the coefficients for the SPWYAN. These neighborhood characteristics, which we explain in more detail below, suppress the SPWYAN because their effects result in many whites moving to neighborhoods that have a different percent white than those of their origin neighborhood. In model 4, which adds the variable distance, the mean of the coefficients for the main variable declines 70 percent to 0.0116 (from 0.0381 in model 3), so it is clear that the tendency for many young adults to live in neighborhoods nearby where they grew up plus the clustering of neighborhoods with similar racial compositions in MSAs accounts for much the SPWYAN. The distance variable has a negative mean (indicating that many people move to neighborhoods that are nearby) and a significant standard deviation (indicating that people vary in how much they stay nearby). The estimates indicate that the mean of the coefficients is ($-1.17/0.50 =$) -2.3 standard deviations below zero, which in a normal distribution, makes distance negative for 98 percent of whites, although more negative for some than for others. Still, the mean of the SPWYAN remains positive holding constant distance and other factors, suggesting a contextual effect of neighborhood percent white in youth on neighborhood selection in young adulthood, as predicted by perpetuation theory.

The main conclusions to draw from models 1–4 are that the effect of the SPWYAN for whites is not due to housing availability, social class segregation, same-race preferences, or spatial assimilation. In total, these processes suppress the effect of SPWYAN for whites. About 70 percent of the effect of similarity in percent white results from many people living in neighborhoods nearby where they grew up. The rest of it appears to be a contextual effect from the racial compositions experienced in youth. The results in model 5 show that white young adults also tend to move to neighborhoods with a racial composition like that of the schools they attended (0.0104) and that adding this variable explains an additional portion of the SPWYAN, as seen by the smaller magnitude of its mean coefficient (0.0063).

While same-race preferences and spatial assimilation do not account for the SPWYAN, they appear to exert powerful influences on whites' neighborhood selection. Model 4 shows significant effects for the linear and squared terms for percent white and their interactions with status but not with English language background. None of the standard deviations for those variables are significant either, indicating that their effects do not vary significantly among whites. These coefficients indicate that other things equal, as neighborhood percent white increases, whites' odds of moving to it follows an inverted U-shaped relationship that is more peaked for high- than low-status whites. (See the Appendix for a visual representation of this relationship.) For low status whites, the odds peak at ($-a/2^*b = 0.0560/(2 * -0.0005) =$) 59 percent white, where their odds of moving to the neighborhood are (exp ($0.0560 * 55\% - 0.0005 * 55\%2$) =) 5.3 times greater than their odds of moving to a neighborhood with no whites. While the odds of picking the neighborhood decline after this percentage, whites are still 1.7 times more likely to move to a neighborhood that is 100 percent white than to one that is zero percent white. For high-status whites, the curve also peaks at 59 percent white, but the odds ratio at this peak is larger, at 14.8. At 100 percent white, the odds ratio for high status whites is 4.3.

4.2.3. African Americans

The results of the mixed-logit models for African Americans are shown in Table 4. Again, we find consistent evidence of African Americans moving to neighborhoods with a percent white like the ones of their origin, as seen by the positive means for the SPWYAN.[7] The unconditional estimate of the mean for the SPWYAN in model 1 is significantly greater for African Americans than for whites (0.0516 v 0.0155). However, unlike for whites, part of the effect of SPWYAN is explained by social class segregation and housing availability (Model 2) and by the variables about percent African American, percent white, and the interactions with capital (Model 3). In Model 4, which adds the variable about distance, the estimated effect of SPWYAN is 59 percent smaller than in model 3 and is similar in magnitude to the one in model 4 for whites (0.0135 vs 0.0116). Because it is significant, it further suggests a contextual effect from racial compositions experienced in youth. Model 5 also shows that part of the reason that African Americans select neighborhoods with a percent white like those of their youth is because they also move to neighborhoods with a percent white like that of their schools.

Model 4 also shows that most African Americans live in neighborhoods nearby where they used to live (as seen by the positive mean for distance in model 4), but this tendency is stronger for some African Americans than others (as seen by the significant standard deviation). The mean is -1.96 standard deviations below zero, indicating that 95% of African Americans prefer nearby neighborhoods over far away ones. The model also shows a positive mean for percent African American, a

[7] The standard deviations for SPWYAN are positive in models 1–3, but they lose significance in model 4. This suggests that they were a function of distance moved.

Table 4
Means and standard deviations of the distributions of coefficients from mixed-logit models predicting neighborhood selection among African American young adults.

Variable		1	2	3	4	5
Similarity: %white youth$_n$-adult$_j$ neighborhoods (SPWYAN)	$\overline{X}$	0.0516***	0.0374***	0.0327***	0.0135**	0.0083+
	S	0.0482***	0.0417***	0.0264**	0.0009	0.0005
% African American$_j$	$\overline{X}$			0.0490***	0.0423**	0.0411**
	S			0.0019	0.0047	0.0001
% African American$_j$ squared	$\overline{X}$			−0.0003**	−0.0003*	−0.0003*
	S			0.0002**	0.0003**	0.0003***
% white$_j$	$\overline{X}$			0.0164	0.0202	0.0192
	S			0.0001	0.0013	0.0011
% white$_j$ squared	$\overline{X}$			−0.0003	−0.0002	−0.0002
	S			0.0000	0.0000	0.0000
High Status$_n$ x % white$_j$	$\overline{X}$			0.0145	0.0198	0.0132
	S			0.0062	0.0033	0.0028
High Status$_n$ x % white$_j$ squared	$\overline{X}$			−0.0001	−0.0002	−0.0001
	S			0.0000	0.0000	0.0000
English at home$_n$ x % white$_j$	$\overline{X}$			−0.0166	−0.0087	−0.0077
	S			0.0004	0.0025	0.0008
English at home$_n$ x % white$_j$ squared	$\overline{X}$			0.0001	0.0000	0.0000
	S			0.0000	0.0000	0.0000
Neighborhood's miles from origin$_j$ (nl)	$\overline{X}$				−1.1398***	−1.1365***
	S				0.5804***	0.5873***
Similarity: % white school$_n$-neighborhood$_j$	$\overline{X}$					0.0102*
	S					0.0093
Similarity: income$_n$ to median rent$_j$ (Z-scores)	$\overline{X}$		0.5764***	0.5248**	0.4787*	0.4355*
	S		0.0131	0.3369	0.4885*	0.0012
Similarity: income$_n$ to median family income$_j$ (Z-scores)	$\overline{X}$		0.0496	0.3607*	0.4099*	0.3893*
	S		0.0117	0.0594	0.0222	0.0702
Similarity: median family income youth$_n$-adult$_j$ Neighborhoods (Z-scores)	$\overline{X}$		0.8182***	0.7386***	−0.0453	−0.0773
	S		0.0334	0.8626**	0.2366	0.0526
Number of housing units$_j$			0.0001***	0.0001***	0.0001***	0.0001***
% vacant$_j$	$\overline{X}$		0.0341	0.0514	0.0198	0.0067
	S		0.0013	0.0301	0.0187	0.0026
% vacant$_j$ squared	$\overline{X}$		−0.0021	−0.0024	−0.0010	−0.0006
	S		0.0008	0.0008	0.0004	0.0002
(R) 2 * (LogL−LogL0)		407.1	880.7	1122.1	1967.5	1973.3
(R/U) McFaddin's LRI		0.08	0.16	0.21	0.37	0.37

*, **, and *** indicate $p < 0.05$, 0.01, and 0.001 on two-tailed tests, respectively. + indicates $p < 0.05$ on a one-tailed test, which is only used when the coefficient is in the expected direction and it is not significant on a two-tailed test. Subscripts “n” and “j” indicate individuals and neighborhoods, respectively.

negative mean for its squared term, and a significant standard deviation of the squared term. (A visual depiction of these results is available in the Appendix.) At the mean of the coefficients, the odds ratios follow an inverted U-shaped pattern that peaks at 63 percent African American, with African Americans being 3.8 times more likely to select these neighborhoods than ones that are zero percent African American. At 100 percent African American, the odds ratio for the mean coefficient declines to 2.4. At one standard deviation above the mean of the squared term, the odds ratios rise at an increasing rate through the entire range of percent African American. At one standard deviation below the mean, there is an inverted U-shaped curve that peaks at 33 percent African American and is actually negative after 76 percent African American. In contrast to the complex effects of percent African American, none of the coefficients for percent white are significant, including the interactions. This means that African Americans, unlike whites, are unable to translate greater capital into the more preferable neighborhoods where many whites reside, possibly due to discrimination.

4.2.4. *Latinos*

Table 5 contains the results from the mixed-logit models for Latinos. As with African Americans and whites, the means for the SPWYAN are positive in all five models. The estimated mean in Model 1 for Latinos is similar to the one for African Americans and larger than the one for whites (0.0408, 0.0516, and 0.0155, respectively). It is partially explained by mobility patterns created by social class segregation and housing availability (model 2), as it is for African Americans, but it is suppressed by the variables about percent same race, percent white, and its interactions with capital (model 3), as it is for whites. In model 4, when distance is added, the mean coefficient for SPWYAN is 60 percent smaller than in model 3 and its magnitude (0.0141) is similar to that of the ones for whites (0.0116) and African Americans (0.0135). It also remains significant, suggesting a contextual effect from neighborhood compositions in youth. The significant coefficient for the similarity in percent white between schools and neighborhoods in Model 5 shows that Latinos live in neighborhoods with a similar percent white as that in their origin neighborhoods in part because they also live in neighborhoods with a similar percent white as that of their schools.

Model 4 also shows that Latinos are less likely to live in a neighborhood as its distance from their origin neighborhood increases (as shown by the negative mean coefficient), but this tendency is much stronger for some Latinos than others (as

Table 5
Means and standard deviations of the distributions of coefficients from mixed-logit models predicting neighborhood selection among latino young adults.

Variable		1	2	3	4	5
Similarity: %white youth$_n$-adult$_j$ neighborhoods (SPWYAN)	$\overline{X}$	0.0408***	0.0255***	0.0351***	0.0141***	0.0082+
	S	0.0162*	0.0142	0.0095	0.0002	0.0018
% Latino/a$_j$	$\overline{X}$			0.0466***	0.0203*	0.0196+
	S			0.0158	0.0016	0.0011
% Latino/a$_j$ squared	$\overline{X}$			−0.0002**	−0.0001	−0.0001
	S			0.0000	0.0000	0.0000
% white$_j$	$\overline{X}$			−0.0001	0.0272*	0.0296*
	S			0.0197	0.0049	0.0129
% white$_j$ squared	$\overline{X}$			−0.0002	−0.0004**	−0.0004**
	S			0.0001	0.0000	0.0000
High Status$_n$ x % white$_j$	$\overline{X}$			0.0164	0.0085	0.0086
	S			0.0216	0.0087	0.0081
High Status$_n$ x % white$_{j\ \text{squared}}$	$\overline{X}$			−0.0001	0.0000	0.0000
	S			0.0000	0.0000	0.0000
English at home$_n$ x % white$_j$	$\overline{X}$			0.0200	0.0161	0.0127
	S			0.0135	0.0143	0.0114
English at home$_n$ x % white$_j$ squared	$\overline{X}$			−0.0001	0.0000	0.0000
	S			0.0001	0.0000	0.0000
Neighborhood's miles from origin$_j$ (nl)	$\overline{X}$				−1.2182***	−1.2218***
	S				0.4792***	0.4849***
Similarity: % white school$_n$-neighborhood$_j$	$\overline{X}$					0.0108*
	S					0.0017
Similarity: income$_n$ to median rent$_j$ (Z-scores)	$\overline{X}$		0.4947***	0.2437+	0.2570+	0.2681+
	S		0.0159	0.1343	0.1200	0.1984
Similarity: income$_n$ to median family income$_j$ (Z-scores)	$\overline{X}$		0.2066*	0.6478***	0.5945***	0.5656***
	S		0.0086	0.0973	0.5202	0.5024
Similarity: median family income youth$_n$-adult$_j$ Neighborhoods (Z-scores)	$\overline{X}$		1.1026***	1.3087***	0.2716*	0.2256+
	S		0.0120	1.2782***	0.3688	0.1499
Number of housing units$_j$			0.0001***	0.0001***	0.0001***	0.0001***
% vacant$_j$	$\overline{X}$		0.1670**	0.1936**	0.0896*	0.0346
	S		0.0462	0.0270	0.0465	0.0015
% vacant$_j$ squared	$\overline{X}$		−0.0059*	−0.0069**	−0.0034*	−0.0013
	S		0.0017	0.0022**	0.0010	0.0004
(R) 2 * (LogL−LogL0)		375.0	1201.0	1469.0	3539.9	3545.8
(R/U) McFadden's LRI		0.04	0.13	0.16	0.40	0.40

*, **, and *** indicate $p < 0.05$, 0.01, and 0.001 on two-tailed tests, respectively. + indicates $p < 0.05$ on a one-tailed test, which is only used when the coefficient is in the expected direction and it is not significant on a two-tailed test. Subscripts "n" and "j" indicate individuals and neighborhoods, respectively.

shown by the significant standard deviation). The mean for the distance coefficients is −2.5 standard deviations below zero, indicating that 99 percent of Latinos are more likely to move to nearby neighborhoods than far away ones, although distance is more important for some Latinos than others. The only significant mean for percent Latino in Model 4 is the linear term, indicating that Latinos are more likely to move to neighborhoods as its percent Latino increases (see Appendix). The model also shows a positive mean for percent white and a negative mean for its square. These coefficients form an inverted U-shaped relationship where Latinos become more likely to move to a neighborhood as its percent white rises up to 38 percent. After that, Latinos become less likely to move to the neighborhood. The effect becomes negative at 76 percent white, indicating that Latinos are more likely to move to neighborhoods with zero percent white than to neighborhoods over 76 percent white (see Appendix). This tendency is not significantly different for Latinos that are of high status or that spoke English at home, suggesting that Latinos are also unable to translate their capital into residential attainment in "whiter" neighborhoods.

4.2.5. Magnitude of the effect of SPWYANs

In Fig. 2, we illustrate the estimated magnitude of the effect of SPWYANs. The estimates are from model 4 of Tables 3–5, which provide separate estimates by race and, to the extent possible, net of the influence of in-group preferences, discrimination, spatial assimilation, distance, social class segregation and housing availability. As seen there, the odds of a person selecting a ZCTA increase as the similarity to the youth neighborhood increases. Relative to a neighborhood with the same percent white as the ones from youth (which is 1/1 on the horizontal axis), the odds of selecting a neighborhood that differs by 24.7%, which is one standard deviation, are one over 1.3, 1.4 and 1.4 for whites, African Americans and Latinos, in order. For a difference in 49.3% (two standard deviations), the odds are one over 1.8, 2.0 and 2.0, respectively.

4.2.6. Additional analyses

The models discussed above control for distance from the origin neighborhood, but it is important to test whether or not the effect of SPWYAN is significant for young adults that live short- and long-distances from their origin. At long-distances, the effect of SPWYAN is likely to be weaker but not completely absent because people that move long-distances are likely to have fewer social ties (even weak ones) in their new MSA, weakening one of the causal mechanisms of perpetuation theory. The effect SPWYAN at long distances will only be that part arising from the other two mechanisms (attitudes and social skills/knowledge).

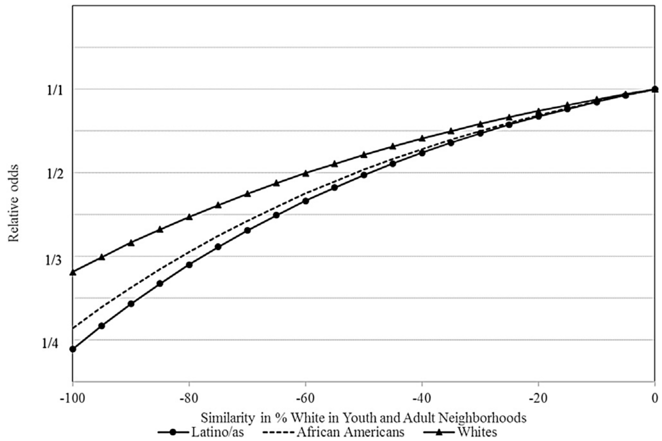


Fig. 2. Predicted Odds of Moving to a Neighborhood for Latinos, Whites, and African Americans Plotted Against the Similarity in Percent White Between Youth and Adult Neighborhoods. Note: Estimates are calculated from Model 4 in Tables 3–5. The slopes are not significantly different.

Table 6 presents the results of models for young adults living short- and long-distances from their origin. Long-distance movers are young adults about age 26 who live in an MSA where every ZCTA is at least 40 miles from their ZCTA of residence in the twelfth grade. Short-distance movers are everyone else. The models include members from the three racial groups and the variables and interactions (that were significant in preliminary analyses) necessary to capture the effects modeled in Tables 3–5. Two models are shown per group, where the second adds the similarity in percent white between schools and neighborhoods.

As seen in the table, the effect of SPWYAN is significant in the first model for both groups. As expected, the estimated coefficient is larger for short-distance movers, but its significance for long-distance movers provides additional evidence for a contextual effect of SPWYAN because it is unlikely to be confounded with the effects of local attachments or inheritance of place. The second model for each group shows that the similarity in percent white between schools and neighborhoods accounts for part of the effect of SPWYAN for short- and long-distance movers, further suggesting that racial compositions in other institutions are part of the reason why there are contextual effects from neighborhood racial compositions in youth.

5. Discussion

This study uses mixed-logit models and data from the National Educational Longitudinal Study and the Census to understand the intergenerational transmission of neighborhood racial context. The findings show that many white, African American, and Latino young adults live in neighborhoods with a percentage white that is more similar to that of their origin neighborhoods than the other neighborhoods they could have moved to. The results suggest that this continuity in racial contexts is driven by many young adults living nearby where they grew up and by contextual effects of youth racial compositions on neighborhood selection in adulthood.

Previous research has suggested that part of the continuity of neighborhood racial composition can be attributed to preferences for predominantly same-race neighborhoods, racial discrimination, and spatial assimilation (Crowder et al., 2006; Sharkey, 2008). This study's findings indicate that at the microlevel of individual mobility processes, these theoretical concepts can account for little of this continuity among African Americans and they suppress it among whites and Latinos. The inability of these commonly used theories of segregation to explain the continuity of racial contexts is surprising because they have been central to the discussion of residential attainment for decades and researchers rarely discuss how other social processes contribute to racial residential segregation. In this study, we have tried to capture some of these other processes with perpetuation theory. Future research should attempt to replicate our findings with other data sets, especially ones containing a larger age range.

However, this does not mean that preferences, discrimination, and spatial mobility are unimportant in understanding residential attainment. Like others, we find that the residential attainment of all groups is associated with same-race preferences. Here, we are able to show this influence net of factors associated with social class segregation and housing availability. Consistent with other studies (see Charles, 2003 for a review), the evidence here also indicates that whites, but not African Americans and Latinos, translate their human and economic capital into housing in predominantly white neighborhoods. Theories of racial residential segregation, such as the spatial assimilation and the place stratification models, assume that neighborhoods with higher percentages of whites have better amenities or institutions and are of higher quality. If this is so, then the inability of African Americans and Latinos to use their capital to establish residence in these neighborhoods may result from discrimination.

It is important to note that it was the DCA method which allowed us to discover that discrimination, preferences, spatial assimilation, and housing availability sometimes suppress (rather than explain) the similarity in percent white in youth and adult neighborhoods. Because the method allows for the examination of multiple characteristics of individuals' neighborhood

Table 6
Means and standard deviations of the distributions of coefficients from mixed-logit models predicting neighborhood selection among adults that live a short and a long distance from their twelfth grade neighborhood.

Variable		Less than 40 miles		Greater than 40 miles	
Similarity: %white youth$_n$-adult$_j$ neighborhoods (SPWYAN)	$\overline{X}$	0.0174***	0.0110***	0.0081**	0.0052
	S	0.0008	0.0037	0.0004	0.0003
% white$_j$	$\overline{X}$	0.0309+	0.0272	0.1061***	0.1128***
	S	0.0068	0.0080	0.0009	0.0009
% white$_j$ squared	$\overline{X}$	−0.0003+	−0.0003+	−0.0009***	−0.0010***
	S	0.0001	0.0001	0.0000	0.0000
% white$_j$ * African American$_n$	$\overline{X}$	−0.0279	−0.0231	−0.0572*	−0.0652*
	S	0.0012	0.0003	0.0012	0.0012
% white$_j$ squared * African American$_n$	$\overline{X}$	0.0001	0.0001	0.0003	0.0004
	S	0.0000	0.0000	0.0000	0.0000
% white$_j$ * Latino/a$_n$	$\overline{X}$	−0.0177	−0.0104	−0.0313	−0.0291
	S	0.0047	0.0071	0.0016	0.0136
% white$_j$ squared * Latino/a$_n$	$\overline{X}$	0.0001	0.0001	0.0002	0.0001
	S	0.0000	0.0001	0.0000	0.0000
% African American$_j$ * African American$_n$	$\overline{X}$	0.0480**	0.0469**	0.0522+	0.0465
	S	0.0012	0.0013	0.0027	0.0047
% African American$_j$ squared * African American$_n$	$\overline{X}$	−0.0004*	−0.0003*	−0.0006	−0.0005
	S	0.0004***	0.0004***	0.0003	0.0001
% Latino/a$_j$ * Latino/a$_n$	$\overline{X}$	0.0300**	0.0292*	0.0152	0.0097
	S	0.0058	0.0063	0.0189	0.0023
% Latino/a$_j$ squared * Latino/a$_n$	$\overline{X}$	−0.0002	−0.0001	−0.0001	0.0000
	S	0.0000	0.0000	0.0002	0.0001
High Status$_n$ x % white$_j$	$\overline{X}$	0.0306**	0.0292**	0.0083	0.0095
	S	0.0009	0.0033	0.0022	0.0099
High Status$_n$ x % white$_j$ squared	$\overline{X}$	−0.0002**	−0.0002**	0.0000	−0.0001
	S	0.0001*	0.0001**	0.0000	0.0000
English at home$_n$ x % white$_j$	$\overline{X}$	0.0114	0.0084	−0.0237	−0.0248
	S	0.0024	0.0018	0.0018	0.0042
English at home$_n$ x % white$_j$ squared	$\overline{X}$	0.0000	0.0000	0.0002	0.0002
	S	0.0000	0.0000	0.0000	0.0000
Neighborhood's miles from origin$_j$ (nl)	$\overline{X}$	−1.1208***	−1.1209***	−1.1421*	−1.1279*
	S	0.4981***	0.4966***	0.0890	0.0596
Similarity: % white school$_n$-neighborhood$_j$	$\overline{X}$		0.0141***		0.0063+
	S		0.0007		0.0153*
Similarity: income$_n$ to median rent$_j$ (Z-scores)	$\overline{X}$	0.2655***	0.2567***	0.2987***	0.3400***
	S	0.0620	0.0713	0.1102	0.3052
Similarity: income$_n$ to median family income$_j$ (Z-scores)	$\overline{X}$	0.3021***	0.2968***	0.1263*	0.1137+
	S	0.3011*	0.3267**	0.2869+	0.2395
Similarity: median family income youth$_n$-adult$_j$ neighborhoods (Z-scores)	$\overline{X}$	0.2114***	0.2011***	−0.0477	−0.0490
	S	0.2263	0.1136	0.2935+	0.2546
Number of housing units$_j$		0.0001***	0.0001***	0.0001***	0.0001***
% vacant$_j$	$\overline{X}$	0.0310**	0.0282*	0.2238***	0.2349***
	S	0.0020	0.0032	0.0089	0.0311
% vacant$_j$ squared	$\overline{X}$	−0.0010***	−0.0009***	−0.0096***	−0.0100***
	S	0.0003	0.0002	0.0029***	0.0031***
(R) 2 * (LogL−LogL0)		14854.5	14884.8	2186.7	2200.6
(R/U) McFaddin's LRI		0.37	0.37	0.14	0.14
Number of people		4520	4520	1850	1850
Number of neighborhoods		552,776	552,776	215,908	215,908

*, **, and *** indicate $p < 0.05$, 0.01, and 0.001 on two-tailed tests, respectively. + indicates $p < 0.05$ on a one-tailed test, which is only used when the coefficient is in the expected direction and it is not significant on a two-tailed test. Subscripts "n" and "j" indicate individuals and neighborhoods, respectively.

options, we could identify which factors explain and which suppress this continuity of racial contexts in youth and adult neighborhoods (see footnote 6). For example, we find that white young adults are more likely to move to neighborhoods that are about 60 percent white than to neighborhoods with a higher percentage of whites (and especially than to ones with a lower percentage). This results in many whites moving to neighborhoods with relatively fewer whites than the ones they grew up in, which averaged 87 percent white. Regression models predicting a single characteristic of destination neighborhoods cannot examine the influence of multiple characteristics of neighborhoods simultaneously. The mixed-logit model, in comparison to conditional-logit models, was also beneficial because it allowed the effects of neighborhood characteristics to vary across individuals. For example, we find that the percent African American in neighborhoods has variable effects on African Americans, with some African Americans likely to move to predominantly African American neighborhoods and some unlikely to do so. In the future, researchers should investigate the source of this variation.

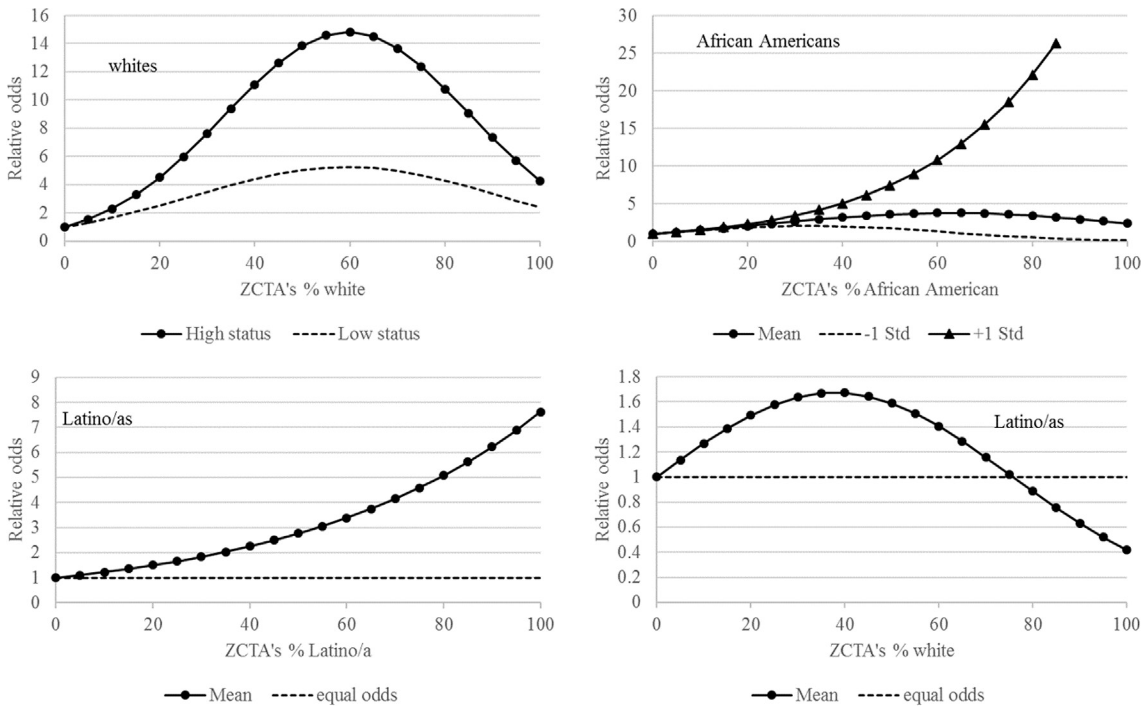
We also find that distance, a rarely discussed variable in the literature on racial residential segregation, is the best predictor of destination neighborhoods among young adults. Many white, African American and Latino young adults live in a neighborhood near their parental homes, and because of the way that neighborhoods with similar racial compositions cluster together, these short migrations rarely alter an individual's racial context. Judging by the changes in the magnitudes of the coefficients, between 60 and 70 percent of the similarity in percent white between youth and young adult neighborhoods is explained by distance (but see note 6). Distance is probably so important because individuals develop strong social and emotional attachments to the people and places where they grew up (Cuba and Hummom, 1993).

According to the results, the effect of distance also varies considerably across individuals. Because distance plays such a large role in residential attainment, learning more about this variation will be important for policy. What leads some people to move far away? It may be that the quality local attachments to people and places and a shortage of resources (e.g., among the poor) may compel people to not move far. Motivations to move longer distances may include social and economic opportunities in other places and undesirable characteristics of the home neighborhood, such as violence, pollution, or stigmatized populations.

Most importantly, this study finds that whites, African Americans and Latinos move to neighborhoods with a percent white more like the ones they grew up in than the other neighborhoods in their MSA. We find evidence of this continuity holding constant other neighborhood and individual characteristics related to mobility, including the distance from where they grew up and for separate samples of whites, African Americans, Latinos, and young adults that live a short- and long-distance from their origin. The robustness and consistency of these findings suggest that racial compositions in neighborhoods during youth have contextual effects that lead adults to move to neighborhoods with similar racial compositions in adulthood, as perpetuation theory predicts. Equally important, we find that part of the neighborhood effect from racial compositions can be explained by a school effect from racial compositions, adding further support for perpetuation theory.

A racial composition effect was detected years ago by researchers studying school desegregation (Braddock, 1980; Braddock and McPartland, 1989). Their initial efforts have been expanded upon in recent years (Goldsmith, 2010, 2016; Gamoran et al., 2016; Stearns, 2010; Wells and Crain, 1994). Evidence of neighborhood effects from racial compositions during youth are also apparent in Gautreaux and Moving to Opportunity, two well-studied quasi-experimental housing voucher programs (Keels et al., 2005; Sanbonmatsu et al., 2011). Hence, our study provides additional support for perpetuation theory's prediction that the racial composition of *neighborhoods and schools* during youth will influence the types of neighborhoods they live in as adults. These neighborhood and school effects from racial compositions suggest that the many policies that influence youth integration may have long-term effects that perpetuate integration into adulthood. These include programs that attempt to increase the availability of low-income housing in mixed-income neighborhoods, school-desegregation plans, affirmative action programs in colleges and universities, housing voucher programs like Section 8, and neighborhood revitalization programs. Youth that grow up in more integrated racial contexts as a result of these programs are likely to benefit in the long run by living in more integrated neighborhoods in adulthood.

Appendix. Predicted Odds for Latinos, Whites, and African Americans Moving to Neighborhoods Plotted Against Selected Neighborhood Characteristics



Note: Estimates are calculated from Model 4 of Tables 3–5.

References

Alba, Richard D., Logan, John R., 1993. Minority proximity to whites in suburbs: an individual-level analysis of segregation. Am. J. Sociol. 98, 1388–1427.
Allison, Paul D., 1999. Logistic Regression Using SAS: Theory and Application. SAS Institute Inc, Cary, NC.
Allport, Gordon W., 1954. The Nature of Prejudice. Addison-Wesley, Cambridge, MA.
Anderson, Elijah, 1999. Code of the Street: Violence and the Moral Life of the Inner City. WW Norton, New York.
Bhat, Chandra, Guo, Jessica Yinghchieh, 2004. A mixed spatially correlated logit model: formulation and application to residential choice modeling. Transp. Res. Part B Methodol. 38, 147–168.
Bonilla-Silva, Eduardo, Goar, Carla, Embrick, David G., 2006. When whites flock together: the social psychology of white habitus. Crit. Sociol. 32, 229–253.
Braddock II, Jomills Henry, 1980. The perpetuation of segregation across levels of education: a behavioral assessment of the contact hypothesis. Sociol. Educ. 53, 178–186.
Braddock II, Jomills Henry, McPartland, James M., 1989. Social-psychological processes that perpetuate racial segregation: the relationship between school and employment desegregation. J. Afr. Am. Stud. 19, 267–289.
Britton, Marcus, Goldsmith, Pat Rubio, 2013. Keeping people in their place: the perpetuation of residential segregation from youth to young adulthood among anglo, black, and latino Americans. Urban Stud. 50 (14), 2886–2903.
Bruch, Elizabeth E., Mare, Robert, 2012. Methodological issues in the analyses of residential preferences, residential mobility, and neighborhood change. Sociol. Methodol. 42, 103–154.
Charles, Camille Zubrinsky, 2003. The dynamics of racial residential segregation. Annu. Rev. Sociol. 29, 167–207.
Charles, Camille, 2006. Won't You Be My Neighbor?Race, Class and Residence in Los Angeles.New York. Russell Sage.
Crowder, Kyle, South, Scott J., Chavez, Erick, 2006. Wealth, race, and inter-neighborhood migration. Am. Sociol. Rev. 71, 72–94.
Crowder, Kyle, Pais, Jeremy, South, Scott J., 2012. Neighborhood diversity, metropolitan constraints, and household migration. Am. Sociol. Rev. 77 (3), 325–353.
Cuba, L., Hummom, D.M., 1993. A place to call home: identification with dwelling, community, and region. Sociol. Q. 34, 111–131.
Deng, Yongheng, Ross, Stephen L., Wachter, Susan M., 2003. Racial differences in homeownership: the effect of residential location. Regional Sci. Urban Econ. 33, 517–556.
Dixon, Jeffrey C., 2006. Ties that bind and those that don't: toward reconciling group threat and contact theories of prejudice. Soc. Forces 84 (4), 2179–2204.
Eaton, Susan F., 2001. The Other Boston Busing Story: What's Won and Lost across the Boundary Line. Yale University Press, New Haven, CT.
Feagin, Joe, 2006. Systemic Racism: a Theory of Oppression. Routledge, New York.
Fossett, Mark, 2006. Ethnic preferences, social distance dynamics, and residential segregation: theoretical explorations using simulation analysis. J. Math. Sociol. 30, 185–274.
Frey, William H., 2012. New Racial Segregation Measures for Large Metropolitan Areas: Analysis of the 1990-2010 Decennial Censuses. Population Studies Center, University of Michigan.
Gabriel, Stuart A., Rosenthal, Stuart S., 1989. Household location and race: estimates of a multinomial logit model. Rev. Econ. Statistics 17, 240–249.
Gamoran, Adam, Barfels, Sarah, Collares, Ana Cristina, 2016. Does racial isolation in school lead to long-term disadvantages? labor market consequences of high school racial composition. Am. J. Sociol. 121 (4), 1116–1167.
Gieryn, Thomas F., 2000. A place for space in sociology. Annu. Rev. Sociol. 26, 463–496.
Goldsmith, Pat António, 2004. Schools' role in shaping race relations: evidence on friendliness and conflict. Soc. Probl. 51 (4), 587–612.
Goldsmith, Pat Rubio, 2010. Learning apart, living apart: how the racial and ethnic segregation of schools and colleges perpetuates residential segregation. Teach. Coll. Rec. 112 (6), 1602–1630.
Goldsmith, Pat Rubio, 2016. Perpetuation theory and the racial segregation of young adults. Soc. Sci. Res. 56, 1–15.
Granovetter, Mark, 1986. The micro-structure of school desegregation. In: Prager, Jeffrey, Longshore, Douglas, Seeman, Melvin (Eds.), School Desegregation Research: New Directions in Situational Analysis. Plenum, New York, pp. 81–110.
Ihlanfeldt, Keith R., Scafidi, Benjamin, 2002. Black self segregation as a cause of housing segregation: evidence from the multi-city study of urban inequality. J. Urban Econ. 51 (2), 366–390.
Kan, Kamhon, 2007. Residential mobility and social capital. J. Urban Econ. 61, 436–457.
Keels, Micere, Duncan, Greg J., Stefanie, DeLuca, Ruby, Mendenhall, James, Rosenbaum, 2005. Fifteen years later: can residential mobility programs provide a long-term escape from neighborhood segregation, crime, and poverty. Demography 42 (1), 51–73.
Keels, Micere, Duncan, Greg J., DeLuca, Stefanie, Mendenhall, Ruby, Rosenbaum, James, 2006. Fifteen years later: can residential mobility programs provide a long-term escape from neighborhood segregation, crime, and poverty. Demography 42 (1), 51–73.
Krysan, Maria, 2007. Does race matter in the search for housing? an exploratory study of search strategies, experiences, and locations. Soc. Sci. Res. 37, 581–603.
Lacy, Karyn, 2007. Blue Chip Black: Race, Class, and Status in the New Black Middle Class. University of California Press.
Logan, John R., Alba, Richard, 1993. Locational returns to human capital: minority access to suburban communities. Demography 30 (2), 243–268.
Massey, Douglas S., Denton, Nancy A., 1993. American Apartheid: Segregation and the Making of the Underclass. Harvard University Press, Cambridge, MA.
Massey, Douglas S., Rugh, Jacob S., Steil, Justin P., Albright, Len, 2016. Riding the stagecoach to hell: a qualitative analysis of racial discrimination in mortgage lending. City & Community 15 (2), 118–136.
National Association of Realtors, 2011. Profile of Homebuyers and Sellers.
Ochoa, Gilda L., 2013. Academic Profiling: Latinos, Asian Americans and the Achievement Gap. University of Minnesota Press, Minneapolis, MN.
Quillian, Lincoln, 2015. A comparison of traditional and discrete choice approaches to the analyses of residential mobility and locational attainment. Ann. Am. Acad. Political Soc. Sci. 660, 240–261.
Quillian, Lincoln, Campbell, Mary E., 2003. Beyond black and white: the present and future of multiracial friendship segregation. Am. Sociol. Rev 540–566.
Sanbonmatsu, Lisa, Ludwig, Jens, Katz, Lawrence F., Gennetian, Lisa A., Duncan, Greg J., Kessler, Ronald C., Adam, Emma, McDade, Thomas W., Lindau, Stacy Tessler, 2011. Moving to Opportunity for Fair Housing Demonstration Program—final Impacts Evaluation. U.S. Department of Housing and Urban Development, Washington DC.
Schachter, Jason, 2001. Geographical Mobility: Population Characteristics, March 1999 to March 2000. US Census Bureau, Washington, DC.
Sharkey, Patrick, 2008. The intergenerational transmission of context. Am. J. Sociol. 113, 931–969.
Sharkey, Patrick, 2013. Stuck in Place: Urban Neighborhoods and the End of Progress toward Racial Equality. University of Chicago Press, Chicago.
Shuttleworth, Ian G., Gould, Myles, Barr, Paul, 2014. Perspectives on social segregation and migration: spatial scale, mixing and place. In: Lloyd, Shuttleworth, Wong (Eds.), Social-spatial Segregation: Concepts, Processes and Outcomes. Policy Press.
South, Scott J., Crowder, Kyle L., 1998. Leaving the Hood: residential mobility between black, white and integrated residential areas. Am. Sociol. Rev. 63, 17–26.
South, Scott J., Crowder, Kyle L., Chavez, Erick, 2005. Migration and spatial assimilation among U.S. Latinos: classical versus segmented trajectories. Demography 42, 497–521.
Stearns, Elizabeth, 2010. Long-term correlates of high school racial composition: perpetuation theory reexamined. Teach. Coll. Rec. 112 (6), 1654–1678.
Train, Kenneth E., 2003. Discrete Choice Methods with Simulation. Carmbridge University Press, New York.
Turner, Margery Austin, Levy, Diane K., Wissoker, Doug, Aranda, Claudia, Pitingolo, Rob, Santos, Rob, 2012. Housing Discrimination against Racial and Ethnic Minorities 2012. US Departmentof Housing and Urban Development: The Urban Institute, Washington DC.

Wells, Amy Stuart, Crain, Robert L., 1994. Perpetuation theory and the long-term effects of school desegregation. Rev. Educ. Res. 64, 531–555.
Wells, Amy Stuart, Jellison Holme, Jennifer, Korantemaa Atanda, Awo, Revilla, Anita Tijerina, 2005. Tackling racial segregation one policy at a time: why school desegregation only went so far. Teach. Coll. Rec. 107, 2141–2177.
Zeng, Zhen, Xie, Yu, 2008. A preference-opportunity-choice framework with applications to intergroup friendship. Am. J. Sociol. 114, 615–648.