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Proximate sources of growth in neighborhood income segregation: Class-selective migration versus *in situ* change

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ABSTRACT

The growth in residential segregation by income implies an increase over time in the neighborhood income gap between rich and poor households. This analysis uses data from the Panel Study of Income Dynamics, in concert with tract-level decennial U.S. census data, to quantify the relative contribution of two proximate sources of this increase: change in the income-class-selectivity of inter-neighborhood migrants and change in the class difference in neighborhood income among non-migrants, or *in situ* change. Change in the income-class-selectivity of migrants is likely to be particularly important for explaining the increase in the neighborhood income gap among blacks to the extent that declining housing discrimination enables middle-class blacks to access higher-income neighborhoods. Decomposition of the change between 1980 and 1990 in the class difference in neighborhood income shows that, among blacks, the increase in the neighborhood income gap between rich and poor persons is attributable in large measure to a change in migrant selectivity. An increase in the class difference in average income among the destination neighborhoods of short-distance migrants is a particularly important source of the growth in the class difference in neighborhood income among blacks. In contrast, among whites, the bulk of the increase in the class difference in neighborhood income is attributable to a divergence in neighborhood income between rich and poor non-migrants.

Over the past decade scholars of urban social stratification have devoted substantial attention to the increasing segregation of neighborhoods by income (Reardon and Bischoff, 2011, 2016; Reardon et al., 2015; Taylor and Fry, 2012). In the U.S., the tendency for persons of different economic classes to reside in different neighborhoods grew especially sharply during the 1980s (Abramson et al., 1995; Fischer et al., 2004; Fischer, 2003; Massey and Fischer, 2003; Reardon et al., 2018). Concern over the growth in neighborhood income segregation derives in large measure from the existence of so-called neighborhood effects (Anderson et al., 2019; Chetty et al., 2016; Galster and Sharkey, 2017; Sharkey and Faber, 2014). Growing neighborhood income segregation implies that poor families are increasingly surrounded by other poor families, and that affluent families are increasingly surrounded by other affluent families, potentially widening the social class divide in life chances and later-life socioeconomic attainment (Mayer, 2002; Owens, 2018).

An important manifestation of growing neighborhood income segregation is a widening gap between the average income of the neighborhoods inhabited by poor persons and the average income of the neighborhoods inhabited by rich persons. We seek to quantify

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the relative contributions of changes in inter-neighborhood migration and *in situ* neighborhood change to increases between 1980 and 1990 in the neighborhood income gap between poor and rich persons. We focus on the 1980s because this decade witnessed a substantial increase in neighborhood income segregation; for most groups income segregation has changed little since 1990 (Logan et al., 2020; Reardon et al., 2018). We conduct the analyses separately for blacks and whites because declining housing discrimination over this period is thought to have increasingly enabled middle- and upper-class blacks to move to higher-income neighborhoods (Wilson, 1987). We draw on multiple waves of data from the Panel Study of Income Dynamics (PSID) along with census data describing the economic status of PSID participants' residential neighborhoods. We develop a novel application of regression decomposition to partition decadal change in the difference in average neighborhood income between poor persons and rich persons into components capturing changes in income class differences in inter-neighborhood migration and a component reflecting income class differences in neighborhood change around non-mobile neighborhood residents. Our results show that an increase in the tendency for rich blacks to move to high-income neighborhoods served to widen the class difference in neighborhood income among blacks during the 1980s. In contrast, the vast bulk of the increase in the neighborhood income gap between rich and poor whites is attributable to changing class differences in the average neighborhood income of non-mobile persons, likely reflecting more a general increase in income inequality over this period.

1. Theoretical framework

By most accounts, neighborhood income segregation in the United States grew sharply during the 1980s. Beginning in 1990, however, the trend has been much less pronounced (Logan et al., 2020; Reardon and Bischoff, 2011). Using an entropy-based measure, Reardon et al. (2018) find that neighborhood income segregation among families in the largest 116 U.S. metropolitan areas rose significantly between 1980 and 1990 but changed little between 1990 and 2014. Generally similar trends are observed for households, though the post-2000 increase is somewhat larger for families with children than for all families (Owens, 2016). It is not yet clear why the increase in neighborhood income segregation apparently stalled after 1990. Logan et al. (2020) speculate that the Great Recession may have severed the link between increasing income inequality and increasing income segregation, as home foreclosures and changing mortgage requirements limited the ability to move to richer neighborhoods. Economic disruption may have also reduced the value of nonhome assets that otherwise would have enabled middle- and upper-class households to move to high-income neighborhoods.

Increasing neighborhood income segregation means that, over time, high-income individuals come more and more to reside in high-income neighborhoods while poor individuals experience lesser increases or an actual decline in the incomes of their neighbors. More precisely, increases in neighborhood income inequality imply that the gap in average neighborhood income between rich and poor persons has grown over time. Although the average neighborhood incomes of rich and poor persons could diverge without concomitant changes in neighborhood income segregation, increasing income segregation nonetheless implies a widening neighborhood income gap between poor and rich persons.

Increases in this neighborhood income gap could stem from two proximate sources. One possible source is a change in the income class selectivity of inter-neighborhood migrants, with poor families increasingly moving to poor neighborhoods and/or affluent families increasingly moving to comparatively high-income communities. In this paper, income class selectivity refers to both differences between poor and rich persons in the likelihood of moving from their origin neighborhood and to differences between poor and rich movers in the economic status of their destination neighborhoods. Changes over time in income class selectivity refer to changes in either of these differences.

Increases in the neighborhood income gap could also be generated by diverging incomes among stationary (i.e., non-mobile) residents of poor and rich neighborhoods, with the neighbors of more affluent families enjoying greater income growth (or lesser decline) over recent decades than the neighbors of poor families. The impact of neighborhood change among non-mobile neighborhood residents has been referred to variously as “unselected” neighborhood change (Sharkey, 2012), “*in situ*” neighborhood change” (Bailey et al., 2017; Huang et al., 2017), “incumbent processes” (Teernstra, 2014), and “neighborhood-level mobility” (Sampson et al., 2017). Although it is possible for both sources of change in the neighborhood income gap to operate simultaneously, the relative contribution of these potential drivers has yet to be quantified.

Disentangling the effects of changes in migration and *in situ* neighborhood change may help us understand how periods of heightened or reduced residential mobility affect the neighborhood income gap and how these processes might operate differently for blacks and whites. Although periods of reduced mobility like the Great Recession might impact neighborhood income gaps for all groups, there may also be race-specific trends. Reduced housing market discrimination might enhance mobility and access to high income neighborhoods for blacks while having little impact on whites, and population aging – which is currently more pronounced among whites than blacks – could contribute to slowed residential mobility. In addition to (or in the absence of) changes in inter-neighborhood migration, policies that exacerbate income inequality will contribute to *in situ* neighborhood change. Neoliberal policies that serve to compound wealth while eroding the social safety net may exacerbate differences between rich and poor neighborhoods by allowing more people to fall into poverty in poor neighborhoods while protecting the accumulation of wealth in rich neighborhoods. Thus, in order to predict how changing demographic, policy, and economic environments will impact income segregation—and impact it differently for different groups—an understanding of income segregation's proximate sources is essential.

1.1. The case for change in inter-neighborhood migration

The most widely-cited argument that changes in neighborhood income segregation are driven by income-class-specific changes in

inter-neighborhood migration patterns comes from Wilson's (1987) seminal treatise, *The Truly Disadvantaged*. Wilson argues that, prior to the Civil Rights Era, virulent housing discrimination directed at African Americans thwarted middle- and upper-class blacks' attempts to move out of disadvantaged and predominantly minority neighborhoods and into more prosperous—and often racially-mixed—communities. The Fair Housing Act of 1968, along with other gains of the Civil Rights Era, reduced barriers to residential mobility among blacks, enabling those with sufficient financial resources to move out of the ghetto and into middle-class, or at least less economically disadvantaged, neighborhoods (Sharkey 2014). An increase in whites' tolerance for having black neighbors (Farley et al., 1993; Farley and Frey 1994), along with more general declines in at least some dimensions of whites' racial animus (Bobo et al., 2012; Moberg et al., 2019), might also have facilitated blacks' migration from poor to nonpoor neighborhoods. One result of the movement of middle-class blacks out of disadvantaged communities would be an increasing spatial separation of middle-class blacks from poor blacks and thus an increase in the neighborhood income gap between the poor and nonpoor.

Any impact of change in the income-class-selectivity of black inter-neighborhood migrants on change in the class difference in neighborhood could stem from two separable dimensions of the inter-neighborhood migration process. Wilson's (1987) thesis subsumes both of these dimensions. On the one hand, changes in the neighborhood income gap could result from a change in the class difference in the likelihood of moving out of the neighborhood of origin. Wilson (1987) argues that declining housing discrimination enables middle- and upper-class blacks to leave disadvantaged areas. Given that higher-income people tend to move to richer neighborhoods than poor people (Crowder et al., 2006), a change in the difference between rich and poor people in the probability of moving out of their origin neighborhood would generate a change in the gap between rich and poor persons in the average income of their destination neighborhood even if there was no change in the difference between the average incomes of the neighborhoods that rich and poor people move to. Although rates of residential mobility and migration in the U.S. have tended to decline over recent decades (Frey, 2014; Schulhofer-Wohl and Kaplan, 2015; Stoll, 2013), it is unclear whether this decline has been shared equally among various income groups.

On the other hand, changes in the neighborhood income gap could also stem from changes in the class difference in the average income of movers' destination neighborhoods. Under this scenario, high-income movers increasingly relocate to neighborhoods that are richer than the neighborhoods that poor people move to, consistent with Wilson's (1987) claim that declining housing discrimination facilitated middle-class blacks' entry into more prosperous neighborhoods. A widening class difference in the average neighborhood income of destination neighborhoods, conditional upon moving out of the neighborhood of origin, would generate an increase in the neighborhood income gap even in the absence of change in the class difference in the overall likelihood of moving out of the origin neighborhood.

Wilson's (1987) thesis, of course, pertains to blacks. Whether changes in the income-class-selectivity of migrants also explain the increase in the neighborhood income gap between poor and rich whites is open to question. Racial discrimination in housing—and changes therein—are presumably irrelevant to whites' ability to move between neighborhoods of varying socioeconomic status. Middle- and upper-class whites have not experienced the barriers to residential mobility suffered by middle- and upper-class blacks, and thus any relaxation of these barriers would not be expected to affect the income-class-selectivity of white migrants. It is also possible that, among whites, any change in the income-class-selectivity of migrants that would otherwise lead to an increase in neighborhood income segregation might be tempered by increases in gentrification. In most conceptualizations of the gentrification process (Ellen et al., 2011; Freeman, 2005; Freeman and Cai, 2015), high-income whites move to neighborhoods having comparatively low average incomes, a process that, all else equal, would tend to *diminish* the neighborhood income gap between rich and poor persons. Yet, these types of residential moves are fairly rare (Richardson et al., 2019) and some middle- and upper-class blacks have also participated in the gentrification process (Moore, 2009; Patillo, 2007; Taylor, 1992). Accordingly, one possible empirical outcome is that change in the income-class-selectivity of migrants helps to explain the increasing neighborhood income gap among blacks but not among whites.

A large body of research shows that higher-income individuals are more likely than their lower-income counterparts to move to and remain in higher-income neighborhoods (Crowder et al., 2006; Galster and Turner, 2019; Sampson and Sharkey, 2008), even though middle- and upper-class blacks continue to reside in communities of lower economic standing compared to whites of the same SES (Adelman, 2004; Logan and Alba, 1993; Patillo, 2005; Woldoff and Ovadia, 2009). Large class differences in the movement of households into and out of neighborhoods of varying socioeconomic status are associated with higher levels of neighborhood income segregation (Bailey et al., 2017; Yavaş, 2019). However, research on temporal *change* in the class-selectivity of inter-neighborhood migration patterns is scant and somewhat mixed. Qullian (1999) finds that between 1970 and 1990 nonpoor blacks become increasingly more likely than poor blacks to move into white nonpoor neighborhoods, a result largely consistent with Wilson's thesis. Intrator et al. (2016), using data from the decennial census and American Community Survey (ACS), find slight improvement between 1970 and 2010 in blacks' ability to convert their incomes into neighborhood affluence. However, Crowder and South (2005) find little evidence that the effect of income on the likelihood of moving from a poor to a nonpoor neighborhood changed between 1970 and 1997 for either blacks or whites, net of other established determinants of inter-neighborhood migration. And Sampson et al. (2017), using data from the Los Angeles area, find that for most demographic subgroups residential mobility not only fails to lead to an improvement in neighborhood economic status but that this pattern remained fairly constant between 2000 and 2013. None of these studies, however, directly assesses the contribution of *changes* in the class-selectivity of inter-neighborhood migrants to *changes* in the neighborhood income gap between poor and rich persons.

1.2. The case for *in situ* change

Although changes in the neighborhood income gap between poor and rich persons could be driven by changes in the income-class-

selectivity of inter-neighborhood migrants, changes in this gap could also be generated by differences in neighborhood income growth between stationary rich and poor persons. That is, the class difference in neighborhood income could grow because, over time, the neighbors of non-mobile rich persons become richer relative to the neighbors of non-mobile poor persons. Class differences in neighbors' income change could reflect a more general growth in income inequality, which has been shown to be an important areal predictor of neighborhood income segregation (Bruch, 2014; Owens, 2016; Reardon and Bischoff, 2011; Bischoff and Reardon, 2013). Following Bailey et al. (2017) and Huang et al. (2017), we refer to neighborhood income changes occurring to persons who remain in their neighborhood over a given time period as *in situ* change.

The possibility that income class differences in neighborhood income growth among non-mobile persons (or “stayers”) drives increases in the neighborhood income gap could indicate the salience of neighborhood effects. Richer people, of course, tend to live in richer neighborhoods than poorer people. And, richer neighborhoods are thought to provide greater structural opportunities for economic gain compared to poorer neighborhoods (Galster and Sharkey, 2017). These opportunities might include better schools, more advantaged peer groups, and more valuable social networks that facilitate residents' economic advancement (Chetty et al., 2016; Hagerman, 2018). Greater financial investments in better-off neighborhoods than in disadvantaged neighborhoods may also create opportunities for higher income growth among residents of richer neighborhoods than among residents of poorer neighborhoods (Landis, 2016; Weber and Smith, 2003). Advantages and disadvantages accruing to residing in richer or poorer neighborhoods may cumulate or compound over time, as initial neighborhood benefits or costs generate improvements or declines in some dimensions of SES, which in turn produce even more change (Clarke et al., 2014; DiPrete and Eirich, 2006).

Although we know of no study linking neighborhood socioeconomic status to individuals' change in income, Van Ham et al. (2018), using data from the Netherlands, show that neighborhood income likely has a positive causal effect on individual income. If this effect also extends to income growth, then among individuals who over time remain in their neighborhood, the more affluent will experience greater increases than the poor in the average income of their neighborhood because the incomes of rich people's neighbors will increase faster than the incomes of poor people's neighbors. The result would be an increase in the neighborhood income gap between poor and rich persons even in the absence of changes in the income-class-selectivity of inter-neighborhood migrants.

Countervailing trends might temper the tendency for the neighborhood incomes of non-mobile rich persons to grow faster than the neighborhood incomes of non-mobile poor persons. In particular, gentrification could lead to a rise in the neighborhood incomes of poor people, as comparatively affluent households move into neighborhoods inhabited by the economically disadvantaged. At the same time, however, this impact of gentrification may be muted if poor persons initially residing in gentrifying neighborhoods are displaced and forced to move out of the neighborhood (Freeman and Cai, 2015). But for poor persons who remain in gentrifying neighborhoods, an influx of affluent households would tend to raise the average income of the neighborhood, counterbalancing the general tendency for the income of neighborhoods inhabited by poor neighborhood stayers to grow slower or decline faster than the income of neighborhoods inhabited by rich stayers.

In situ change might be a more important source of growth in the neighborhood income gap among whites than among blacks. Over time, white neighborhoods are more likely than nonwhite neighborhoods to improve economically (Owens, 2012). It follows that the incomes of nonmobile (or stationary) whites tend to increase more rapidly than the incomes of nonmobile blacks. Second, at least since 1970 income inequality has been growing more rapidly among whites than among blacks (Kochhar and Cilluffo, 2018), and income inequality is a strong correlate of neighborhood income segregation (Reardon and Bischoff, 2011). These twin processes—overall greater income growth in whiter neighborhoods and greater income growth among rich whites (relative to poor whites) than rich blacks (relative to poor blacks)—would lead to *in situ* neighborhood change playing a larger role in increasing neighborhood income segregation among whites than among blacks.

Given the above arguments, our analysis tests two main hypotheses. First, we hypothesize that increases in the income-class-selectivity of migrants explains a larger proportion of the growth in the neighborhood income gap between rich and poor blacks than between rich and poor whites. Second, and relatedly, we hypothesize that an increase in the difference in neighborhood incomes between nonmobile rich and poor persons explains a larger proportion of the growth in the neighborhood income gap between rich and poor whites than between rich and poor blacks.

2. Data and methods

Data for this study come from the 1970, 1980, and 1990 waves of the Panel Study of Income Dynamics (PSID), in conjunction with tract-level data from the 1980 and 1990 U.S. decennial censuses. Begun in 1968, the PSID is a nationally representative, longitudinal survey of U.S. residents and their families (Duffy et al., 2013). The initial panel consists of approximately 5000 families. New families are added to the panel when sample members split off from the original families to form their own households.

Our focus is on the change from 1980 to 1990 in the difference between the average neighborhood income of rich and poor PSID sample members. As noted above, we focus on this period because the 1980s witnessed a substantial increase in neighborhood income segregation; changes since this time have been less pronounced (Logan et al., 2018, 2020; Reardon and Bischoff, 2011; Reardon et al., 2018). We treat the 1980 and 1990 PSID waves as repeated cross-sections (Huang et al., 2018).

Sample selection: We select black and white sample members from the 1980 and 1990 PSID waves; members of other ethnoracial groups are too few in number to support a separate analysis. We further select sample members who are age 10 and older in each of these waves. This restriction is required so that we can determine whether the sample member had moved from the census tract that they lived in ten years prior to the selected PSID interview wave. Finally, to align our analysis with macrolevel studies of income segregation, which typically focus on metropolitan areas, we select PSID sample members who resided in a census-defined metropolitan area at each of the selected waves.

Our analytic strategy requires that we differentiate “rich” from “poor” PSID sample members. We use family income for this purpose. In the main analyses, we classify as “rich” those persons whose income falls in the top decile of the race- and year-specific PSID family income distribution and we classify as “poor” those persons who fall in the bottom quartile of the distribution. Robustness checks using alternative categorizations are described below. Selecting only these rich and poor PSID sample members and implementing the sample selection criteria described above yields a sample size for 1980 of 2308 individuals (999 blacks and 1309 whites) and a sample size for 1990 of 3130 (1166 blacks and 1964 whites).¹

Measures: Using data from the 1980 and 1990 summary U.S. census files, we attach to these individual PSID records the average family income of their residential neighborhood. Following much prior work on neighborhood income segregation (e.g., [Reardon and Bischoff, 2011](#)) and individual neighborhood attainment ([Quillian, 1999, 2002](#); [Sampson et al., 2017](#); [South et al., 2016](#)), we use census tracts as our spatial approximation of neighborhoods. Census tract boundaries are normalized to their 2010 equivalents (GeoLytics 2014) and all dollar amounts are expressed in constant 2000 dollars.²

We measure inter-neighborhood migration by whether the PSID sample member lived in a different census tract ten years prior to each selected PSID interview year (1980 or 1990). Thus, for 1980 the dummy variable labeled “migrant” indicates whether the PSID sample member moved to a different census tract between 1970 and 1980; for 1990, this variable indicates whether the sample member moved to a different census tract between 1980 and 1990. We refer to the sample members who remained in the same tract over each decade as stayers, non-migrants, or non-movers. (About 16 % of the sample members moved within the tract of residence between 1970–1980 and 1980–1990.) We purposely do not control for other individual-level or neighborhood-level determinants of inter-neighborhood migration, or neighborhood attainment more generally, because we are interested in describing the overall contribution of inter-decadal change in the income-class-selectivity of migrants to change in the class difference in neighborhood income and not the effect of changing migrant class-selectivity net of other factors.³

Method: As noted above, increases in neighborhood income segregation imply that, at the individual level, comparatively affluent persons are increasingly surrounded by affluent neighbors while comparatively poor persons are increasingly surrounded by poor neighbors. Put another way, increases in income segregation imply that the *difference* in average neighborhood income between rich and poor persons has grown over time. Accordingly, the quantity we are interested in is the decadal *change* in the income class *difference* in average neighborhood income—a difference-in-difference (DID). Difference-in-difference models are used commonly in the social sciences, often with the objective of estimating treatment effects from nonexperimental data ([McCabe and Ellen, 2016](#); [Tach and Emory, 2017](#)). We apply regression decomposition techniques to this difference-in-difference.

We seek to decompose the following quantity, separately for blacks and whites:

$$(ANI_{R, 1990} - ANI_{P, 1990}) - (ANI_{R, 1980} - ANI_{P, 1980})$$

where *ANI* refers to average neighborhood family income, *R* and *P* refer to rich and poor persons, respectively, and 1990 and 1980 are the two years of observation.

To decompose this quantity into the contributions made by changes in inter-neighborhood migration and by *in situ* neighborhood change, we first regress average neighborhood income on a dummy variable for inter-neighborhood migrants, separately for each combination of race (blacks and whites), family income (rich and poor), and PSID observation year (1980 and 1990). The constant in these eight models tells us the predicted neighborhood income for non-migrants, and the coefficient for the dummy variable tells us the difference in average neighborhood income between inter-neighborhood migrants and non-migrants. We then use the regression constants and coefficients from these models, along with the race-, class-, and year-specific sample means, to generate predicted values of average neighborhood income under varying assumptions and to perform the decomposition.

Using standard techniques for a regression decomposition of a difference in a single quantity, the class differences in the average neighborhood income between rich and poor persons in 1990 can be decomposed as:

$$\begin{aligned} ANI_{R, 1990} - ANI_{P, 1990} &= (\beta_{0, 1990}^R - \beta_{0, 1990}^P) + \beta_{1990}^P (\bar{X}_{1990}^R - \bar{X}_{1990}^P) + \bar{X}_{1990}^P (\beta_{1990}^R - \beta_{1990}^P) \\ &+ [(\beta_{1990}^R - \beta_{1990}^P) (\bar{X}_{1990}^R - \bar{X}_{1990}^P)] \end{aligned}$$

The first term on the right-hand side, the difference in regression constants, represents the contribution of the class difference in the average neighborhood family income between poor and rich non-migrants. The second term, $\beta_{1990}^P (\bar{X}_{1990}^R - \bar{X}_{1990}^P)$, represents the

¹ To examine the possible impact of missing data, we compared our analytic sample to the full sample of available observations. Although the analytic sample omits observations for whom migration status and neighborhood income are unobserved, this sample is very similar to the full sample on key sociodemographic variables. For example, the mean age, educational attainment (years of school completed), and proportion married for the analytic sample is 41.27, 11.54, and 0.44 respectively, compared with 41.05, 11.27, and 0.46 for the full sample that does not have missing values on key predictors.

² All analyses are based on weighted data.

³ In supplemental analyses we estimated models that include metropolitan-areas fixed effects. The results from these models were very similar to what we report in the text. In particular, the sharp rise in the neighborhood incomes of rich black movers is apparent even in models that control for sample members' metropolitan area of residence.

contribution of the difference between rich and poor groups' mean inter-neighborhood migration rates, weighted by the poor group coefficients; this is the Endowments component, or *E*. This term captures the amount by which the income class difference in average neighborhood income in 1990 would change if rich and poor persons had the same levels of migration rates while keeping their respective neighborhood destinations unchanged. The third term, $\bar{X}_{1990}^P (\beta_{1990}^R - \beta_{1990}^P)$, captures the contribution of the class difference in the effect of inter-neighborhood migration on average neighborhood family income, weighted by the poor group's mean migration rate; this is the Coefficients component, or *C*. This component represents the amount by which the class difference in average neighborhood income in 1990 would change if the association between migration and neighborhood income were the same between rich and poor persons while keeping their respective migration levels unchanged. The final component, $[(\beta_{1990}^R - \beta_{1990}^P)(\bar{X}_{1990}^R - \bar{X}_{1990}^P)]$, represents the interaction between *E* and *C* (*E* × *C*). This term captures the portion of the class difference in neighborhood income between rich and poor persons that arises from simultaneous differences in the levels of and returns to inter-neighborhood migration.

Following the same procedure, the corresponding class difference between rich and poor persons in 1980 can be decomposed as:

$$ANI_{R, 1980} - ANI_{P, 1980} = (\beta_{0,1980}^R - \beta_{0,1980}^P) + \beta_{1980}^P (\bar{X}_{1980}^R - \bar{X}_{1980}^P) + \bar{X}_{1980}^P (\beta_{1980}^R - \beta_{1980}^P) + [(\beta_{1980}^R - \beta_{1980}^P)(\bar{X}_{1980}^R - \bar{X}_{1980}^P)]$$

with the terms defined as above.

Taking the difference between these equations yields the decomposition of the 1980 to 1990 *change* in the average neighborhood income between rich and poor persons:

$$\begin{aligned} & (ANI_{R, 1990} - ANI_{P, 1990}) - (ANI_{R, 1980} - ANI_{P, 1980}) \\ &= [(\beta_{0,1990}^R - \beta_{0,1990}^P) - (\beta_{0,1980}^R - \beta_{0,1980}^P)] + [\beta_{1990}^P (\bar{X}_{1990}^R - \bar{X}_{1990}^P) - \beta_{1980}^P (\bar{X}_{1980}^R - \bar{X}_{1980}^P)] \\ &+ [\bar{X}_{1990}^P (\beta_{1990}^R - \beta_{1990}^P) - \bar{X}_{1980}^P (\beta_{1980}^R - \beta_{1980}^P)] \\ &+ \left\{ [(\beta_{1990}^R - \beta_{1990}^P)(\bar{X}_{1990}^R - \bar{X}_{1990}^P)] - [(\beta_{1980}^R - \beta_{1980}^P)(\bar{X}_{1980}^R - \bar{X}_{1980}^P)] \right\} \end{aligned}$$

In this equation, the first term on the right hand side, $[(\beta_{0,1990}^R - \beta_{0,1990}^P) - (\beta_{0,1980}^R - \beta_{0,1980}^P)]$, represents the contribution of the 1980 to 1990 change in the difference in average neighborhood family incomes between rich and poor non-migrants (i.e., *in situ* change). The second term represents the contribution of the 1980–1990 change in the income class difference in migration rates, that is, the change in endowments (*E*). The third term represents the contribution of the 1980–1990 change in the class difference in the returns to inter-neighborhood migration, that is, the change in coefficients (*C*). And the last term of the equation captures the 1980–1990 change in the class difference in the interaction between endowments (*E*) and coefficients (*C*).

3. Results

3.1. Descriptive results

Table 1 presents descriptive statistics for average neighborhood (tract) family income disaggregated by race, income class, and year of observation (as well as migrant status). As shown in Table 1 and as illustrated graphically in Fig. 1, in 1980, rich blacks lived on average in a census tract with an average family income of \$40,220, while poor blacks lived on average in a census tract with an average family income of \$32,992, for a difference of \$7,228. By 1990, the average tract average family income for rich blacks had increased to \$56,016, while the average for poor blacks had increased only to \$38,374, for a difference of \$17,642. Thus, between 1980 and 1990 the difference in average neighborhood income between rich blacks and poor blacks—the quantity to be decomposed in our analysis—increased by \$10,414 (= \$17,642 - \$7,228).

The increase in the class difference in average neighborhood family income among whites is even starker. In 1980, the average rich white lived in a census tract with an average family income of \$67,290, while their poor counterparts lived in a census tract with a mean family income of \$46,683, for difference of \$20,607. By 1990, the average rich white lived in a tract with an average family income of \$88,987, while the average poor white lived in census tract with an average family income of \$50,742, for a difference of \$38,245. Among whites, then, the difference in the average neighborhood incomes of rich and poor PSID sample members increased by \$17,638 (= \$38,245 - \$20,607), consistent with the substantial increase in neighborhood income segregation.⁴ Although not central to our analysis, it is worth noting that in both 1980 and 1990 the class difference in neighborhood incomes is substantially lower among blacks than among whites, consistent both with the idea that housing discrimination constrains blacks' residential options (Massey and

⁴ Measuring the class difference in neighborhood income in percentage terms yields a similar conclusion. For example, in 1980 the average income of the neighborhoods inhabited by rich blacks was 22% higher than the average income of the neighborhoods inhabited by poor blacks; by 1990, this figure grew to 46%. Among whites, the comparable percentages were 44% in 1980 and 75% in 1990.

Table 1

Descriptive statistics for variables used in analysis of change in the class difference in average neighborhood income: Panel Study of Income Dynamics.

Year	1980			1990		
	Rich persons	Poor persons	Difference	Rich persons	Poor persons	Difference
	Mean (SD)	Mean (SD)		Mean (SD)	Mean (SD)	
Blacks						
Average neighborhood family income (in 000s)	40.220 (22.065)	32.992 (18.783)	7.228	56.016 (38.533)	38.374 (28.078)	17.642
Average neighborhood family income of migrants (in 000s)	40.817 (22.769)	33.687 (19.728)	7.130	59.639 (36.012)	38.406 (32.683)	21.233
Average neighborhood family income of non-migrants (in 000s)	39.090 (20.453)	30.954 (14.501)	8.136	49.257 (33.546)	38.288 (15.836)	10.969
Migrant (1 = yes)	0.555	0.646	−0.091	0.527	0.587	−0.060
N	248	751		284	882	
Whites						
Average neighborhood family income (in 000s)	67.290 (18.076)	46.683 (11.519)	20.607	88.987 (29.209)	50.742 (16.997)	38.245
Average neighborhood family income of migrants (in 000s)	67.662 (17.601)	47.120 (11.181)	20.542	90.756 (30.249)	51.344 (17.162)	39.412
Average neighborhood family income of non-migrants (in 000s)	66.410 (17.601)	45.098 (11.181)	21.312	87.413 (25.724)	50.754 (16.166)	36.659
Migrant (1 = yes)	0.519	0.612	−0.093	0.515	0.527	−0.012
N	407	902		535	1,429	

Notes: Sample consists of PSID sample members ages 10 and older residing in a metropolitan area in designated year. Rich persons include PSID sample members with family income in the top decile of the race- and year-specific family income distribution; poor persons are sample members with family income in the bottom quartile.

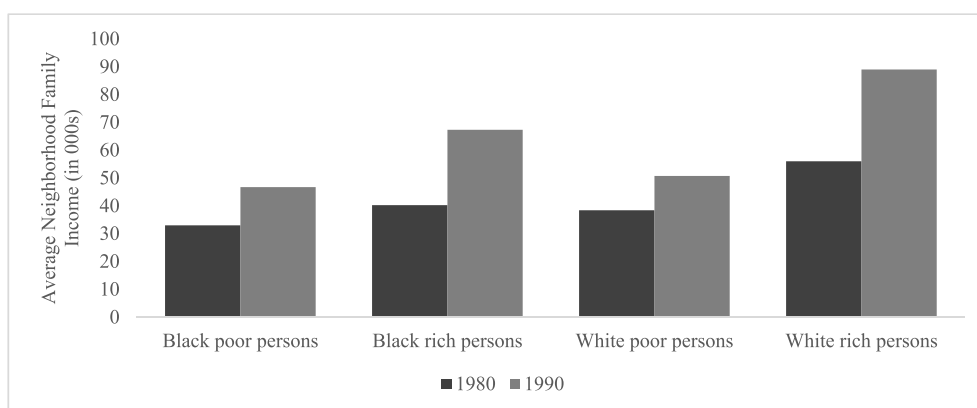


Fig. 1. Average neighborhood family income by class, race, and period: Panel Study of Income Dynamics.

Denton, 1993) and with macrolevel studies of neighborhood income segregation (e.g. Reardon and Bischoff, 2011).

Table 1 also presents descriptive statistics for average neighborhood income separately for inter-neighborhood migrants and non-migrants. Decadal changes in these figures hint at the potential importance, or unimportance, of changes in class-selective migration as a driver of increases in the neighborhood income gap. Among black inter-neighborhood migrants, the class difference in average neighborhood income grew by \$14,103 [= (\$59,639 – \$38,406) – (\$40,817 – \$33,687)] while the class difference among non-migrants grew by only \$2,833 [= (\$49,257 – \$38,288) – (\$39,090 – \$30,954)]. The greater growth in the class difference in neighborhood income among black migrants than among black non-migrants suggests that changes in the income-class-selectivity of inter-neighborhood migrants may have played an important role in generating overall increases in the class difference in neighborhood income among blacks, consistent with Wilson's (1987) claim. In contrast, among whites the growth in the class difference in neighborhood income was fairly similar between inter-neighborhood migrants [\$18,870 = (\$90,756 – \$51,344) – (\$67,662 – \$47,120)] and non-migrants [\$15,347 = (\$87,413 – \$50,754) – (\$66,410 – \$45,098)]. Overall, these descriptive findings are consistent with the hypothesis that changes in the income-class-selectivity of migrants, as reflected in the divergence between the incomes of poor and rich movers' destination neighborhoods, was a more important driver of the neighborhood income gap among blacks than among whites.

Of course, the contribution of these migrant-status-specific changes in the income class difference in neighborhood income to the overall change in the class difference in neighborhood income depends on the amount of change in the class difference in the propensity to move between neighborhoods. Table 1 also shows the proportion of PSID sample members who moved during the prior ten

years, separately for the two interview waves, the two income classes, and the two racial groups. Consistent with overall declines in residential mobility over this time span (e.g., Frey, 2014), the likelihood of moving between neighborhoods declined among both rich blacks (from 0.555 to 0.527) and poor blacks (from 0.646 to 0.587). Because mobility rates among poor blacks declined more sharply than among rich blacks, the class difference (rich minus poor) in the proportion of black PSID sample members who moved between neighborhoods narrowed slightly—from 0.091 to 0.060. Although this change is seemingly consistent with Wilson's (1987) thesis, the magnitude of the change in the class difference in mobility rates makes it unlikely that the changing class difference in the likelihood of leaving the origin neighborhood can explain much of the increase in neighborhood income gap among blacks. In contrast, among whites, the class difference in inter-neighborhood migration largely disappeared between 1980 and 1990, dropping from .093 to .012. This change is largely the result of a decline in the proportion of poor whites who moved between neighborhoods, which fell from 0.612 in 1980 to 0.527 in 1990.

3.2. Regression results

Table 2 presents the coefficients from the linear regression models of average neighborhood family income, disaggregated simultaneously by race, income class, and year. Among all eight groups, recent in-migrants exhibit higher average neighborhood incomes than non-migrants, although the difference is only statistically significant for poor blacks and whites in 1980 and for rich blacks in 1990. More importantly, and echoing the descriptive statistics shown in Table 1, among blacks the class difference in the effect of migration grew substantially between 1980 and 1990. In 1980, poor black migrants had a slightly greater neighborhood income advantage over poor black non-migrants (\$2,733) than rich black migrants had over rich black non-migrants (\$1,727). By 1990, however, this difference reversed, with rich black migrants enjoying a substantially greater neighborhood income advantage over rich non-migrants (\$10,382) than poor black migrants had over poor black non-migrants (\$118). Coupled with the results in Table 1, it appears that the impact of changes in migrant selectivity on the growing class difference in neighborhood income is driven more by a change in the neighborhood destinations of black inter-neighborhood migrants than by a change in the class difference in the likelihood of leaving the origin neighborhood.

The class difference in migrant selectivity changed much less among whites. In 1980, rich white inter-neighborhood migrants lived in neighborhoods that were on average \$1,252 richer than the neighborhoods inhabited by non-migrants; the advantage for poor white migrants was \$2,022. By 1990, the neighborhood income advantage for rich white migrants had grown slightly to \$3,344 and had declined for poor white migrants to \$591.

Table 3 presents predicted 1990 values of average neighborhood family income assuming various types of change from 1980 to 1990 in the levels of, and returns to, inter-neighborhood migration. These simulations draw on the race- and year-specific coefficients and constants from the regression models shown in Table 2 along with the proportion of inter-neighborhood movers shown in Table 1.

As was shown in Table 1, in 1990, on average, rich blacks lived in a neighborhood with an average family income of \$56,016, and poor blacks on average lived in a neighborhood with an average family income of \$38,374, for difference of \$17,642. As shown in Table 3, had rich black non-migrants had the same average neighborhood income in 1990 as they did in 1980 (i.e., if the regression constant was set at its 1980 value), but the proportion moving and the "returns" to moving were assumed to be at their 1990 levels, the predicted 1990 average neighborhood income for rich blacks would be \$44,561. And if the regression constant did not change for poor blacks, the predicted neighborhood income would be \$31,023. Thus, had there been no change in the average neighborhood income of non-migrants—that is, no *in situ* change—the class difference in average neighborhood income in 1990 would have been only \$13,538, rather than \$17,642. This finding suggests that changes in the neighborhood incomes of non-migrants played an important role in

Table 2

Linear regression analysis of average neighborhood family income, by class, race, and period: Panel Study of Income Dynamics.

	1980		1990	
	Rich persons	Poor persons	Rich persons	Poor persons
Blacks				
Migrant	1.727 (2.414)	2.733* (1.198)	10.382*** (3.083)	0.118 (2.133)
Constant	39.091*** (3.053)	30.954*** (0.930)	49.257*** (5.114)	38.288*** (1.203)
N	248	751	284	882
Whites				
Migrant	1.252 (2.623)	2.022* (0.976)	3.344 (4.195)	0.591 (1.551)
Constant	66.410*** (2.300)	45.100*** (0.891)	87.413*** (3.845)	50.750*** (1.470)
N	407	902	535	1,429

Notes:

(1) Sample consists of PSID sample members ages 10 and older residing in a metropolitan area in designated year. Rich persons include PSID sample members with family income in the top decile of the race- and year-specific family income distribution; poor persons are sample members with family income in the bottom quartile.

(2) Standard errors (in parentheses) are clustered at the family level.

*p < 0.05, **p < 0.01, ***p < 0.001.

Table 3

Predicted 1990 values of average neighborhood family income by class and race: Panel Study of Income Dynamics.

	Blacks			Whites		
	Rich persons	Poor persons	Difference	Rich persons	Poor persons	Difference
Assuming no change in constants from 1980	44.561	31.023	13.538	68.132	45.409	22.723
Assuming no change in migration rates from 1980	55.019	38.364	16.655	89.148	51.111	38.037
Assuming no change in migration coefficients from 1980	50.167	39.892	10.275	88.058	51.816	36.242

generating the increase in the class difference in neighborhood income among blacks.

At the same time, change in the income-class-selectivity of black inter-neighborhood migrants was even more important. Had the 1980 difference in neighborhood income between rich black migrants and rich black non-migrants remained in force in 1990, but the proportions moving (i.e., the migration rate) and the neighborhood income of non-migrants were at their 1990 values—that is, had there been no change in migration coefficients—rich blacks would on average have an average neighborhood income of \$50,167. The corresponding predicted value for poor blacks is \$39,892, for a difference of \$10,275. Thus, one reason why the class difference in neighborhood income among blacks increased from 1980 to 1990 is that rich blacks increasingly moved to neighborhoods that had higher incomes than the neighborhoods poor blacks moved to. This finding is consistent with the first hypothesis motivating the analysis.

The change between 1980 and 1990 in the class difference in inter-neighborhood migration rates appears to contribute only slightly to an increase among blacks in the class difference in neighborhood income. Had blacks moved between neighborhoods at the same class-specific rate between 1980 and 1990 that they did between 1970 and 1980—that is, had there been no change in endowments—but both migrants and non-migrants had their 1990 neighborhood income levels, rich blacks would have lived in a neighborhood with an average income of \$55,019 and poor blacks would have lived in a neighborhood with an average income of \$38,364, for a difference of \$16,655. This difference is only slightly smaller than the observed 1990 class difference of \$17,642.

Among whites, the difference in average neighborhood income between rich and poor in 1990 is \$38,245 (Table 1). As shown in Table 3, had the average neighborhood income of rich white non-migrants not changed from 1980 to 1990—that is, had the regression constant of \$66,410 remained unchanged—but the 1990 levels of and returns to inter-neighborhood migration took on their 1990 values—the predicted neighborhood income would be \$68,132. For poor whites, the parallel predicted value assuming no *in situ* change is \$45,409. So, the predicted class difference is \$22,723, substantially less than the actual 1990 difference (\$38,245). This finding suggests that changes in the neighborhood incomes of non-mobile rich and poor whites drive much of the 1980–1990 change in the income class difference in neighborhood income.

By contrast, assuming no change from 1980 to 1990 in either the income-class difference in the propensity to migrate (the change in migration rates) or the income-class difference in migrants' neighborhood income (the change in migration coefficients) generates predicted class differences in neighborhood income that are fairly similar to the observed difference (\$38,037 and \$36,242, respectively). This finding implies that, among whites, neither change in the class difference in inter-neighborhood migration rates nor change in the class difference in the destinations of inter-neighborhood movers played very important roles in generating the pronounced increase in the neighborhood income gap among whites. This finding is consistent with the hypotheses.

3.3. Formal decomposition results

Table 4 presents the results of the formal decomposition. Among blacks, and considering each component singly, about one quarter

Table 4

Decomposition of 1980–1990 change in average neighborhood family income difference between rich persons and poor persons: Panel Study of Income Dynamics.

	Blacks	Whites
Change in average neighborhood family income difference between rich persons and poor persons, 1980 to 1990	10.414	17.638
Total change due to:		
Change in class difference in constants	2.833	15.351
Change in class difference in migration rates (E)	0.113	0.167
Change in class difference in migration coefficients (C)	6.493	1.962
Interaction of change in rates and change in coefficients	0.975	0.159
Percentage explained by different components:		
Percent due to change in class difference in constants	27%	87%
Percent due to change in class difference in migration rates (E)	1%	1%
Percent due to change in class difference in migration coefficients (C)	62%	11%
Percent due to interaction of change in rates and change in coefficients	9%	1%
N	2,165	3,273

Notes: Sample consists of PSID sample members ages 10 and older residing in a metropolitan area in designated year. Rich persons include PSID sample members with family income in the top decile of the race- and year-specific family income distribution; poor persons are sample members with family income in the bottom quartile.

(27%) of the 1980–1990 increase in the difference between the average neighborhood incomes of rich and poor can be attributed solely to *in situ* change, that is, to a change in the class difference among non-mobile blacks. However, as shown by the coefficients component, well over half (62%) of the change is attributable solely to a change in the class difference in the average income of migrants' destination neighborhoods. Almost none of the change is attributable to the change in the income-class difference in the propensity to migrate between neighborhoods (i.e., the class difference in migration rates). Overall, these findings are generally consistent with Wilson's (1987) claim that declining levels of housing market discrimination allowed rich blacks to relocate to higher-income neighborhoods than they were able to access in prior decades (see also Quillian, 1999). The result of this change was a growing divergence in the neighborhood incomes of rich and poor blacks.

The results for whites tell a much different story. Among whites, the bulk (87%) of the growth in the difference in average neighborhood income between rich and poor persons is attributable to changes in the neighborhood incomes of rich and poor non-migrants, or what we have referred to as *in situ* change. Changes in the class difference in the propensity to migrate (the migration rate component) and in the class difference in the income of migrants' destination neighborhoods (the migration coefficient component) account for only small portions of the total change—1% and 11%, respectively. These results are broadly consistent with theoretical expectations: changes in the class selectivity of inter-neighborhood migrants—and particularly selectivity in the economic status of migrants' destination neighborhoods—play an important role in generating neighborhood income segregation among blacks but not among whites.

3.4. Sensitivity checks and supplemental analyses

We performed a variety of additional analyses of these data, both to assess the robustness of our main findings and to expand our results. First, our results could be sensitive to how rich and poor individuals are defined. In the main analyses presented above we contrast PSID sample members with family income in the top decile of the race- and year-specific income distribution with sample members in the bottom quartile of the distribution. In columns 1 and 2 of Table 5, we instead contrast sample members in the top tercile (third) of the family income distribution with members in the bottom tercile. As shown in the top row of Table 5, we observe less change in the class difference in average neighborhood income comparing the top and bottom thirds of the income distribution than comparing the top decile with the bottom quarter, as was done in Table 4. The increase among blacks is more than halved (\$3,333 versus \$10,414), as is the increase among whites (\$8,870 versus \$17,638). This finding is consistent with research showing that much of the increase in neighborhood income segregation is driven by the increasing spatial isolation of very affluent persons (Reardon and Bischoff, 2011). Despite the lesser amount of change, however, the decomposition results using this alternative sample are fairly similar to the results using the initial cutoffs to distinguish rich persons from poor persons. Among blacks, a change in the class difference in the returns to inter-neighborhood migration (the coefficients component) now explains 51% of the observed change in the class difference in average neighborhood income, while *in situ* change explains 39% of this increase. Among whites, all the increase in the class difference in average neighborhood income is attributable to a change in the neighborhood incomes of non-migrants.

Second, prior research shows that increases in neighborhood income segregation have been experienced primarily if not exclusively among families with children (Owens, 2016). Accordingly, we replicated the decomposition analysis selecting only PSID sample members belonging to families containing resident children younger than age 18. These results are shown in columns 3 and 4 of

Table 5

Decomposition of 1980–1990 change in average neighborhood family income difference between rich persons and poor persons using alternative samples.

	Alternative Sample		Alternative Sample	
	(a)		(b)	
	(1)	(2)	(3)	(4)
	Blacks	Whites	Blacks	Whites
Change in average neighborhood family income difference between rich persons and poor persons, 1980 to 1990	3.333	8.870	19.616	23.025
<i>Total change due to:</i>				
Change in class difference in constants	1.313	8.985	13.330	19.950
Change in class difference in migration rates (E)	−0.015	0.043	−0.110	0.251
Change in class difference in migration coefficients (C)	1.698	−0.374	4.875	7.459
Interaction of change in rates and change in coefficients	0.337	0.216	1.521	−4.635
<i>Percentage explained by different components:</i>				
Percent due to change in class difference in constants	39%	101%	68%	87%
Percent due to change in class difference in migration rates (E)	0%	0%	−1%	1%
Percent due to change in class difference in migration coefficients (C)	51%	−4%	25%	32%
Percent due to interaction of change in rates and change in coefficients	10%	2%	8%	−20%
N	4,003	6,014	1,143	1,367

Notes:

Alternative sample (a) consists of PSID sample members ages 10 and older residing in a metropolitan area in designated year. Rich and poor persons include PSID sample members with family income in the top and bottom tercile of the race- and year-specific family income distribution, respectively. Alternative sample (b) consists of PSID sample members ages 10 and older who are from a family with at least one child aged below 18 and residing in a metropolitan area in designated year. Rich persons include PSID sample members with family income in the top decile of the race- and year-specific family income distribution; poor persons are sample members with family income in the bottom quartile.

Table 5. Consistent with Owens (2016), we observe larger increases in the class difference in average neighborhood income among the PSID sample members belonging to families with children compared to the initial sample used in the main analyses (Table 4). Among blacks, the increase rises to \$19,616 (versus \$10,414) and among whites the increase rises to \$23,025 (versus \$17,638). The results for blacks show that, among families with children, changes in the income-class difference in the neighborhood incomes of non-migrants (i.e., *in situ* change) plays a more important role than changes in the income-class difference in the neighborhood incomes of migrants; the former explains 68% of the change in the class difference in neighborhood income while the latter now explains only 25% of the change.

Among whites, the bulk (87%) of the increase in the class difference in neighborhood income remains attributable to *in situ* change, although now the change in the class difference in the incomes of movers' destination neighborhoods plays a nontrivial role, explaining 32% of the overall increase. Although the nontrivial size of the interaction component (−20%) complicates interpretation of the endowment and coefficient components, even if the interaction component was split equally between these components, over 20% of the increase in the class difference in neighborhood income would still be attributed to changes in the class difference in the income of migrants' destination neighborhoods. The greater contribution of income-class-selective migration among white households with children than among all white households may reflect the influence of children on neighborhood selection among white movers (Goyette et al., 2014).

Third, the contribution of changes in income-class-selective migration to the increase in the class difference in neighborhood income could vary by the distance moved. Most moves are of course short-distance, but longer-distance moves are more likely to be motivated by potential financial gain and might therefore result in greater improvement in neighborhood income (Clark and Maas, 2015; Collins and Wanamaker, 2014). The analysis presented in Table 6 elaborates on the Table 4 analysis by disaggregating inter-neighborhood moves into short distance moves, defined as moves between census tracts but within the same county, and long-distance moves, defined as moves to a different county (cf. Huang et al., 2018).

Among blacks, the impact of change in the income-class-selectivity of movers' destination neighborhoods, which was shown in Table 4, is shown in Table 6 to be driven largely by short-distance, or intra-county, moves. The change in the class difference in short-distance movers' neighborhood income accounts for 49% of the total change in the class difference in average neighborhood income (about 80% of the total contribution of change in the class-selectivity of movers' neighborhood income), while the change in the class difference in longer-distance movers' neighborhood income accounts for only 12% (about 20% of the total contribution of change in the class-selectivity of movers' neighborhood income).

Among whites, the change in the class-selectivity of short-distance and long-distance movers' destination neighborhoods exhibits small but partially counterbalancing effects on change in the class difference in neighborhood income. A growing gap in neighborhood income between rich and poor long-distance movers accounts for 17% of the overall increase in the class difference in neighborhood income among whites. In contrast, the change in the difference in neighborhood income between rich and poor white short-distance movers slightly suppresses—by 6%—what would otherwise have been a larger increase in the class difference in neighborhood income, perhaps reflecting increased gentrification over this period. Overall, however, the bulk of the change among whites in the class difference in neighborhood income is attributable to neighborhood income change among non-migrants, i.e., to *in situ* change.

Table 6

Decomposition of 1980–1990 change in average neighborhood family income difference between rich persons and poor persons distinguishing intracounty and intercounty moves.

	Blacks	Whites
Change in average neighborhood family income difference between rich persons and poor persons, 1980 to 1990	10.414	17.638
<i>Total change due to:</i>		
Change in class difference in constants	2.833	15.349
Endowment (E)		
Change in class difference in intra-county migration rates	0.114	0.038
Change in class difference in inter-county migration rates	0.239	0.129
Coefficients (C)		
Change in class difference in intra-county migration coefficients	5.129	−1.065
Change in class difference in inter-county coefficients	1.297	3.060
Interaction of change in endowments and change in coefficients	0.802	0.127
<i>Percentage explained by different components:</i>		
Percent due to <i>in situ</i> change	27%	87%
Percent due to change in class difference in intra-county migration rates	1%	0%
Percent due to change in class difference in inter-county migration rates	2%	1%
Percent due to change in class difference in intra-county migration coefficients	49%	−6%
Percent due to change in class difference in inter-county migration coefficients	12%	17%
Percent due to interaction of change in endowments and change in coefficients	8%	1%
N	2,165	3,273

Notes: Sample consists of PSID sample members ages 10 and older residing in a metropolitan area in designated year. Rich persons include PSID sample members with family income in the top decile of the race- and year-specific family income distribution; poor persons are sample members with family income in the bottom quartile.

4. Discussion and conclusion

Neighborhood income segregation in U.S. metropolitan areas grew sharply during the 1980s, but prior research has not fully addressed the proximate sources of this increase. At the individual level, an increase in neighborhood income segregation implies an increase in the difference between the average income of neighborhoods inhabited by poor persons and the average income of neighborhoods inhabited by rich persons. This analysis identifies two potentially pivotal sources of the growth in this neighborhood income gap: changes in the class-selectivity of inter-neighborhood migrants and changes in income-class-specific income growth among residents' neighbors, or what has been called *in situ* change. While urban scholars have long noted that neighborhoods can change either because of differential in- and out-migration (e.g., Coulton et al., 2012; Hipp, 2020) or because of changes occurring to continuous, non-migratory residents (e.g., Ellen et al., 2011; Timberlake, 2009), the relative impacts of these two general processes that potentially drive increases in the class difference in neighborhood income have until now not been thoroughly examined.

This study uses data from the 1970, 1980, and 1990 waves of the Panel Study of Income Dynamics to quantify the impacts of class-selective change in inter-neighborhood migration, which includes change in both neighborhood out-migration and change in the incomes of movers' destination neighborhoods, and *in situ* neighborhood change on the 1980 to 1990 change in the difference in neighborhood incomes of rich and poor. Adopting an individual-level rather than macrolevel approach that is somewhat akin to microlevel studies of racial residential segregation (Alba and Logan, 1993; South et al., 2011), and applying regression decomposition techniques to a difference-in-difference, we find that, among blacks, the increase in the neighborhood income gap between rich and poor persons is driven predominantly by changes in migrant selectivity, although *in situ* change plays an important if subordinate role. An increase in the class difference in average income among the destination neighborhoods of short-distance migrants is a particularly important source of the growth in the class difference in neighborhood income among blacks. In contrast, among whites, the bulk of the increase in the class difference in neighborhood income is attributable to a divergence in neighborhood income between rich and poor non-migrants.

Our analysis provides a mixed but generally favorable assessment of Wilson's (1987) argument regarding the changing class difference in blacks' neighborhood attainment. Seemingly contrary to Wilson's (1987) argument, we do not find that rich blacks became substantially more likely than poor blacks to move out of their origin neighborhood over the study's time frame (Table 1). Moreover, the slight reduction in the class difference in inter-neighborhood migration that did occur contributed little to the change in the neighborhood income gap between rich and poor blacks. However, consistent with Wilson's (1987) thesis, among those who did move to a different neighborhood, rich blacks experienced a much larger increase in the average incomes of their destination neighborhoods compared to poor blacks (Tables 1 and 2), and this change accounts for well over half of the divergence in neighborhood income between rich and poor blacks between 1980 and 1990 (Table 4). The increased ability of rich blacks to relocate to higher-income neighborhoods not only accords with Wilson's (1987) claim but also explains much of the growth in the neighborhood income gap between rich and poor blacks.

Our results may have implications for further research attempting to identify more distal causes of increasing neighborhood income segregation. To explain increasing income segregation among whites, future research would do well to focus on the causes of changes in neighborhood income growth among non-migrants. These efforts might include renewed attention to the operation of "neighborhood effects" and to community-level processes that financially reward the residents of rich neighborhoods and/or punish the residents of poor ones. Greater investments in schools located in richer than in poorer neighborhoods, along with economic policies that generate more employment opportunities in better-off communities, might exacerbate the neighborhood income gap between rich and poor. Among blacks, factors like over-policing and predatory lending, which impact poor black neighborhoods most severely, might further intensify gaps between the neighborhood incomes of rich and poor non-migrants.

However, explaining increasing neighborhood income segregation among blacks will likely require an additional focus on the causes of change in the class-selectivity of inter-neighborhood migrants. Declining housing discrimination likely plays a role here (Wilson, 1987), although the effect of discrimination on inter-neighborhood migration is rarely studied directly (cf. South and Crowder, 1998). Moreover, changes in other determinants of neighborhood attainment, such as knowledge of, and preferences for, different types of neighborhoods (Krysan and Crowder, 2017) and the spatial distribution of family networks (Ackert et al., 2019; Spring et al., 2017), may also serve to widen the gap in neighborhood income between rich and poor blacks.

Future research in this area might address some of the main limitations of our analysis. First, because of data limitations, our analysis focuses only on blacks and whites. Future research should examine the proximate determinants of increasing neighborhood income segregation among ethnoracial groups other than blacks and whites, particularly Latinos and Asians. Changing inter-neighborhood migration patterns may play more of a role in explaining changes in the neighborhood income gap among groups that have historically been subject to severe housing discrimination, such as Latinos, than among groups that arguably have experienced less (though still nontrivial) discrimination, such as Asians. And *in situ* neighborhood change may play an especially important role among groups that have experienced increases in overall income inequality, such as Asians (Kochhar and Cilluffo, 2018).

Second, our study is limited by time and place. Future research might profit by extending our analysis to other time periods and by focusing on particular cities or metropolitan areas. Our analysis focuses on the 1980s, a decade that witnessed a substantial increase in neighborhood income segregation. In supplementary analysis we also examined changes in the class difference in neighborhood income during later decades, but consistent with national-level aggregate trends (Reardon et al., 2018; Logan et al., 2020) we observed too little change in the class difference in neighborhood income during these periods to support a decomposition analysis.

At the same time, the relative absence of change in average neighborhood income segregation across urban areas could obscure important increases in income segregation within particular cities or metropolitan areas (Reardon et al., 2015). Our analysis may provide a useful template for conducting city-specific analyses of the proximate sources of change in the neighborhood income gap

between poor and rich persons. Among whites, the growth in the class difference in neighborhood income may be especially pronounced in cities with a highly-educated workforce, and in these cities *in situ* neighborhood income change may be the main source of such change. In cities containing established black middle-class neighborhoods, such as Atlanta, change in income segregation may be more muted, and the change that has occurred may be less likely to have been driven by changes in the class-selectivity of migrants.

Third, from a methodological standpoint, future analyses might benefit from incorporating the economic status of the neighborhoods that movers leave. Migration between neighborhoods will not greatly affect neighborhood income segregation if movers always move to a neighborhood of the same economic status of the origin neighborhood. The decomposition analysis conducted here assumes that migrants and nonmigrants originate in neighborhoods of the same economic status, an assumption that may not hold for all racial and economic groups. For example, when economic hardship propels poor persons to leave their neighborhood, they are likely to experience downward neighborhood mobility (South and Crowder, 1997). More refined analyses might attempt to explicitly integrate the economic characteristics of origin neighborhoods into decomposition and related models.

Our findings suggest that policies designed to enhance residential mobility may be a double-edged sword. Increased mobility may reduce between-race disparities in neighborhood income but exacerbate within-group disparities. For example, programs like recent expansions of downpayment assistance and low-interest loans aimed at black and other minority homebuyers (McMullen, 2020) may result in upward neighborhood mobility for better-off members of a racial group, bringing their neighborhood incomes into greater parity with whites (cf., Fischer and Lowe, 2015). But residential programs for low-income renters, such as Section 8 housing vouchers, rarely result in upward neighborhood mobility (Edin et al., 2012), further exacerbating neighborhood income gaps between the poor and rich.

Our findings may have implications for explaining the leveling off of the increase in neighborhood income segregation in recent decades. Perhaps among blacks the decline in housing discrimination has now stalled, resulting in a fairly constant class difference in inter-neighborhood migration patterns since 1990. In addition, declines in housing discrimination may be counterbalanced by broad declines in domestic migration (Frey, 2009; DeWaard et al., 2020). And among whites, perhaps increasing gentrification counterbalances the positive effect of neighborhood income on residents' income growth, which could also lead to stable levels of neighborhood income segregation.

Regardless of the reasons for the recent plateau in neighborhood income segregation, our analysis shows that the gap between poor and rich persons in the income of their neighbors grew sharply during the 1980s. We find that the reasons for this growing inequality in neighborhood environments differ between blacks and whites. Among blacks, the increase in the neighborhood income gap between rich and poor persons is attributable in about equal measure to an increase in the ability of mobile rich households to move to high-income neighborhoods—presumably a consequence of declining housing discrimination over this period—and to *in situ* change. Among whites, however, the divergence in neighborhood income between poor and rich persons is attributable almost entirely to an increase in the incomes of stationary rich persons relative to stationary poor persons. Given the potential importance of class differences in neighborhood income to shape class differences in life chances, the causes of change in the neighborhood income gap between rich and poor persons warrant continued attention.

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