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Mixed-race couples, residential mobility, and neighborhood poverty

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ABSTRACT

Despite substantial growth in mixed-race coupling, we know little about their association with neighborhood poverty. To address this gap, I utilize data from the Panel Study of Income Dynamics linked to information from four censuses. With these data, I assess the extent to which mixed-race couples are more likely than monoracial couples to migrate in response to higher percentages of neighborhood poverty; and, once they move, I examine the percentage poverty in their destination neighborhoods. I find that most mixed-race couples are similar to white couples in their out-mobility responses to neighborhood poverty. However, when mixed-race couples with black partners migrate they tend to move to neighborhoods with higher poverty concentrations than couples without a black partner. Mixed-race couples without black partners experience similar percentages of poverty in their destination neighborhoods as whites, providing further evidence of the profound impact of black race on residential stratification.

1. Introduction

Observed black/white differences in the ability to avoid poor neighborhoods has been viewed as an important marker of broader racial stratification (Crowder and South, 2005) with salient repercussions for life course outcomes (Sharkey, 2008). Consistently, scholars detail that blacks are overrepresented in impoverished areas, leaving them exposed to a multitude of hazards (Taylor, 2014). Past research has chronicled that poor neighborhoods are often marked by higher unemployment (Mouw, 2000), more crime (Peterson and Krivo, 2010), and low-income schools (Frankenberg et al., 2003). Other blights exist in these areas. For instance, Massey and Brodmann (2014, 203) observed a higher likelihood of STD contraction in poor neighborhoods. In another study, Ludwig et al. (2011) discovered an elevated probability of obesity and diabetes in poverty-stricken neighborhoods. High-poverty environments are also linked with dangerous levels of air pollutants (Evans and Kantrowitz, 2002). In sum, poor neighborhoods exact harsh penalties upon their residents.

One prominent assumption in prior studies investigating black/white differences in neighborhood poverty is that the race of the household head represents the entire household (e.g., South et al., 2011). Although research on black/white differences in neighborhood poverty has provided critical insight on wider patterns of racial stratification (Massey and Denton, 1993), the assumption that all households are monoracial requires interrogation for two crucial reasons. First, mixed-race coupling has grown substantially in the U.S. In 1960, the U.S. Census recorded only 0.4% of marriages as multi-racial; but, as of 2010, mixed-race marriages represented 8.4% of all married-couple households (U.S. Census Bureau, 2012). Besides the population of mixed-race marriages increasing, the share of multiracial children in 2013 represented 10% of all children under the age of 1 in the U.S., when in 1970 they only accounted for 1% of all children (Parker et al., 2015). Failing to investigate this emerging population of mixed-race couples, and their broader households, has left a major gap in our understanding of contemporary patterns of racial residential stratification

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(Jargowsky, 2014). Second, investigating where mixed-race couples fall along the spectrum of neighborhood poverty exposure serves as a barometer of U.S. racial relations. Findings that mixed-race marriage between whites and racial minorities has grown significantly over the past 50 years provides an indication of enhanced levels of racial assimilation and a weakening of the color line (Lichter, 2013). Despite this racial progress, black/white differences in neighborhood poverty remain acute (Firebaugh and Farrell, 2016). With 95% of mixed-race couples consisting of either a black and/or white partner (U.S. Census Bureau, 2010), investigating where mixed-race couples with black and/or white partners fall on the spectrum of neighborhood poverty allows us to assess if these couples are confined to the historically entrenched residential mobility and attainment patterns that have distinctly separated blacks and whites (Crowder et al., 2012) or are able to leverage their unique racial status as a couple into higher quality neighborhoods.

In this paper, I address these gaps in the research on residential stratification by utilizing over a quarter-century of multilevel data drawn from the Panel Study of Income Dynamics (PSID) linked to information on neighborhoods and metropolitan areas from multiple population censuses. With these data, I conduct a first examination of mixed-race couples and their residential mobility out of and into neighborhoods marked by poverty.[1] I leverage the longitudinal design of the PSID through the use of multilevel models to compare several groupings of mixed-race couples with black and/or white partners to monoracial black and white couples. These models utilize an extensive suite of individual, household, and contextual characteristics to isolate the net association between the racial and ethnic composition of couples and neighborhood poverty, thereby, providing a thorough investigation of potentially emerging systems of racial residential stratification.

2. Background and theory

The volume of research conducted on black/white differences in neighborhood poverty in America is expansive (Jargowsky, 2014; Massey and Denton, 1993; Quillian, 2003; Sampson and Sharkey, 2008; Wilson, 1987). This collective research consistently finds that blacks occupy higher poverty neighborhoods than whites. This spatial pattern partially contributes to these groups existing in different spatial and social spaces and leads to disparities across the life course (South et al., 2016). In total, this past research supports the notion of a temporally persistent color line that privileges whites over blacks (DuBois, 2003[1903], 3; Emirbayer and Desmond, 2015, 16–17). However, a growing portion of the population has crossed the color line and entered into mixed-race unions (Wang, 2012). These couples have closed the social distance between racial and ethnic groups and, in turn, have frequently served as indicators of broader racial and ethnic group closeness for social scientists (Gordon, 1964; Lee and Bean, 2010; Qian and Lichter, 2007).

Although rates of mixed-race couple formation have served as an indicator of decreasing social distance between racial and ethnic groups, a dearth of quantitative research exists on mixed-couples after they form, especially in regards to their residential mobility and attainment patterns. The few scholars who have studied the residential patterns of mixed-race couples have done so in the context of their neighborhood racial composition (Ellis et al., 2006; Ellis et al., 2007; Ellis et al., 2012; Gabriel, 2016; Holloway et al., 2005; Iceland and Nelson, 2010; Wright et al., 2011; Wright et al., 2013). This past research contributes to our understanding of how the burgeoning population of mixed-race couples function in established structures of racial residential stratification, yet this research does not directly assess the socioeconomic status of the neighborhoods mixed-race couples occupy. This gap in the literature is particularly problematic given the rising numbers of mixed-race couples (Frey, 2015) and the deleterious consequences for families residing in higher poverty neighborhoods (Sharkey, 2013).

To provide perspective on the association between mixed-race couples with black and/or white partners and neighborhood poverty, extant theories utilized to investigate the residential mobility patterns of monoracial groups may be applied. One long-standing theory utilized by researchers is the spatial assimilation theory (Massey and Mullan, 1984; Timberlake and Iceland, 2007). This theory asserts that racial minorities attempt to convert socioeconomic recourses into higher status neighborhoods. The spatial assimilation theory is built upon the understanding that blacks possess lower levels of education (Kao and Thompson, 2003) and income (Squires and Kubrin, 2005), which leads to the conclusion that racial differences in residential mobility and attainment reflect differences in socioeconomic status (Charles, 2003). Thus, highly resourced couples—no matter their racial combination (e.g., black-white, white-Latino)—are predicted to avoid higher poverty neighborhoods and their inimical effects.

While the assertions of the spatial assimilation theory tend to hold for the residential mobility outcomes of non-blacks, this theory frequently fails to describe the residential outcomes of black households (Logan and Alba, 1993). Past studies have observed large black/white disparities in exposure to neighborhood poverty (Briggs and Keys, 2009), and this durable racial gap is particularly stark when we take into account that even highly resourced blacks experience difficulties in avoiding poor neighborhoods (Crowder and South, 2005). The extensive concentration of blacks in poor neighborhoods—despite their level of economic resources—translates to a significant portion of blacks being exposed to the pernicious effects of poor places (Sharkey, 2014). Not only are many blacks exposed to poor neighborhoods but, as compared to whites, are more likely to fall back into poor neighborhoods after they escape (South and Crowder, 1997) and, once there, tend to experience longer spells of poverty exposure (Quillian, 2003).

Due to the inability of the spatial assimilation theory to explain the prominent gaps in neighborhood poverty between blacks and whites, and their differential abilities in avoiding poor places, scholars have asserted an alternative theory of residential attainment: the place stratification theory (Alba and Logan, 1991; Charles, 2003; Logan and Alba, 1993; Logan and Molotch, 1987). This theory posits the disparity in neighborhood poverty exposure between blacks and whites is mainly driven by discrimination. Historically, blacks were victims of various forms of overt discrimination, such as restrictive covenants, redlining, and homeowners' associations

[1] A move is defined as a couple migrating to a different census tract between PSID interviews (1 or 2 years).

determined to keep upwardly mobile blacks out of their neighborhoods—resorting to violence if necessary (Massey and Denton, 1993). Contemporary forms of racial discrimination in the housing market are often not as flagrant, but surely harmful. For example, researchers have noted that real estate agents typically show equally qualified blacks fewer homes than whites (Turner et al., 2012). Other scholars have documented that predatory lenders targeted blacks with subprime mortgage loans contributing to the Great Recession (Engel and McCoy, 2011). Moreover, findings abound that a portion of whites possess a distinct aversion to sharing neighborhoods with meaningful shares of blacks (Bader and Krysan, 2015; Krysan et al., 2009; Farley et al., 1978). The collection of these, and other (Roscigno et al., 2009), contemporary forms of discrimination most certainly hinder the mobility aspirations of black households attempting to avoid higher poverty neighborhoods.

The place stratification theory also posits the effect of economic resources on the ability to avoid neighborhood poverty varies across racial groups. To address this variation Logan and Alba (1993) advanced two forms of the place stratification theory called the *strong* and *weak* versions. The strong version stresses that due to housing discrimination, blacks who attempt to avoid higher poverty neighborhoods secure a weaker return on their economic resources as compared to whites. Meaning whites, unhindered by housing discrimination, convert their economic resources into lower poverty places more successfully than blacks. Conversely, the weak version of the place stratification theory highlights the effect of economic resources on avoiding neighborhood poverty is stronger for blacks than whites. However, even highly resourced blacks reside in higher poverty neighborhoods than whites with meager assets (Reardon et al., 2015).

Because of the lack of research on the residential patterns of mixed-race couples, our understanding of how the place stratification theory functions in their case is relatively unknown. This lack of understanding is especially acute in terms of how the weak and strong versions of the place stratification theory applies to these couples. The little scholarship we do have on the topic observes that black-white couples are more likely to follow the weak version of the place stratification theory when the residential outcome is neighborhood diversity (Gabriel, 2016). However, there is no research to date examining how the weak and strong versions of the place stratification theory function in relation to mixed-race couples when the neighborhood outcome is income based, such as poverty. Additionally, prior research investigating the locational attainment of monoracial minority households into neighborhoods defined by their socioeconomic status does not necessarily clarify which version of the place stratification theory best applies to mixed-race couples. This lack of clarity comes from the fact that prior research on the subject has been fairly mixed, where some scholars have found that black households follow the strong version (Logan and Alba, 1993), while others have observed which version best applies to black households differs across metropolitan areas (Pais et al., 2012).

Despite the lack of strong guidance on how the place stratification theory applies to mixed-race couples, the continued documentation of blacks encountering persistent discrimination in the housing market (Turner et al., 2002; Turner et al., 2012) suggests that patterns of residential stratification for mixed-race couples with black partners could closely match that of black couples. Some evidence exists for this possible pattern of housing discrimination. Dalmage (2000) conducted a series of qualitative interviews with black-white couples and observed that many of these couples reported experiencing discrimination in the housing market for having crossed the color line. Dalmage asserts that discrimination towards mixed-race couples occurs because they challenge the notion of biologically based racial categorization; consequently, they must be “explained away or punished” by others for narrowly conceptualized racial boundaries to continue (Dalmage, 2000, 41). This assertion from Dalmage supports the notion that mixed-race couples with black partners might be uniquely discriminated against in the housing market, making their avoidance of higher poverty neighborhoods difficult.

Conversely, due to the privileged social status of whites, minority individuals coupled with white partners may be partially shielded from residential discrimination (Charles, 2003), effectively allowing them to reside in similar lower poverty neighborhoods as white couples. One way this might occur is through mixed-race couples with white partners utilizing the white partners’ race as a tool in the housing search and acquisition process. For example, white partners in mixed-race couples could meet with real estate agents, lenders, and landlords, effectively mitigating the potential discrimination they might confront if they conducted a housing search in tandem (Romano, 2003, 131). Additionally, a growing acceptance of mixed-race coupling has emerged in recent decades (Wang, 2012), especially in regards to mixed-race couples that consist of non-blacks (Djamba and Kimuna, 2014; Lee and Bean, 2010, 100). This softening of attitudes—despite the strong tendency for racial boundaries to be heavily guarded (Anderson 2015; Saperstein et al. 2013)—may partially attenuate the racial discrimination that mixed-race couples with white partners encounter in the housing market.

Another explanation for racial and ethnic differentiation in residential patterning is related to preferences. Previous research examining racial and ethnic differences in preferences for neighborhoods of varying racial and ethnic composition have observed that whites are least likely to prefer residing in diverse neighborhoods, while blacks tend to report the greatest draw to diverse areas (Charles, 2006). While there is little research on the preferences of mixed-race couples, scholars have found in qualitative interviews that these couples tend to report diverse neighborhoods as especially appealing (Dalmage, 2000; Romano, 2003). In addition, researchers have observed quantitatively that mixed-race couples are often residentially located in areas of greater racial and ethnic diversity (Gabriel, 2016; Holloway et al., 2005). Given that higher poverty neighborhoods tend to be more racially and ethnically diverse (Jargowsky, 2014), mixed-race couples may be increasingly likely to remain in and migrate to neighborhoods with higher poverty concentrations so as to reside in more diverse spaces. However, a lack of individual-level data on mixed-race couples’ neighborhood preferences for areas of specific racial and ethnic compositions makes it impossible to assess this theory directly, nevertheless, it remains important to account for the effect of contextual diversity on the exposure of mixed-race couples to neighborhood poverty due to the potential correlation of these contextual characteristics.

As informed by past research and the aforementioned theories of residential mobility and attainment, the residential patterns of mixed-race and monoracial couples out of and into neighborhoods characterized by their percentage poverty is likely associated with

differences in individual, household, and contextual characteristics, leading to a number of research questions. First, how does the ability to migrate out of higher poverty neighborhoods vary across mixed-race and monoracial couples? Second, is the percentage poverty in the destination neighborhoods of mobile mixed-race and monoracial couples associated with the racial and ethnic pairing of these couples? Third, does the percentage poverty in the destination neighborhoods of mixed-race and monoracial couples vary by the economic resources of these couples? Fourth, does controlling for the racial and ethnic diversity of neighborhoods and metropolitan areas account for differences between mixed-race and monoracial couples in their residential mobility out of and into neighborhoods defined by the percentage of individuals below the poverty line? Investigating these research questions presents an opportunity to gain insight into the patterns of residential stratification among the growing population of mixed-race couples.

3. Data and methods

To test these research questions, I utilize the Panel Study of Income Dynamics (PSID) appended with neighborhood- and metropolitan-level data gathered from four U.S. Censuses. Beginning in 1968, the PSID started with approximately 4800 U.S. families interviewed annually between 1968 and 1997 and biennially since that point. When children and other members of original panel families formed their own households, they have been subsequently added to the PSID sample.

The PSID is advantageous for my analysis because starting in 1985 the PSID began collecting the racial and ethnic status of spouses or long-term cohabiters of household heads.[2] Given this, I utilize the panel years between 1985 and 2013 for my sample. Due to my focus on couples, I include only on those householders with an opposite-sex spouse or long-term cohabitating partner in residence at the start and the end of an observation period.[3] The PSID defines a long-term cohabiter as an individual who is coupled with a sample member with whom they share a residence for at least 12 months. Because Latinos and Asians in the PSID might not be representative of their broader populations, I include only those couples with a black and/or white partner. Additionally, my sample only includes couples living in a U.S. Census metropolitan area at the start and the end of an observation period due to my interest in the association between metropolitan characteristics and the residential mobility of couples.

A useful characteristic of the PSID is the restricted-access Geospatial Match Files. These files record the census tract and metropolitan area of individual PSID respondents at each interview. This allows me to append information about the percentage poverty in neighborhoods as well as features of the broader metropolitan area to PSID respondents. Although census tracts represent imperfect operationalizations of neighborhoods (Lee et al., 2008), I follow prior scholars who frequently use tracts as proxies for neighborhoods (e.g., Iceland and Nelson, 2010; Quillian, 2002) because they include valuable demographic information for the study of residential mobility, and approximate the typical conception of a neighborhood (White, 1987). I gather 1980, 1990, 2000, and 2010 census data on tracts from the Neighborhood Change Database (NCDB; GeoLytics, 2013). The NCDB normalizes census tract data between 1980 and 2010 to 2010 census tract boundaries. Based on the information available in census years, I use linear interpolation to estimate values for all tract and metropolitan characteristics in intercensal years.

3.1. Sample selection

Using the PSID, I section each couple's data record into a set of couple-period observations. Each couple's observation is in reference to the period between PSID interviews. My sample consists of monoracial couples who provide 56,748 couple-period observations and mixed-race couples who contribute 3,913 couple-period observations. The couples in my analysis are comprised of four combinations of different racial and ethnic groups. These groups are non-Hispanic black (*black*), non-Hispanic white (*white*), Latino (of any race),[4] and all other non-Latino racial groups (*other*).[5] Out of these monoracial groups I construct five mixed-race couple-types: *black-white* (N = 731), *black-Latino* (N = 346), *black-other* (N = 195), *white-Latino* (N = 1,753), and *white-other* (N = 888). I also include two monoracial couple-types: *black-black* (N = 13,984) and *white-white* couples (N = 42,764).

3.2. Dependent variables

I follow prior research and conceptualize residential mobility as a two-stage process consisting of the decision to move and then the selection of a destination (Brown and Moore, 1970; Massey et al., 1994). Given this conceptual strategy, the first dependent variable in my analysis is a binary measure representing whether the couple migrated out of the census tract of origin to a different census tract between PSID interviews (0 = no, 1 = yes). My second dependent variable is a continuous measure of the percentage of the population that falls below the poverty line in the destination census tracts of mobile PSID respondents. Thus, in measuring this dependent variable, I select only those who migrate out of their census tracts of origin to different census tracts between PSID interviews, dropping from the sample those who do not make a move between PSID interviews.

Much of the literature on black/white differences in neighborhood poverty applies a binary operationalization between poor and

[2] Due to the small number of same-sex couples in my PSID sample, I only focus on opposite-sex couples in my analysis.

[3] Individuals that end their relationships between observations are not included in the analysis. However, they may reenter the sample if they enter into a new marriage or long-term cohabitation. If an individual is dropped from the sample and then returns at a subsequent interview, observations for both time periods are included in the sample.

[4] For the purposes of this research, I follow prior scholarship on the topic of mixed-race couples (e.g., Wright et al., 2013) and conceptualize Latinos as a racial group.

[5] The *other* category includes respondents who self-identify as Asian, Native American, or other.

non-poor neighborhoods, where poor neighborhoods are considered as having at least 20% of the population below the poverty line (cf. Kingsley and Pettit, 2003; South et al., 2005; Wilson, 1987). However, categorizing neighborhoods using a binary operationalization decreases the amount of observable variation in the distribution of neighborhood poverty. For mixed-race couples with black and/or white partners, maximizing the amount of observable variation is theoretically important. It is conceivable that mixed-race couples with black and/or white partners might occupy an in-between neighborhood poverty status as compared to monoracial black and white couples: placing them below the 20% poverty threshold that many black couples surpass, yet higher than the percentage poverty white couples experience. Using a binary operationalization masks this empirical possibility, where a continuous operationalization allows this theoretically relevant situation to be potentially observed.

3.3. Independent variables

In my study, I examine the effects of various individual and household sociodemographic and socioeconomic characteristics that are potentially associated with couple-type differences in exposure to neighborhood poverty and influence residential mobility. I include a predictor for age (in years) of the household head to measure the life-cycle stage. Residential mobility tends to decrease as individuals transition into their adult years through the establishment of families and by purchasing homes. Families with children might experience increased attachment to neighborhoods through the development of community ties, such as keeping children in a particular school, potentially inhibiting their desires to move. Having school aged children in the home can also influence the types of neighborhoods couples move to (Goyette et al., 2014) when parents attempt to minimize neighborhood poverty given that property taxes are directly tied to local education budgets. I capture these scenarios by including a predictor for the number children in the household. I also include a measure for household crowding, indicated by the number of persons per room. I incorporate a predictor for the length of residence, operationalized as a dummy variable taking a value of 1 for those respondents who had lived at their residences for at least 3 years at the start of the observation period. Household crowding may enhance the motivation to move, while having a longer duration of stay in the home might signal residential satisfaction, decreasing the probability of changing neighborhoods.

Measures of socioeconomic status are central in examining the exposure of mixed-race couples to higher poverty neighborhoods. Thus, I include a predictor for financial resources as indicated by the total family taxable income, measured in thousands of constant 2010 dollars. Beyond the central role of income in avoiding higher poverty neighborhoods, education may also influence householders' abilities to evade higher poverty places. Education can increase knowledge of available neighborhoods and assist individuals navigating the housing market to move to areas of lower poverty. I control for education by measuring the number of completed school years of the household head. Additionally, I include a measure of the employment status of the household head, coded as 1 for those employed at least part time, and homeownership, coded as 1 for those residing in an owner-occupied housing unit.

Besides socioeconomic and sociodemographic characteristics of individuals and households, contextual features of neighborhoods have been shown to influence neighborhood outcomes (South and Crowder, 1997). For instance, neighborhoods of similar socioeconomic status tend to spatially cluster (Massey and Denton, 1993), which, in conjunction with the distance-dependence of migration (Long, 1988), increases the likelihood those residing in poorer neighborhoods will migrate to other relatively poor neighborhoods. Due to this spatial clustering, I account for the percentage neighborhood poverty of origin neighborhoods when measuring the percentage neighborhood poverty at the destinations of mobile couples. Additionally, to account for the possibility that mixed-race couples could be more likely to remain in and migrate to higher poverty neighborhoods because of a preference for living in racially and ethnically diverse neighborhoods I incorporate a measure of neighborhood entropy. The neighborhood entropy score is defined as:

$$E_j = \left(\sum_{r=1}^{r} (\theta_{rj}) \ln[1/\theta_{rj}] \right) s$$

where θ_{rj} is a racial/ethnic group's proportion of the total population in tract j. The value of E_j ranges from 0 to 100 due to the inclusion of a scaling constant s. A score of 0 indicates one racial/ethnic group represents the entire population within the tract, while a score of 100 signals that the tract's population is distributed evenly among all racial/ethnic groups (black, white, Latino, and other).[6] Given the entropy score's simple calculation and intuitive understanding, it has proven itself to be an effective measure of local area diversity (cf. Iceland, 2004; Massey and Denton, 1988; Wright et al., 2011). Together with these neighborhood-level predictors, I include multiple factors at the metropolitan-level that can influence the opportunities for mixed-race couples to avoid higher poverty neighborhoods. These predictors include a measure of the percentage below the poverty line, the percentage of vacant housing units, and the percentage of housing built in the past 10 years. Another metropolitan-level characteristic I include is metropolitan entropy. Similar to my measure of neighborhood entropy, metropolitan entropy measures the respective contribution of racial/ethnic groups (white, black, Latino, and other) to the total population in the metropolitan area. This measure accounts for the fact that metropolitan areas with lower levels of diversity provide mixed-race couples fewer diverse neighborhoods to reside in, possibly increasing the likelihood that these couples would remain in or migrate to poorer neighborhoods because they are often concomitantly racially and ethnically diverse.

The independent variables in my analysis are measured at the start of the observation period for each couple and are treated as

[6] The other category consists of Asians, Native Hawaiians and Pacific Islanders (Pacific Islanders were grouped with Asians prior to the 2000 Census), American Indians and Alaska Natives, those who claim multiracial status (as of the 2000 Census), and some other race.

time-varying. However, one exception is related to the timing of measurement. For those couples that relocate to a new census tract between PSID interviews, their metropolitan-level characteristics refer to their metropolitan destinations because those attributes shape the context of their residential search options. To control for temporal trends in residential mobility, I include the year of observation as a continuous variable. Lastly, the length of the migration interval is operationalized as a dummy variable (1 or 2 years) to account for the PSID's change to a biennial survey in 1997.

3.4. Analytic strategy

The longitudinal design of the PSID means that couples are often interviewed multiple times, violating the regression assumption of stochastic independence of error terms. I account for this by utilizing a multilevel modeling strategy,[7] where couple-periods are nested within householders and householders are nested within metropolitan areas.[8] While these multilevel models generate variance components, these coefficients are not of substantive interest to the analysis. The coefficients of interest in these models are the individual, household, neighborhood, and metropolitan characteristics that can be interpreted like traditional logistic and linear regression coefficients.

Thus, in the first stage of my analysis, I assess my first dependent variable of whether a couple will migrate out of their origin census tract between PSID interviews by using three-level random-intercepts logistic regression models. Within these models, out-migration is allowed to vary across respondents and metropolitan areas. The primary objective in this first stage of models is in assessing couple-type differences in the effect of percentage neighborhood poverty on the likelihood of residential out-mobility.

In the second stage of my analysis, I measure my second dependent variable which is the percentage poverty in the destination neighborhoods of mobile couples using three-level random-intercepts linear regression models. At this second stage I only estimate the percentage poverty in the destination neighborhoods of couples who migrate out of their census tracts of origin to different census tracts between PSID interviews, however, these are not a random sample of couples: some couples have a higher latent probability of moving than others. I adjust for this bias by applying a Heckman procedure (1979) for the selection of householders into the mover category. In my application of the Heckman procedure, the “selection” equation incorporates all of the predictors in the fully-specified residential out-mobility model. The “substantive” equation that estimates the percentage neighborhood poverty in the destinations of mobile couples includes a covariate known as Lambda (λ) to measure the latent probability of selection into the mover category (estimated in the “selection” equation) and excludes covariates that are assumed to affect the choice to move but not the characteristics of destinations.

4. Results

To convey an initial description of couple-type differences in exposure to neighborhood poverty, Fig. 1 illustrates the average percentage poverty in the origin and destination neighborhoods mixed-race and monoracial couples. Fig. 1 reveals that all mixed-race couples are bookended by white-white and black-black couples that reside at the extremes of neighborhood poverty exposure in both their origin and destination neighborhoods. Notably, mixed-race couples with black partners experience markedly higher concentrations of neighborhood poverty than mixed-race couples without black partners. Among those mixed-race couples with black partners, black-white couples exhibit the lowest percentage neighborhood poverty, with both black-other and black-Latino couples experiencing higher neighborhood poverty concentrations. Standing in contrast are white-other and white-Latino couples who display neighborhood poverty concentrations that are considerably less than their mixed-race couple counterparts with black partners, and are relatively close to the percentage neighborhood poverty faced by white-white couples.

While Fig. 1 highlights the average percentage poverty in the origin and destination neighborhoods of mixed-race and monoracial couples, it is also salient to describe the variation in the change in mobile couples' percentage neighborhood poverty from their origin to destination neighborhoods. Fig. 2 accomplishes this end by displaying mobile couples who experienced a change in percentage neighborhood poverty between their origin and destination neighborhoods of less than 1%, 1% and less than 5%, 5% and less than 10%, and those with 10% or higher. Apparent in Fig. 2 is that couples with black partners experience greater variation in the change in the percentage poverty between their origin and destination neighborhoods than couples without black partners. For instance, approximately 18% of black-Latino couples experience at least a 10% increase in neighborhood poverty in their destination neighborhoods compared to about 10% of white-Latino couples who encounter the same increase in neighborhood poverty. Conversely, around 30% of black-other couples experience at least a 10% decline in neighborhood poverty between their origin and destination neighborhoods as compared to roughly 12% of white-other couples who experience the same 10% decline. This broader pattern of couples with black partners experiencing greater variation in the change in percentage neighborhood poverty between their origin and destination neighborhoods than couples without black partners points to the temporally unstable neighborhood contexts that couples with black partners encounter across moves over their residential history.

The couple-type disparities in average neighborhood poverty exposure presented in Fig. 1 and the variation in the change in percentage poverty between the origin and destination neighborhoods of mobile couples in Fig. 2 can likely be credited to considerable variation in individual, household, and contextual characteristics between couples. To initially explore this issue, Table 1 displays descriptive statistics disaggregated by couple-types for all variables utilized in my analysis. Among these statistics, mixed-

[7] I utilize the *xt* suite commands in Stata 13 to conduct my analysis (StataCorp, 2013).

[8] Among PSID householders in my sample, there are too few clustering in tracts to necessitate another hierarchical level.

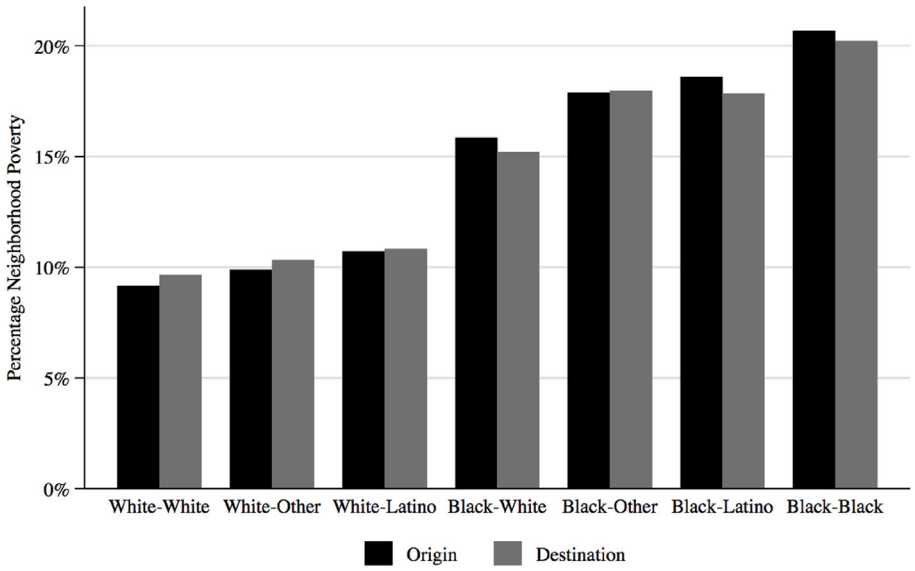

Fig. 1. Average percentage neighborhood poverty at origin and destination for mixed-race and monoracial couples: Panel study of Income dynamics; 1985–2013.

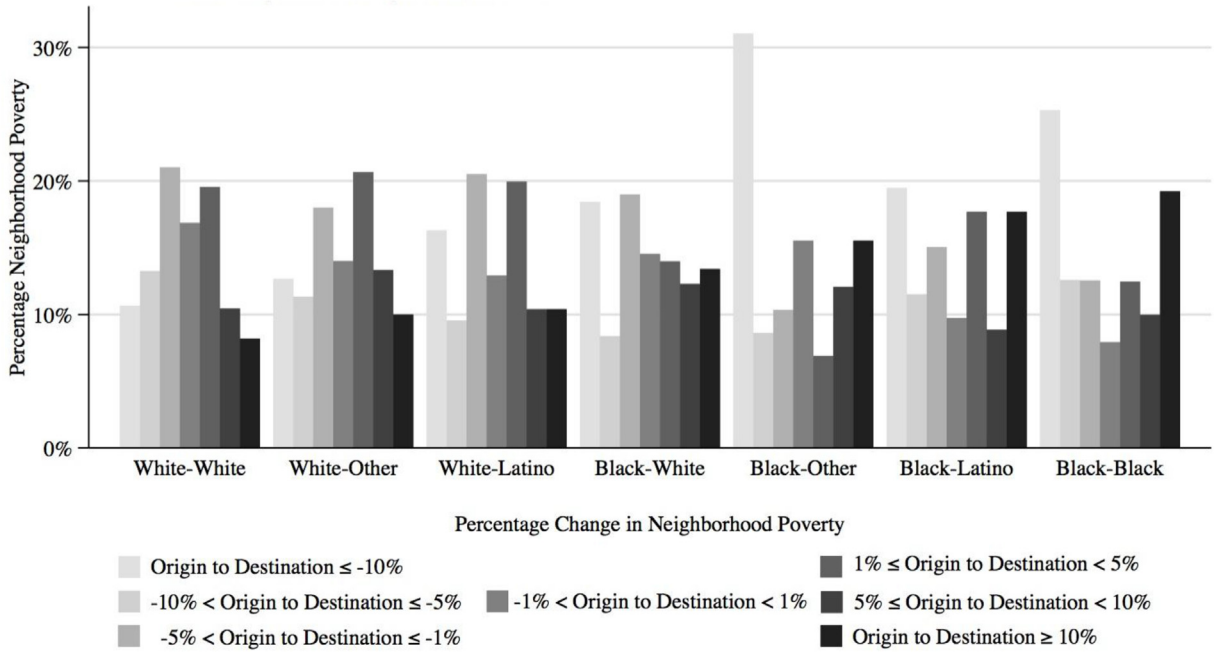

Fig. 2. Percentage change in neighborhood poverty from origin to destination for mobile mixed-race and monoracial couples: Panel study of income dynamics; 1985–2013.

race couples with black partners are more likely to change neighborhoods (tracts) between interviews as compared to couples without black partners. Following past research on the topic, all mixed-race couples, on average, reside in neighborhoods with higher levels of diversity (entropy) than white-white couples (Holloway et al., 2005). Additionally, there are sharp distinctions between couples in average family income that align with well-known racial disparities. For instance, white-white couples earn a relatively high average family income compared to other couples in my analysis, about $101,000. Mixed-race couples without black partners are relatively similar to white-white couples in average family income where white-other couples earn approximately $108,000, followed by white-Latino couples with average family incomes around $96,000. Out of all couples with black partners, black-white couples earn the highest average family income at nearly $78,000. Trailing black-white couples are black-other couples who earn $62,000 and black-Latino couples who earn $61,000, both of these couples are comparatively similar to black-black couples who earn about $65,000 annually.

Table 1
Descriptive statistics for the analyses of mixed-race and monoracial couples: Panel study of income dynamics; 1985–2013.

	White-white		White-other		White-Latino		Black-white		Black-other		Black-Latino		Black-black	
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*	*Mean*	*SD*
Neighborhood characteristics														
% Poverty at origin	9.17	7.37	9.87	8.09	10.72	8.39	15.85	11.95	17.88	12.71	18.60	12.45	20.68	13.10
% Poverty at destination[a]	9.64	7.95	10.32	8.75	10.82	8.27	15.20	12.72	17.97	13.05	17.84	11.41	20.21	13.90
% Change tract between interviews	13.95	34.64	16.89	37.49	20.31	40.24	24.49	43.03	29.74	45.83	32.66	46.96	17.78	38.24
Entropy at origin	30.88	20.48	44.70	22.82	48.13	22.43	52.01	21.54	51.01	24.40	57.46	23.67	44.62	22.30
Entropy at destination[a]	35.57	21.45	45.50	21.48	50.65	21.65	51.40	21.65	47.70	24.49	62.32	21.90	47.95	23.53
Metropolitan characteristics														
% Poverty at MSA at origin	12.21	3.74	12.41	4.01	13.08	3.82	13.11	5.12	12.43	3.32	13.61	2.90	13.24	4.04
% Poverty at MSA at destination[a]	12.38	3.63	12.74	4.10	13.29	3.56	12.50	3.33	12.29	3.18	13.20	2.79	13.23	3.87
% Housing units vacant at MSA at origin	8.65	4.44	8.57	4.06	9.03	3.85	9.44	5.45	8.07	2.84	8.67	3.94	8.65	2.82
% Housing units vacant at MSA at destination[a]	9.27	5.25	8.68	4.07	9.27	3.81	9.85	5.71	7.37	2.36	8.79	3.49	8.88	2.88
% Units built 0–10 yrs ago at MSA at origin	17.89	8.27	17.31	7.93	20.55	9.48	18.86	7.93	17.76	7.51	18.54	9.53	21.55	8.15
% Units built 0–10 yrs ago at MSA at destination[a]	18.36	8.48	18.17	7.55	19.90	8.66	18.21	8.15	17.09	7.39	20.26	9.20	20.16	8.13
Entropy at MSA at origin	46.89	21.06	55.99	20.92	61.81	19.54	56.25	16.90	65.38	14.36	68.89	16.08	60.09	13.43
Entropy at MSA at destination[a]	50.15	20.50	56.55	20.60	63.50	18.74	58.10	17.96	64.34	15.91	70.14	14.43	62.02	14.30
Individual characteristics														
Age at origin	45.20	14.54	44.48	14.03	39.71	34.45	37.35	10.91	39.41	12.38	35.41	8.76	42.82	13.47
Number of children at origin	.98	1.14	.94	1.10	1.29	1.26	1.31	1.25	1.67	1.54	1.67	1.22	1.40	1.31
Persons per room at origin	.52	.24	.54	.30	.63	.33	.69	.37	.76	.35	.83	.36	.71	.36
Homeowner (1 = yes) at origin	.82	.38	.76	.43	.66	.47	.52	.50	.47	.50	.34	.47	.59	.49
Same house 3 + years (1 = yes) at origin	.64	.49	.54	.50	.47	.50	.48	.50	.40	.49	.38	.49	.61	.49
Employed (1 = yes) at origin	.81	.39	.84	.36	.88	.32	.84	.37	.82	.39	.84	.37	.78	.42
Education (in years)	13.79	3.15	14.16	3.04	13.80	3.08	13.45	2.88	13.07	2.31	12.26	2.10	11.92	3.02
Family income (in $1000s) at origin	101.49	110.90	108.07	92.22	95.88	78.44	78.20	88.30	62.42	36.55	61.27	47.27	65.23	42.12
Year	1996	7.61	1998	7.41	1996	7.91	1997	8.31	1998	7.25	1997	8.91	1995	7.70
Length of observation	1.40	.49	1.56	.50	1.32	.47	1.44	.50	1.50	.50	1.38	.49	1.36	.48
N of Couple-Period Observations for Table 2	42764		888		1753		731		195		346		13984	
N of Couples for Table 2	5296		206		458		194		60		106		2304	
N of Couple-Period Observations for Table 3	5964		150		356		179		58		113		2487	
N of Couples for Table 3	3047		100		218		110		34		67		1294	

Notes: [a] These statistics are based solely on couples who change census tracts between interviews. The sample size for these statistics are listed in Table 1 as "*N* of Couple-Period Observations for Table 3." The remaining statistics without a superscript in Table 1 are based on couples who do or do not change census tracts between interviews. The sample size for these statistics are listed in Table 1 as "*N* of Couple-Period Observations for Table 2." The difference in samples sizes between Tables 2 and 3 occurs because Table 2 is the sample that includes couples who change census tracts between interviews and couples that do not, while Table 3 utilizes only couples who change census tracts between interviews.

There are pronounced differences in other socioeconomic attributes between couples with and without black partners. For example, 82% of all white-white couples own their homes, the highest among all couple-types; however, only 59% of black-black couples, 52% of black-white couples, 47% of black-other couples, and 34% of black-Latino couples are homeowners. Conversely, homeownership rates for white-other (76%) and white-Latino couples (66%) are higher than their mixed-race couple counterparts with black partners. In terms of employment status, mixed-race couples are actually more likely to be employed than both black-black and white-white couples. Compared to black-black couples, on average, all mixed-race couples possess higher levels of education (in years), but both white-other and white-Latino couples tend to have slightly higher levels of educational attainment than white-white couples.

Table 1 also highlights sociodemographic characteristics known to influence residential out-mobility and neighborhood attainment. Among these sociodemographic characteristics, most mixed-race couples possess lower average ages compared to white-white and black-black couples, reflecting the fact that mixed-race couples tend to consist of younger cohorts (Joyner and Kao, 2005). Typically, couples with black partners, along with white-Latino couples, are more likely to have children 18 and younger living in residence than white-white couples. In contrast, white-other couples have slightly fewer children than white-white couples. All mixed-race couples, on average, live in residences with higher concentrations of household crowding than white-white couples; along this same outcome, however, mixed-race couples with black partners are more similar to black-black couples than white-white couples. Mixed-race couples are also less likely than black-black and white-white couples to remain in their homes for at least three years, signaling their higher likelihood of residential out-mobility between PSID interviews.

Lastly, there are distinguishable differences in the origin and destination metropolitan areas between couples. On average, in both origin and destination metropolitan areas, black-white couples are exposed to the highest percentages of vacant housing out of all

couples, while black-other couples experience the lowest. The percentage of new housing for mixed-race couples in their origin metropolitan areas falls between white-other couples with the lowest and black-black couples with the highest. In destination metropolitan areas, however, black-other couples have the lowest percentages of new housing and black-Latino couples possess the highest. Relative to white-white couples, all other couples reside in origin and destination metropolitan areas with higher racial and ethnic diversity (entropy). Particularly salient for my analysis, all mixed-race couples except black-other couples in destination metropolitan areas evince higher percentages of poverty in their metropolitan areas than white-white couples, likely attributing to mixed-race couples' elevated exposure to neighborhood poverty as displayed in Figs. 1 and 2.

4.1. Neighborhood poverty and residential out-mobility

Figs. 1 and 2 illustrate distinct couple-type differences in neighborhood poverty exposure that are likely associated with the variations in individual, household, and contextual characteristics displayed in Table 1. These descriptive findings motivate my primary aim, which is to investigate the underlying residential mobility dynamics of mixed-race and monoracial couples relative to neighborhood poverty, and how these couples function within competing theories of residential stratification. Toward this end, Table 2 examines the residential out-mobility behaviors of mixed-race and monoracial couples using three-level random-intercepts logistic regression models predicting the log-odds that these couples migrate out of their origin neighborhoods (i.e., census tracts) between PSID interviews.[9] The central purpose with these models is to investigate couple-type differences in the effect of percentage neighborhood poverty on the likelihood of residential out-mobility. Moreover, the three-level random-intercepts logistic regression models are utilized to account for the multiple observations associated with a couple, which violates the regression assumption of stochastic independence of error terms. This analytical approach produces variance components that are not of substantive interest, leaving the remaining covariates in the models to be interpreted as traditional logistic coefficients.

Model 1 consists of couple-type categories and a control for percentage neighborhood poverty at origin. The results indicate that black-Latino, black-white, and black-other couples all experience significantly higher likelihoods of residential out-mobility as compared to white-white couples. Net of these couple-type differences, the odds of out-mobility are higher for those originating in higher poverty neighborhoods ($b = 0.0208, p < .001$). Consequently, a difference in neighborhood poverty at origin of 12.039% (one-standard deviation from the pooled sample) is associated with a 28% [$e^{(0.0208*12.039)} = 1.284$] increase in the odds of out-mobility for couples.

Model 2 includes an interaction between couple-types and neighborhood poverty allowing me to evaluate whether, and the extent to which, the relationship between neighborhood poverty and out-mobility varies across couple-types. In the case of white-white couples, the effect of poverty is positive and significant ($b = 0.0336, p < .001$), where a one-standard deviation increase in neighborhood poverty is related to a 49% [$e^{(0.0336*12.039)} = 1.498$] increase in their odds of residential out-mobility. This finding aligns with previous research that observes that white households are relatively advantaged in escaping higher poverty neighborhoods (South et al., 2005). Conversely, and following theoretical expectation, the effect of neighborhood poverty on out-mobility is notably weaker for black-black couples ($b = 0.0124 = 0.0336–0.0212, p < .001$) as compared to white-white couples. For these couples, a comparable difference in neighborhood poverty is associated with merely a 16% [$e^{((0.0336–0.0212)*12.039)} = 1.161$] increase in the odds of out-mobility. A greater out-mobility disadvantage is present for black-Latino couples ($b = 0.0036 = 0.0336–0.0300, p < .05$) for whom a one-standard deviation increase in neighborhood poverty exposure is related to a 4% [$e^{((0.0336–0.0300)*12.039)} = 1.044$] increase in their odds of out-mobility in relation to white-white couples. Among mixed-race couples, however, black-white couples are the most limited in their out-mobility responses to higher concentrations of neighborhood poverty ($b = -0.0018 = 0.0336–0.0353, p < .05$) as compared to white-white couples. Consequently, a similar one-standard deviation increase in neighborhood poverty for black-white couples is associated with a 2% [$e^{((0.0336–0.0353)*12.039)} = 0.9797$] decrease in their odds of out-mobility.

Yet, it remains unclear whether the couple-type differences appearing in Model 2 simply reflect differences in metropolitan characteristics that are associated with residential out-mobility from higher poverty neighborhoods. Hence, Model 3 includes three metropolitan-level characteristics: percentage poverty, percentage vacant housing, and the percentage housing built in the last 10 years. The coefficient for percentage metropolitan poverty is negative and significant ($b = -0.0323, p < .001$), indicating that couples are less likely to engage in a residential move in metropolitan areas with higher percentages of poverty. This finding potentially highlights that higher poverty metropolitan areas provide fewer desirable locales leading to a decrease in residential out-mobility for couples. The coefficient for percentage vacant housing is positive, but fails to reach statistical significance. Alternately, the effect for percentage housing built in the last 10 years is significantly negatively associated with the likelihood of out-mobility for couples ($b = -0.0164, p < .001$). The addition of these metropolitan characteristics, however, have a modest influence on the interaction coefficients between couple-types and neighborhood poverty.

Model 4 incorporates controls for a battery of individual- and household-level socioeconomic and sociodemographic covariates to further isolate the net effect of higher percentages of neighborhood poverty concentration on the out-mobility behaviors of couples. A number of these coefficients emerge having a significant negative effect on out-mobility such as: age, number of children, home-ownership, couples who have been in their homes for at least 3 years, and the employed.[10] Inversely, couples with more persons per room and those with higher levels of education are significantly more likely to change neighborhoods between PSID interviews. But

[9] It is known that logit coefficients across models can be affected by unequal variances. To check the robustness of the substantive patterns demonstrated by the logit coefficients presented in Table 2 I estimated each of the out-mobility models using linear probability models. The results from the linear probability models confirm the substantive findings from the logit coefficients.

[10] In a supplemental analysis of Model 4 (not shown), I estimated the non-linear effect of age because residential mobility can increase among older adults. The inclusion of this variable did not substantively alter the findings.

Table 2
Multilevel logistic regression of migration out of origin neighborhoods for mixed-race and monoracial couples: Panel study of income dynamics; 1985 to 2013.

Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Couple-Types (ref. white-white)					
Black-black	.0882	.3857***	.4149***	-.1567*	-.2982***
	(.0582)	(.0797)	(.0798)	(.0641)	(.0675)
Black-Latino	.8051***	1.2478***	1.2676***	.2868	.1261
	(.1937)	(.3212)	(.3202)	(.2702)	(.2715)
Black-other	.5224*	.2400	.2481	-.4115	-.5494
	(.2438)	(.4016)	(.4007)	(.3447)	(.3462)
Black-white	.5303***	1.0168***	.9985***	-.0594	-.1706
	(.1453)	(.2252)	(.2250)	(.1847)	(.1859)
White-Latino	.0726	.1329	.1453	-.0988	-.1588
	(.0979)	(.1497)	(.1493)	(.1248)	(.1254)
White-other	.0811	.1795	.1616	-.1072	-.1489
	(.1381)	(.2060)	(.2053)	(.1727)	(.1733)
Neighborhood Characteristics					
% Neighborhood poverty	.0208***	.0336***	.0357***	.0085***	.0052*
	(.0018)	(.0029)	(.0029)	(.0025)	(.0026)
Neighborhood entropy					.0052***
					(.0009)
Interactions					
Black-black X % Neighborhood poverty		-.0212***	-.0226***	-.0068*	-.0012
		(.0038)	(.0038)	(.0032)	(.0034)
Black-Latino X % Neighborhood poverty		-.0300*	-.0318*	-.0175	-.0122
		(.0139)	(.0139)	(.0119)	(.0120)
Black-other X % Neighborhood poverty		.0102	.0085	.0265	.0311*
		(.0180)	(.0179)	(.0152)	(.0153)
Black-white X % Neighborhood poverty		-.0353**	-.0354**	-.0078	-.0050
		(.0110)	(.0110)	(.0094)	(.0094)
White-Latino X % Neighborhood poverty		-.0073	-.0070	.0013	.0026
		(.0101)	(.0101)	(.0085)	(.0086)
White-other X % Neighborhood poverty		-.0105	-.0099	-.0006	.0002
		(.0144)	(.0144)	(.0125)	(.0126)
Metropolitan Characteristics					
% Poverty, MSA			-.0323***	-.0189***	-.0220***
			(.0084)	(.0053)	(.0054)
% Housing units vacant, MSA			.0089	.0046	.0118***
			(.0064)	(.0045)	(.0030)
% Units built 0–10 yrs. Ago, MSA			-.0164***	.0172***	.0022
			(.0033)	(.0029)	(.0014)
Entropy, MSA					.0100*
					(.0045)
Micro-Level Characteristics					
Age				-.0364***	-.0362***
				(.0014)	(.0014)
Number of children				-.0943***	-.0916***
				(.0138)	(.0138)
Persons per room				.4368***	.4299***
				(.0526)	(.0527)
Homeowner (1 = yes)				−1.6002***	−1.5860***
				(.0351)	(.0352)
Same house 3 + years (1 = yes)				-.2764***	-.2748***
				(.0323)	(.0323)
Employed (1 = yes)				-.3044***	-.3099***
				(.0416)	(.0416)
Education (in years)				.0396***	.0375***
				(.0055)	(.0055)
Family income (in $1000s)				.0002	.0002
				(.0002)	(.0002)
Length of observation				.8713***	.8741***
				(.0522)	(.0521)
Year				.0061	-.0012
				(.0037)	(.0039)
Constant	−2.3979***	−2.4136***	−2.1075***	−13.1130	1.3373
	(.0530)	(.0555)	(.1464)	(7.2971)	(7.6564)
Variance Components					
Between MSA's	.2191***	.2204***	.2204***	.0471***	.0405***
	(.0191)	(.0192)	(.0193)	(.1378)	(.0059)

(*continued on next page*)

Table 2 (*continued*)

Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Between Individuals	1.6359***	1.6356***	1.6101***	.3473***	.3503***
	(.0349)	(.0349)	(.0348)	(.0482)	(.0168)
BIC	48559	48617	48612	43375	43342

Note: *N* of observations = 60,661; *N* of couples = 8,624.
*$p < .05$; **$p < .01$; ***$p < .001$.

with the incorporation of socioeconomic and sociodemographic characteristics in Model 4, the only couple-type interactions with neighborhood poverty that remain significant are for white-white ($b = 0.0085$, $p < .001$) and black-black ($b = 0.0017 = 0.0085–0.0068$, $p < .05$) couples. As it relates to mixed-race couples, they are not significantly different from white-white couples in their out-mobility responses to higher percentages of neighborhood poverty after socioeconomic and sociodemographic characteristics are controlled. Moreover, in supplemental models (not shown) I explored the reason for the change in statistical significance in the interaction coefficients for mixed-race couples and neighborhood poverty from Model 3 to Model 4. This analysis revealed that homeownership was the most important variable associated with this change in statistical significance; meaning that mixed-race couples of similar housing status as white-white couples are not any less likely than white-white couples to migrate in response to neighborhood poverty.

In Model 5, I assess the effects of neighborhood and metropolitan diversity (entropy) on the interaction between neighborhood poverty and the out-mobility behaviors of couples. Including these contextual effects of diversity is to account for the fact that mixed-race couples may remain in poorer neighborhoods out of a preference for racial and ethnic diversity. The coefficients for both neighborhood and metropolitan entropy are positive and significant, showing that couples are more likely to migrate out of their neighborhoods between interviews in areas of higher racial and ethnic diversity. Moreover, with the addition of neighborhood and metropolitan entropy, the effect of neighborhood poverty on out-mobility is significant for white-white ($b = 0.0052$, $p < .05$) couples, while black-other couples ($b = 0.0363 = 0.0052 + 0.0311$, $p < .05$) now emerge as statistically significant. The positive interaction coefficient for black-other couples illustrates that these couples possess a stronger out-mobility response to higher concentrations of neighborhood poverty than white-white couples.[11] Especially salient in Model 5 of Table 2 is that the interaction terms between most mixed-race couple-types and neighborhood poverty fall short of statistical significance with the inclusion of individual, household, and contextual characteristics. Meaning that among a majority of mixed-race couples with comparable characteristics, there is effectively no differentiation in their likelihood of out-mobility from neighborhoods with higher percentages of poverty concentration as compared to white-white couples. This is a potential signal that these mixed-race couples, who are seemingly no different from white-white couples in their likelihood out-mobility, do not have a preference for poorer neighborhoods because they potentially possess greater levels of racial and ethnic diversity.

4.2. Destination neighborhood poverty for mobile couples

The previous out-mobility models emphasize part of the difference in exposure to neighborhood poverty across couple-types is related to differences in the likelihood of leaving higher poverty areas, but these differences appear to be modest. This leaves the possibility that the couple-type variation in neighborhood poverty revealed in Figs. 1 and 2 is driven by disparities in neighborhood poverty in the destinations of mobile couples. To investigate this, Table 3 displays the results from a three-level random-intercepts linear regression analysis investigating the percentage poverty in the destination neighborhoods of mobile mixed-race and monoracial couples.[12] As mentioned prior, these models are estimated only on those couples who migrate out of their census tract of origin to a different census tract between PSID interviews. Similar to the models presented in Table 2, Table 3 also includes variance components that are not of substantive interest to the analysis. With that, the remaining covariates may be interpreted as traditional linear regression coefficients. Also, as stated prior, I account for the non-random selection of individuals into the mover category through a Heckman correction strategy.

Model 1 of Table 3 contains the covariate for the non-random selection of couples into the mover category (known as Lambda (λ)), which denotes a negative association between the percentage poverty in the destination neighborhoods of couples and the latent probability of out-mobility. In other words, those couples with a higher latent probability of moving tend to migrate to neighborhoods with lower percentages of neighborhood poverty. Upon controlling for this sample selection process, there is a positive and significant relationship between the percentage neighborhood poverty at origin and the percentage poverty in the destination neighborhoods of mobile PSID couples ($b = 0.2550$, $p < .001$). This positive association reflects the spatial contiguity of neighborhoods with similar poverty concentrations, signifying that the percentage poverty for couples in their origin neighborhoods is comparatively similar in the destinations they migrate to.

[11] In a supplemental analysis (not shown) I analyzed which entropy variable was most instrumental in causing the change in the interactions between couple-types and neighborhood poverty from Model 4 to Model 5. Neighborhood entropy emerged as being primarily responsible for the changes in the coefficients between models.

[12] The dependent variable in Table 3 does not measure the change in the level of percentage poverty between the origin and destination neighborhoods of couples, it solely assesses the percentage poverty in the destination neighborhoods of couples who migrate between PSID interviews.

Table 3
Multilevel linear regression of percentage poverty of destination neighborhoods for mixed-race and monoracial couples: Panel study of income dynamics; 1985 to 2013.

Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Couple-Types (ref. "white-white")					
Black-black	7.4163***	7.3156***	6.4081***	9.2687***	9.9310***
	(.2911)	(.2789)	(.2865)	(.4277)	(.4341)
Black-Latino	5.8253***	5.8370***	4.7475***	6.9029***	7.7655***
	(.9380)	(.9263)	(.9138)	(1.8067)	(1.8046)
Black-other	5.1992***	5.4432***	4.8736***	9.8775***	10.5078***
	(1.2807)	(1.2640)	(1.2470)	(2.3362)	(2.3302)
Black-white	3.8774***	3.8228***	3.3007***	5.3870***	5.9030***
	(.7368)	(.7254)	(.7181)	(1.0911)	(1.0918)
White-Latino	.5883	.2726	.1674	-.1219	.5138
	(.5341)	(.5257)	(.5192)	(.6650)	(.6682)
White-other	.5211	.3058	.2966	.7201	1.0167
	(.7937)	(.7809)	(.7690)	(1.1389)	(1.1361)
Neighborhood Characteristics					
% Neighborhood poverty at origin	.2550***	.2272***	.1953***	.1866***	.1816***
	(.0099)	(.0098)	(.0099)	(.0099)	(.0099)
Neighborhood entropy at origin					-.0121*
					(.0054)
Metropolitan Characteristics					
% Poverty, MSA at destination		.5698***	.5540***	.5475***	.5819***
		(.0319)	(.0307)	(.0307)	(.0308)
% Housing units vacant, MSA at destination		.0852***	.0817***	.0831***	.0349
		(.0240)	(.0243)	(.0243)	(.0250)
% Units built 0–10 yrs. Ago, MSA at destination		-.0379**	-.0578***	-.0600***	-.0284
		(.0138)	(.0155)	(.0155)	(.0158)
Entropy, MSA at destination					-.0462***
					(.0069)
Micro-Level Characteristics					
Age			.0220	.0235	.0461**
			(.0153)	(.0153)	(.0159)
Number of children			.3238***	.2822***	.2864***
			(.0839)	(.0835)	(.0833)
Homeowner (1 = yes)			-.7377	-.6662	.2294
			(.5698)	(.5676)	(.5988)
Employed (1 = yes)			−1.3018***	−1.0047***	-.8130**
			(.2955)	(.2956)	(.2974)
Education (in years)			-.3533***	-.3414***	-.3456***
			(.0388)	(.0386)	(.0385)
Family income (in $1000s)			-.0093***	-.0063***	-.0054***
			(.0015)	(.0016)	(.0016)
Interactions					
Black-black X Family income				-.0445***	-.0442***
				(.0050)	(.0050)
Black-Latino X Family income				-.0352	-.0353
				(.0297)	(.0296)
Black-other X Family income				-.0870*	-.0879*
				(.0364)	(.0363)
Black-white X Family income				-.0285*	-.0278*
				(.0124)	(.0124)
White-Latino X Family income				.0040	.0030
				(.0049)	(.0048)
White-other X Family income				-.0047	-.0051
				(.0093)	(.0092)
Year			-.0184	-.0181	.0098
			(.0209)	(.0208)	(.0213)
Lambda(λ)	-.7496***	-.6756***	-.4807	-.4654	−1.1975**
	(.1106)	(.1091)	(.3817)	(.3801)	(.4096)
Constant	8.6484***	1.3342*	44.6250	43.6340	−10.2824
	(.3002)	(.5376)	(41.8156)	(41.6617)	(42.5965)
Variance Components					
Between MSA's	3.9654***	1.3756	.8387	.9145	.8434
	(.3804)	(.1954)	(.1421)	(.1532)	(.1490)

(*continued on next page*)

Table 3 (*continued*)

Independent Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Between Individuals	7.6472***	8.7899***	8.1935***	7.6370***	7.6978***
	(.6894)	(.6746)	(.6467)	(.6316)	(.6298)
Residual	78.2878***	74.8795***	73.2622***	72.9210***	72.3652***
	(.8511)	(.8121)	(.7872)	(.7780)	(.7727)
BIC	68128	67788	67579	67541	67497

Note: *N* of observations = 9,307; *N* of couples = 4,870.
*$p < .05$; **$p < .01$; ***$p < .001$.

Also included in Model 1, and most important for my purposes, are the couple-type coefficients estimating the percentage poverty in the destination neighborhoods of couples. Black-black couples significantly demonstrate the highest average percentage neighborhood poverty out of all couple-types, around 7.4 percentage points higher than white-white couples after controlling for neighborhood poverty at the origin and the latent probability of moving. This finding aligns with past research showing that black households tend to experience greater exposure to higher poverty neighborhood settings than whites (Firebaugh and Farrell, 2016). Of all mixed-race couples, the difference in neighborhood poverty between black-Latino ($b = 5.8253$, $p < .001$) and white-white couples is most prominent, followed by black-other ($b = 5.1992$, $p < .001$) and black-white couples ($b = 3.8774$, $p < .001$). Thus, couples with black partners tend to experience higher percentages of poverty in their destination neighborhoods as compared to white-white couples. Conversely, both white-Latino and white-other couples experience roughly equivalent neighborhood poverty concentrations as white-white couples as evidenced by their couple-type differences failing to be statistically significantly different than white-white couples.

Model 2 adds to Model 1 three destination metropolitan-level determinants of neighborhood poverty exposure: percentage poverty, percentage vacant housing units, and percentage housing built in the past 10 years.[13] Not surprisingly, the coefficient for percentage metropolitan poverty is positive and significant ($b = 0.5698$, $p < .001$), indicating that among movers, a higher percentage poverty at the metropolitan-level is associated with a higher percentage poverty in their destination neighborhoods. Additionally, percentage vacant housing shows a positive and significant ($b = 0.0852$, $p < .001$) association with destination neighborhood poverty, while greater percentages of new housing built within metropolitan areas is negatively and significantly ($b = -0.0379$, $p < .001$) related with the same outcome. However, controlling for these metropolitan-level predictors in Model 2 does little to alter the coefficients for mixed-race and monoracial couples. Model 3 includes classical predictors of sociodemographic and socioeconomic status known to influence destination outcomes for mobile households. The results demonstrate that for all couples, greater numbers of children in residence is significantly associated with higher percentages of neighborhood poverty in their destination neighborhoods ($b = 0.3238$, $p < .001$). Congruent with theoretical expectation, the coefficients for socioeconomic predictors—employment status, level of education, and family income—are negative and significant, demonstrating that higher socioeconomic status couples typically move to neighborhoods with lower poverty concentrations. Particularly important in Model 3 is that net of the sociodemographic and socioeconomic characteristics of couples, the couple-type coefficients are only slightly attenuated without changing their levels of statistical significance.

However, as put forth by the place stratification theory, the role of socioeconomic resources in avoiding neighborhood poverty could vary by the racial and ethnic composition of the couple. To investigate the potential couple-type variation in the effect of economic resources on avoiding higher poverty neighborhoods, the place stratification theory advances two variants, the *strong* and *weak* versions. As mentioned before, the strong version states that blacks attempting to avoid higher poverty neighborhoods secure a weaker return on their economic resources as compared to whites. The weak version posits the opposite—the effect of economic resources is stronger for blacks than whites. In the case of mixed-race couples and their association with neighborhood poverty, the implications of the place stratification theory remain unclear. Therefore, in Model 4 I introduce interaction terms to evaluate whether, and the degree to which, the effect of economic resources, as measured by total family income, vary across couple-types. The results indicate that a portion of the coefficients for the interaction terms point to statistically significant differences in the effects of family income across couple-types. For instance, the effect of family income on neighborhood poverty exposure is stronger for black-black couples ($b - 0.0508 = -0.0063 – 0.0445$, $p < .001$) than for white-white couples ($b = -0.0063$, $p < .001$), providing evidence that black-black couples correspond to the weak version of the place stratification theory. Additionally, the interactions for both black-other and black-white couples are consistent with the weak version, with black-other couples ($b - 0.0933 = -0.0063 – 0.0870$, $p < .05$) and black-white couples ($b = -0.0348 = -0.0063 – 0.0285$, $p < .05$) displaying stronger negative slopes as compared to white-white couples.

Model 5 includes measures of neighborhood and metropolitan entropy to assess whether controlling for contextual racial and ethnic diversity will account for couple-type differences in residential mobility into neighborhoods defined by the percentage of individuals that fall below the poverty line.[14] The effect for neighborhood entropy at origin is negative and significant ($b = -0.0121$, $p < .05$), demonstrating

[13] For couples that relocate to a new census tract between PSID interviews, their metropolitan-level characteristics refer to their metropolitan destinations because those attributes shape the context of their residential search options.

[14] Mixed-race couples can and, at times, do reside in households with other members beyond their own children. These broader relationships could potentially influence residential mobility by further rooting couples to their neighborhoods through increased community ties had by other household members or lead the household to have a larger collective knowledge base of potential neighborhoods that possess lower concentrations of poverty for mobile households to migrate to. I investigated the role of other household members in a supplemental analysis where I included a dichotomous measure of whether a couple resided with other household members besides their children. I added this measure to Model 5 of Table 2 and Model 5 of Table 3. In both sets of supplementary models, the effect of other household members did not substantively change the results presented in Model 5 of Table 2 or Model 5 of Table 3.

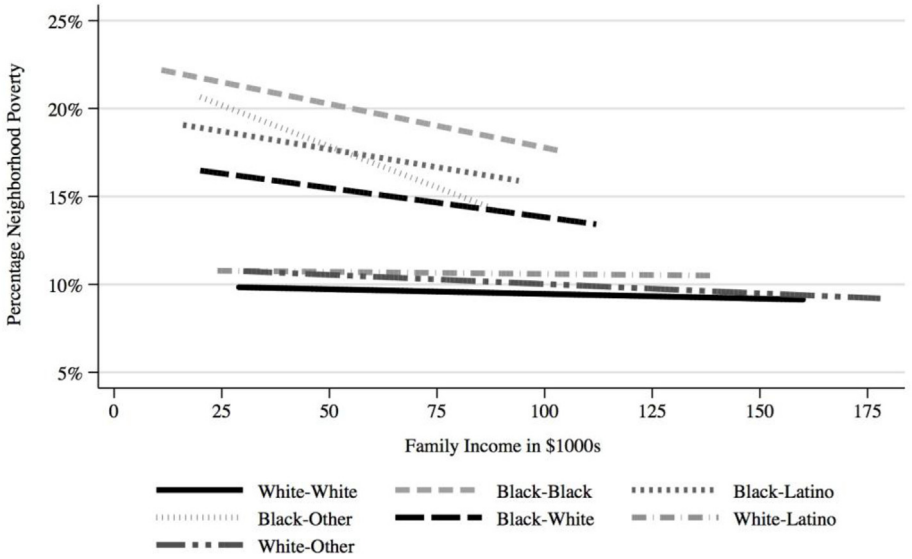

Fig. 3. Predicted percentage neighborhood poverty in the destinations of mobile mixed-race and monoracial couples by family income (10th to 90th percentile): Panel study of income dynamics; 1985–2013.

that couples whose origin neighborhoods that are highly diverse are more apt to migrate to lower poverty neighborhoods. Metropolitan entropy also displays a negative and significant effect on neighborhood poverty for couples ($b = -0.0462$, $p < .001$). Despite the theoretical importance of these measures, the inclusion of neighborhood and metropolitan entropy causes little change in the interaction between couple-types and family income, signaling that the results in Model 4 remain valid. Moreover, I estimated a supplemental analysis (not shown) of Model 5 with black-black couples as the reference category to determine whether the interaction between family income and those couples without black partners were significantly different in the percentage poverty in their destination neighborhoods. The findings from this analysis demonstrated that the interaction coefficients for white-white, white-Latino, and white-other couples were all statistically significant in relation to black-black couples, supplying further evidence of the impact of black race on exposure to neighborhood poverty.

To help clarify the interaction between family income and couple-types that was estimated in Model 5, Fig. 3 presents predicted values for the relationship between family income (restricted to values between the 10th and 90th percentiles) and the percentage poverty at the destination neighborhoods for each of the couple-types, while holding the remaining covariates in Model 5 at their mean values.[15] Represented by the lowest intercept out of all couples, white-white couples tend to experience the least amount of poverty in their destination neighborhoods, no matter their level of family income. Conversely, black-black couples display the highest percentage poverty in their destination neighborhoods across all values in their family income distribution. Also illustrated in Fig. 3, is the general clustering of intercepts and slopes based on whether a couple has a black partner or not. On the one hand, white-white, white-other, and white-Latino intercepts are all tightly clustered around 10% poverty in their destination neighborhoods. As represented by the slightly negative slopes associated with couples without black partners, higher levels of family income appear to have modest effects on decreasing their exposure to neighborhood poverty. On the other hand, those couples with a black partner—black-black, black-other, black-Latino, and black-white couples—show more variation in their intercepts and slopes, while clustering at higher percentages of poverty in their destination neighborhoods. This overall pattern for couples with black partners follows the weak version of the place stratification theory given that the effect of family income is more pronounced for them than for couples without black partners. However, even the highest income couples with black partners migrate to neighborhoods that possess higher percentages of poverty than the lowest income couples without black partners. Another important pattern among these predicted values is that black-white couples have the lowest percentages of neighborhood poverty out of couples with black partners. The relative position of their intercept and slope among the different types of couples suggests blacks with white partners are partially shielded from experiencing the more extreme neighborhood poverty that affect other couples with black partners.

5. Conclusion

The persistent gap in neighborhood poverty between blacks and whites has remained a dominant discussion among generations of sociologists and policy makers (Clark, 1965; Kerner Commission, 1968; Massey and Denton, 1993; Moynihan, 1965; Sanbonmatsu et al., 2011; Sharkey, 2013; Wilson, 1987). Their persistent efforts to understand and ameliorate the black/white gap in poverty

[15] The covariates held at their mean values are: neighborhood poverty at origin, neighborhood entropy at origin, MSA percentage poverty at destination, MSA percentage housing units vacant at destination, MSA percentage housing units built in the last 10 years at destination, MSA entropy at destination, age, number of children, homeownership, employment status, education, year of observation, and Lambda (λ) which accounts for the non-random selection of individuals into the mover category. Also, Stata's margins command was utilized to create the predicted values in Fig. 3.

exposure has been seen as vital given the devastating impact of poverty on families. Although earlier studies of the black/white gap in neighborhood poverty did not have to seriously consider mixed-race couples because of their small representation within the population, more recent efforts have neglected to account for the surge in mixed-race coupling (Frey, 2015) and, in turn, how this vanguard population functions within long-standing racial and ethnic differences in neighborhood poverty exposure. I address this gap in previous research by combining distinctive longitudinal data from the Panel Study of Income Dynamics linked to neighborhood- and metropolitan-level information compiled from four censuses to provide a first analysis of the residential mobility and attainment of mixed-race couples as it relates to neighborhood poverty.

This analysis of the neighborhood poverty exposure of mixed-race couples has been informed by past research and prevailing theoretical arguments in the literature on racial residential stratification (Charles, 2003; Wright et al., 2013), which led me to assert four research questions. First, my analysis investigated whether the ability to migrate out of higher poverty neighborhoods varied across mixed-race and monoracial couples. My findings suggest that most mixed-race couples are not significantly different from white couples in their abilities to escape neighborhoods with higher percentages of poverty. These results are consistent with past research that observes blacks hold a similar ability as whites to exit poor neighborhoods, but are unable to keep from re-entering poor areas (Quillian, 2003). While this equality between mixed-race and white couples to migrate out of higher poverty neighborhoods appears promising, it remains unclear under what conditions moves are undertaken. Given recent research demonstrating the higher propensity of eviction for black households (Desmond, 2012), future researchers might develop data to investigate the prevalence of mixed-race couples migrating under this form of financial duress.

Second, I explored whether the percentage poverty in the destination neighborhoods of mobile mixed-race and monoracial couples was associated with the racial and ethnic pairing of these couples. The results of my analysis indicates that black race is central in determining the poverty concentration mixed-race couples are exposed to upon a move. In particular, mixed-race couples with black partners tend to migrate into neighborhoods with higher percentages of poverty than couples without a black partner; and, the effect of a couple having a black partner on neighborhood poverty exposure remains significant after controlling for well-known individual, household, and contextual characteristics.

Third, I studied whether the percentage poverty in the destination neighborhoods of mixed-race and monoracial couples varied by the economic resources of these couples. I found that among mixed-race couples with black partners that even those with substantial incomes have difficulties avoiding neighborhood poverty when they move—a result in-line with the weak version of the place stratification theory (Logan and Alba, 1993). Conversely, mixed-race couples without black partners seem to be assimilating into more advantaged spaces given that they experience relatively similar poverty concentrations in their destination neighborhoods as white couples. I also observed a gradation in exposure to neighborhood poverty that seems associated with the respective status advantages and disadvantages ascribed to different racial and ethnic groups that form into mixed-race couples. For instance, Fig. 3 illustrates all mixed-race couples move to lower poverty neighborhoods than black-black couples; while black-white couples migrate to lower poverty neighborhoods than black-Latino couples; and, white-Latino couples move to neighborhoods with lower poverty than black-white couples. This pattern highlights a key implication of this work: that although there is a gradation in exposure to neighborhood poverty based on the racial and ethnic status of individuals that form into couples, it is apparent that the racial hierarchy that places blacks at the bottom remains a principal factor among the burgeoning population of mixed-race couples.

Fourth, I assessed whether accounting for the racial and ethnic diversity of neighborhoods and metropolitan areas explained differences in exposure to neighborhood poverty for mixed-race and monoracial couples. I found that accounting for the diversity of neighborhoods and metropolitan areas had little effect on explaining group differences in the residential mobility out of and into neighborhoods defined by poverty. In fact, when assessing the percentage neighborhood poverty for mobile couples, those couples who had higher levels of racial and ethnic diversity in their origin neighborhoods were more likely to migrate to lower poverty areas. This finding suggests that future research might assess the joint combination of neighborhood diversity and socioeconomic status in the neighborhoods that mixed-race couples select to ascertain if some of these couples are migrating into temporally stable higher income diverse neighborhoods or ones that are in the process of gentrifying.

Moreover, because I observe that economic factors fail to account for differences in neighborhood poverty between the couples in my analysis, other potential forces exist affecting their residential mobility and attainment patterns as it relates to neighborhood poverty. Scholars have long noted the role of discrimination in the housing market and its influence on stratifying racial and ethnic groups by place (Massey and Denton, 1993) and, from the evidence displayed in this study, discrimination might play a role in the residential processes of mixed-race couples—especially those with black partners. However, at this point, there is no data that provides information on the multiple forms of discrimination mixed-race couples might experience in the housing market. Future research would be advanced through the development of such instruments. Also, a factor largely unappreciated in the literature on racial differences in residential mobility and attainment has to do with neighborhood knowledge. For instance, in a 2009 study on racial group differences in neighborhood knowledge in Chicago, Krysan and Bader observed blacks, whites, and Latinos were more aware of neighborhoods in which their own group was dominant and much less about areas with large concentrations of other racial and ethnic groups. Therefore, future research on the residential mobility and attainment of mixed-race couples might benefit greatly by gathering and studying data related to group differences in neighborhood knowledge.

Future researchers might also use data that provide detailed race and ethnicity measures capturing country of origin. For instance, previous studies find Latinos with Mexican origins demonstrate a higher probability of migrating to poor neighborhoods than their counterparts with Cuban ancestry (South et al., 2005). Hence, incorporating data of sufficient size to allow disaggregation by country of origin for mixed-race couples would afford a more fine-grained analysis than what the current data allow. Scholars might also investigate the different race and gender configurations of couples, their residential mobility between neighborhoods of varying socioeconomic status, and how income differences within and between these couples shapes their residential mobility. This is

important to assess given that prior research on mixed-race couples observes that gender, and its associated power dynamics, functions as a salient factor in residential attainment (Wright et al., 2013).[16] Future research investigating mixed-race couples and neighborhood poverty might explore the role that children have in this process due to the fact children have been shown to influence residential mobility behaviors (Goyette et al., 2014). Additionally, because the number of multiracial individuals is likely to increase in coming decades (Parker et al., 2015), future research might investigate the neighborhood socioeconomic status of couples with multiracial individuals. Although there are numerous fruitful areas for future research on mixed-race couples and neighborhood poverty, the present study suggests neighborhood poverty is strongly linked to the racial and ethnic composition of mixed-race couples, providing insight on emerging patterns of racial and ethnic stratification.

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Appendix A. Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.ssresearch.2018.03.007.

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[16] Investigating various race and gender combinations as they relate to residential mobility out of and into neighborhoods defined by poverty is unfeasible for all mixed-race couples in this analysis due to small sample sizes among some couple-types.

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