THE STABILITY OF MIXED-INCOME NEIGHBORHOODS

Laura M. Tach
tach@fas.harvard.edu

Harvard University

ABSTRACT

The landscape of urban poverty in America has changed dramatically as public housing projects have been demolished and replaced with mixed-income housing. Yet there is little existing research on mixed-income neighborhoods to guide our expectations for these new developments. In this paper I examine the extent and stability of income mixing within neighborhoods using Census data from 1970 to 2000. Economic diversity within neighborhoods is both common and fluid. I find evidence that the low levels of economic segregation observed in each decade are reproduced by a constant churning of neighborhoods into and out of conditions of economic diversity. This pattern stands in contrast with the remarkable levels of stability among neighborhoods at the low and high ends of the income distribution. Some mixed-income neighborhoods do remain stably mixed over time, but our current theories of neighborhood economic change are not well equipped to explain this stability because we tend to focus only on the durability of low income neighborhoods. I identify two distinct types of stably mixed-income neighborhoods, those characterized by racial homogeneity and population stability and those characterized by racial heterogeneity and population turnover.

THE STABILITY OF MIXED-INCOME NEIGHBORHOODS

An extensive body social science research has described the characteristics of high poverty neighborhoods in the United States. As a result, we know a great deal about trends in neighborhood poverty over time (Jargowsky 1997, 2003), the causes of concentrated neighborhood poverty (Wilson 1987; Massey and Eggers 1990; Massey and Denton 1993), and the consequences of neighborhood poverty for individual- and community-level outcomes (Wilson 1996; Sampson et al. 1997; Crane 1991; Harding 2003, 2006; Brooks-Gunn, Duncan, Klebanov, and Sealand 1993; Ellen and Turner 2003; Sampson and Gannon-Rowley 2002). A smaller body of research has started to examine similar issues for affluent neighborhoods (Massey 1996; St. John 2002; Lee and Marlay 2006). Neighborhoods that fall in between the extremes of the neighborhood income distribution have received much less attention. In particular, there has been little theoretical or empirical examination of economically diverse neighborhoods.[1]

This gap in social science knowledge is surprising for several reasons. First, economic segregation between neighborhoods is low, especially compared to levels of racial segregation, which means that a nontrivial number of neighborhoods must be economically diverse. Second, theories and measures of neighborhood segregation and neighborhood change often make implicit or explicit assumptions about mixed-income neighborhoods without directly studying them. Specifically, they often assume that mixed income neighborhoods are desirable yet unstable. Third, since the early 1990s federal government housing policy has supported the demolition of distressed public housing projects in high poverty neighborhoods across the

---

[1] In this paper I use the terms "economic diversity" and "income mixing within neighborhoods" interchangeably. I focus on measures based on family income because they are most similar to those used in previous research and most closely related to recent policy interventions.

country, replacing them with housing for a range of incomes. This was done with little empirical evidence about existing mixed income neighborhoods. Mixed-income neighborhoods thus play a central role in theories, measures, and policies related to neighborhood economic conditions.

In this paper I examine the extent and stability of income mixing within neighborhoods using decennial census data from 1970 to 2000. I find evidence that the low levels of economic segregation observed in each decade are reproduced by a constant churning of neighborhoods into and out of conditions of economic diversity. Mixed income neighborhoods are unlikely to remain mixed income across multiple decades, but economic change is also relatively common among neighborhoods that do not fall at the extremes of the income distribution, so other neighborhoods become mixed income and the low levels of cross-sectional economic segregation are thereby reproduced. This pattern stands in sharp contrast with the high levels of stability among neighborhoods at the low and high ends of the income distribution. Some mixed-income neighborhoods do remain stably mixed over time, but our current theories of neighborhood economic change are not well equipped to explain this stability because we tend to focus only on the durability of low income neighborhoods.

ECONOMIC INEQUALITY WITHIN & BETWEEN NEIGHBORHOODS

The literature on neighborhood inequality has been dominated by the study of the causes and consequences of racial segregation and concentrated poverty. A smaller body of work has examined the levels of, and trends in, economic segregation. This work indicates that mixed-income neighborhoods are common, yet provides little direct evidence about their characteristics or stability over time.

Levels of Economic Segregation and Integration

Economic segregation, defined as income inequality between neighborhoods in a larger geographic space, is relatively low in the United States, and it is substantially lower than racial

segregation (Massey and Fischer 2003; Fischer 2003). In 2000, the index of dissimilarity between the affluent and the poor in a typical U.S. metropolitan area was about 0.23, which means that only 23 percent of the population would have to move in order to equalize the fractions of rich and poor in all neighborhoods (Massey and Fischer 2003).[2] In comparison, the index of dissimilarity for black-white segregation was over 0.60 for all U.S. metros in 2000 (Massey and Denton 1993; Charles 2003; Logan, Stults, and Farley 2004). When measured as a continuous variable, the majority of income variation in a metropolitan area lies within neighborhoods, rather than between them (Jargowsky 1996, 2003). Levels of within-race economic segregation are slightly higher for blacks than for whites (Jargowsky 1996; Massey and Eggers 1990; Massey and Fischer 2003).

Typical measures of economic segregation – the Dissimilarity Index (Massey and Fischer 2003), the Entropy Index (Fischer 2003), and the Neighborhood Sorting Index (Jargowsky 1996) – are calculated by measuring the extent of economic differences between neighborhoods. They compare the status quo to an "unsegregated" alternative in which all neighborhoods have the same economic mix as the metropolitan area (and as one another). If every neighborhood in a metro area had the same exact distribution of income as the metro area as whole, segregation would be zero. In this case, all neighborhoods would be mixed-income. Studies that use these measures of economic segregation therefore implicitly assume that mixed income neighborhoods are an ideal benchmark against which they measure the problem of economic segregation.

Studies of economic segregation do not provide much direct information about mixed income neighborhoods, however, because they only provide a summary measure describing the *metropolitan-wide* extent of income mixing. They do not identify which particular

---

[2] Massey and Fisher define poor families as those with incomes below the federal poverty threshold, and affluent families as those with incomes more than four times the federal poverty threshold. Of course, this measure does not specify the mix of incomes for families above the poverty line and below four times the poverty line.

4

neighborhoods within an area are economically diverse and which are not, nor what characteristics are associated with such diversity. They also tell us nothing about which neighborhoods remain stable and which change over time.

Trends in Economic Segregation

We know little about the spatial dynamics of income inequality before 1970, when the U.S. Census began releasing information about income at the level of the census tract. Massey and Eggers (1990) showed that between 1970 and 1980 economic segregation rose for Blacks and remained constant for other racial groups. However, Jargowsky (1996) critiqued Massey and Eggers' use of the index of dissimilarity to measure economic segregation, because their measures of economic status confounded changes in the spatial distribution of income with changes in the overall income distribution. Using a different measure of economic segregation that was not sensitive to changes in the overall distribution of income, called the neighborhood sorting index (NSI), Jargowsky found that economic segregation rose considerably for Blacks between 1970 and 1990, and also rose moderately for Whites and Hispanics.[3] For example, the NSI for whites rose from 0.31 to 0.39 between 1970 and 1990, meaning that the fraction of total income variation that was between neighborhoods rose from 31% to 39%. Consistent with this work, Susan Mayer (2002) found that rising state-level income inequality between 1970 and 1990 resulted mainly in rising variation between mean neighborhood incomes, rather than in rising income variation within neighborhoods. After 1990, economic segregation stopped rising overall, and in many cities it declined by 2000 (Massey and Fischer 2003; Yang and Jargowsky 2006). The NSI remained below 0.5 for all racial groups in each decade, which means that the majority of income variation was always located *within* neighborhoods.

---

[3] While Massey and Eggers (1990) measure of segregation is sensitive to the overall level of inequality, Jargowsky's NSI measure is sensitive to distributional outliers, which in this case represents changes at the high and low ends of the income distribution. This is another reason why the findings from these two studies may differ.

Measures of metropolitan-level income segregation provide us with a summary measure of how metropolitan-wide economic sorting has changed over time, but they do not tell us how the economic conditions within *specific* neighborhoods have changed. It is therefore possible that the relatively low levels of economic segregation that existed in each decade were created by two completely different processes within economically diverse neighborhoods. The first possibility is that low levels of economic segregation were reproduced in each decade because mixed income neighborhoods were stable, with the same neighborhoods remaining economically diverse in each decade. The second possibility is that low levels of economic segregation were reproduced in each decade by the constant change of economic conditions within neighborhoods. Neighborhoods that were mixed in one decade did not remain mixed in the following decade, but other poorer or more affluent neighborhoods became more economically diverse over the course of a decade and replaced them. Economic segregation remains low, but mixed income neighborhoods are unstable and the same neighborhoods are not economically diverse in each decade. Either possibility is consistent with low levels of metropolitan-level economic segregation in each decade since segregation measures do not track the economic conditions within particular neighborhoods, but they have quite different implications for our understanding of the processes by which economic segregation is created and perpetuated.

MODELS OF NEIGHBORHOOD ECONOMIC CHANGE

What do we know about how the economic conditions within neighborhoods change over time? Most of our existing knowledge is about conditions at the bottom of the income distribution. Economic disadvantage within high poverty neighborhoods is quite persistent from one decade to the next. For example, Rob Sampson and Jeffrey Morenoff (2006) found that

6

poverty rates in Chicago[4] neighborhoods were very highly correlated ($r = 0.87$) between 1970 and 1990, and poverty rates are also highly correlated with other indicators of disadvantage including welfare receipt, unemployment, female-headed households, and percent of residents who are African American, creating areas with overlapping disadvantages (Sampson et al. 2008; Sampson et al. 1997). There is less evidence about the level of economic stability in non-poor neighborhoods over time.

Despite the lack of evidence on stability within non-poor neighborhoods in general, and on the stability of economically diverse neighborhoods in particular, there is a long-standing tradition within sociology of studying the mechanisms by which neighborhood conditions change over time. *Invasion-succession* models focus on how population mobility produces neighborhood change, while *life cycle* models focus on the conditions of the housing stock that characterize neighborhood change. Each of these models produces a set of characteristics that predict neighborhood economic change. Importantly, however, these models also implicitly assume that mixed-income neighborhoods are unstable - in the process of transitioning to lower or higher income states - and consequently they do not theorize the conditions that might lead to the stability of economically diverse neighborhoods over time.

Invasion-Succession

The invasion-succession model, introduced by Chicago School sociologists (Park 1942), is the classic model of neighborhood population change. It identified migration as the principal mechanism underlying changes in neighborhood characteristics, just as the arrival of new species changes ecological environments. As a new population entered a neighborhood, the existing population responded with either competition or accommodation. Eventually, the influx of the new population led to conflict and in many cases the withdrawal of the original population.

---

[4] Chicago is more racially segregated and has higher levels of exposure to concentrated disadvantage than the rest of the United States (Sampson 2009; Small 2008).

Thus, when we observe a neighborhood with a great deal of income mixing at one point in time, we may simply be observing it in the middle of a longer process of invasion and succession.

Invasion-succession models have been used most frequently to describe patterns of racial and ethnic change in neighborhoods (Duncan and Duncan 1957; Taeuber and Taeuber 1959). More recent incarnations of this model have tried to determine the different "tipping points" at which racial succession occurs (Schelling 1972; Farley et al. 1979; Card, Mas, and Rothstein 2007) and what interpersonal or institutional mechanisms produce such behavior (Harris 1999; Bobo and Zubrinsky 1996; Ellen 2000).[5] While there is evidence that the share of White residents declines more quickly once the share of African American residents is around 5-20% (Card et al. 2007), ethnic succession is less rapid following an influx of Asian or Hispanic residents, reflected by the higher levels of integration between these groups and whites (Massey & Denton 1993; but see Pais et al. 2008).

This work deals with neighborhood economic change largely as a byproduct of changes in neighborhood racial composition. Note, however, that economic change accompanies the invasion-succession model whenever the "invading" and "succeeding" groups are any two populations that differ in their average incomes, such as immigrant groups or age groups. Population change may also occur more rapidly in areas with higher population density, since different groups will be more likely to come into contact and face conflict over the use of neighborhood space.

Life-Cycle Models

---

[5] Schelling's model has been particularly influential because he found that even relatively innocuous racial preferences among whites, such as not wanting to be a minority in one's neighborhood, would lead to high levels of racial segregation. While Schelling's model has influenced a great deal of empirical research on tipping points and neighborhood preferences (Clark 1991; Farley et al. 1979; Harris 1999), it has not gone unchallenged. Recent simulation efforts suggest that racial preferences alone cannot account for the high levels of observed racial segregation (Bruch and Mare 2006).

The "life cycle" model of neighborhood change, introduced by Hoover and Veenhoven (1959), outlined five stages of neighborhood change based on characteristics of the neighborhood housing stock: single family residential development; transition to higher density, apartment construction; downgrading to accommodate higher density through conversion; thinning out characterized by population loss and decline in housing units; and renewal through public intervention, redevelopment, and replacement of housing. This theory gained a great deal of traction in housing policy and was used to justify many now-infamous housing policies such as redlining and urban renewal (Metzger 2000, but see Galster 2000; Temkin 2000).

Subsequent researchers have shown that many neighborhoods do progress through such stages, but the speed of progression through the stages can be affected by social, economic, and political factors (Molotch 1976; Shlay and Rossi 1981). New housing construction creates the possibility of attracting higher income residents to an area. At the other extreme, aging of the housing stock, or the construction of apartment buildings and rental units, could attract lower income residents as prices for ownership and rental housing decline. In all neighborhoods, a high degree of home ownership or low vacancy rates may indicate lower population turnover and a higher level of stability in neighborhood economic conditions than in areas with more renters or a more transient population.

Contemporary research on neighborhood change has built upon the classic invasion-succession and life cycle models by focusing on how the social organization of a community can stave off pressures toward neighborhood change (Taub et al. 1984; Wilson and Taub 2006; Kefalas 2005). In a recent study of neighborhood decline in Chicago, for example, Wilson and Taub (2006) found that among neighborhoods facing significant population change, those with residents who were invested in the community and willing to intervene on its behalf were able to resist the threat of neighborhood succession.

A common theme across the neighborhood change literature is that mixed income neighborhoods are considered to be at a midpoint in a longer process of neighborhood change, driven by changes in racial/ethnic composition or the quality and type of housing stock. The empirical evidence to support the transient nature of mixed income neighborhoods is limited, however. First, none of these studies explicitly measure economic diversity within neighborhoods over time, so they cannot directly test whether mixed income neighborhoods are less stable than other neighborhoods. Changes in racial/ethnic composition and housing are not perfectly correlated with economic change and cannot predict the specific income mix that will result. For example, gentrifying neighborhoods may be mixed income either before or after the influx of higher income newcomers. While invasion-succession and life cycle models suggest characteristics of the population and housing stock associated with neighborhood economic change towards poorer or more affluent states, they do not provide evidence about how stable mixed income neighborhoods are over time, nor do they provide evidence of characteristics that predict stably diverse neighborhoods.

Metropolitan Characteristics

The economic segregation literature describes metropolitan-level characteristics that predict levels of, and changes in, economic segregation, which may have implications for the stability of mixed-income neighborhoods within them. As the number of manufacturing jobs in urban centers declined in response to macroeconomic changes, the economic conditions of stable working class neighborhoods deteriorated (Wilson 1987). Thus, the share of manufacturing jobs in a metro area might make mixed income neighborhoods more likely to become low income. Mixed income neighborhoods may also be less stable in metropolitan areas with higher overall levels of economic and racial segregation, since residents in such areas have shown a preference for translating economic advantages into spatial distance. Finally, mixed-income neighborhoods

10

may be less stable in areas with higher crime rates if higher income residents associate crime with poverty and choose to segregate themselves out of fear.

PREVIOUS RESEARCH

A small but growing body of research has specifically examined mixed income neighborhoods.[6] These studies have established that there is a substantial amount of income mixing in U.S. neighborhoods, using national data from the U.S. Census (Galster et al. 2008; Krupka 2006; Thomas, Schweitzer and Darnton 2004; Turner and Fenderson 2006), the American Housing Survey (Hardman and Ioannides 2004a, 2004b; Ioannides and Seslen 2002), and city-specific studies of Chicago (Immergluck and Smith 2002; Talen 2006). Each of these studies concludes that there are many mixed-income neighborhoods, despite using different measures to categorize the level of income mixing in neighborhoods - such as income categories based on quintiles, area median incomes, or poverty rates - and despite using different thresholds to designate when a neighborhood becomes "mixed."

Some studies have also examined the correlates of neighborhood income diversity. The common findings are that income mixing is more common in neighborhoods with more owner occupants, more families with children, more non-White residents, higher densities, lower vacancy rates, older housing stock, and greater diversity of housing tenure and values (Ioannides 2004; Krupka 2006; Talen 2006). In a recent study, Galster, Booza, and Cutsinger (2008) used an entropy score derived from six income categories based on percentiles of the area median income (AMI) and found that many census tracts in the 100 largest MSAs were diverse, and that a majority of low income families (less than 50% of AMI) live in diverse neighborhoods.

---

[6] I distinguish here between research that evaluates mixed income housing policies that have been implemented in particular neighborhoods, such as studies of HOPE VI redeveloped neighborhoods (Buron et al. 2002; Hogan 1996; Rosenbaum et al. 1991, 1998; Pader and Breitbart 1993; Breitbart and Pader 1995; Kleit 2005; Kleit and Manzo 2006; Tach forthcoming) or scattered site public housing (Briggs 1997; Kleit 2002), and studies of mixed-income neighborhoods that are not contingent upon particular housing policies.

Diversity has declined between 1970 and 2000 at the neighborhood level, consistent with trends in rising economic segregation, but low income families' exposure to high income families increased during the same time period. Importantly, none of these studies examined the stability of mixed income neighborhoods over time, relative to other neighborhood types, nor did they examine which factors were associated with changes in income mixing over time.

In sum, studies of economic segregation, neighborhood change, and economically diverse neighborhoods have not yet examined the central assumptions concerning mixed income neighborhoods, namely that a) they are desirable yet unstable and b) their stability is associated with the characteristics of the neighborhood's population composition, housing stock, and the metropolitan economy. In the analyses that follow, I compare the stability of mixed income neighborhoods to other neighborhood types, describe the common paths of neighborhood change, and test the hypotheses outlined above concerning the factors that promote stability and change among mixed income neighborhoods.

DATA, MEASURES, & METHOD

Data

I use tract-level data from the decennial censuses between 1970 and 2000. The census tracts are nested within Metropolitan Statistical Areas (MSAs). MSA boundaries change over this time period and, following previous research, the data used here reflect these changing geographic boundaries as metropolitan areas expanded (Abramson et al. 1995; Jargowsky 1996; Galster 2005). This means that metropolitan-level measures are calculated using data from all tracts in the MSA for each census, even as the number of tracts in the MSA increases over time. The analysis is restricted to tracts located within MSAs, meaning that rural areas are excluded, but MSAs contained the vast majority of the U.S. population – 83% - in 2000.

I also follow the lead of most other quantitative studies of neighborhood income dynamics and use census tract boundaries as the measure of neighborhood boundary.[7] Census tracts typically have between 2,500 and 8,000 people with an average of 4,000. They are defined with local input, are intended to represent neighborhoods, and typically do not change much from census to census, except to subdivide (Iceland, Weinberg and Steinmetz 2002), though about half of all census tracts had a boundary change between 1970 and 2000. The Census reports measures of the income distribution within census tracts for each decennial census since 1970. It does not report income distributions for smaller areas over this period.

The Census data used in the following analyses were obtained from the Neighborhood Change Database (NCDB) created by GeoLytics and the Urban Institute. The NCDB provides short and long form data from the 1970, 1980, 1990, and 2000 censuses. It adjusts census tract boundaries in the 1970-1990 censuses to correspond to the 2000 tract boundaries, so that census tract boundaries are consistent over time. This was done using an algorithm that assigns the data from census blocks nested within census tracts to the appropriate tract when tract boundaries change. This is a desirable property for a study of neighborhood change because it makes us more confident that the changes we observe in tract measures over time are due to real changes in neighborhood conditions, rather than to changes in how tract boundaries were drawn over time. The metropolitan-level measures were created by aggregating population-weighted tract-

---

[7] There is a long debate over how to define neighborhoods (see, for example, Grannis 1998; Sampson et al. 2002). When residents are asked what they consider to be "their neighborhood," there is a great deal of variation in what is meaningful to them (Guest and Lee 1983; Lee, Campbell, and Miller 1991; Gans 2002). Most boundaries used by researchers, such as census tracts, are routinely crossed by residents on a daily basis. Some researchers have argued that neighborhood boundaries should be defined by major roads and arteries that are more difficult to cross and thus constrain movement (Grannis 1998, 2005). Finally, residents vary a great deal in how rooted they are in their neighborhoods, meaning that neighborhoods may be less meaningful organizing units of social life for some residents than for others (Wellman 1999). These various debates reveal that there is no one true definition of what constitutes a neighborhood, and thus no one correct measure. Rather, neighborhoods are socially constructed and contested geographic entities, with multiple meanings and influences for the residents who live in them. Despite these ambiguities, most quantitative studies of neighborhoods rely on census tracts as a measure of neighborhood boundaries (Iceland, Weinberg and Steinmetz 2002). I follow most previous research and use this approach while acknowledging the limitations of census tracts as representations of neighborhoods.

level data to the metropolitan level. The metropolitan crime data were aggregated from county-level FBI Uniform Crime Reports.[8] Data on affordable housing construction were taken from the Department of Housing and Urban Development's LIHTC (low income housing tax credit) Database.

The United States was divided into 65,443 census tracts in 2000. Of these, 51,203 census tracts were in MSAs or PMSAs in 2000. There were 51,022 tracts in MSAs in 1990, 49,881 in 1980, and 45,653 in 1970. This results in 45,520 tracts that existed in MSAs for all four decennial censuses. I further restrict the sample to tracts with at least 500 residents to provide robust measures of income diversity within each tract. This requirement eliminates one percent of all tracts in 1990 and 2000, 3 percent in 1980, and 7 percent in 1990, leaving 50,660 tracts in 2000, 50,278 in 1990, 48,577 in 1980, and 42,442 in 1970. Next, I restrict the sample to tracts where less than half of the population resides in group quarters, such as prisons, college dormitories, hospitals, and nursing homes. This leaves 50,144 tracts in 2000 and 49,757, 48,158, and 42,042 in 1990, 1980, and 1970 respectively, and 41,499 tracts with valid measures in all four decennial censuses.

Measuring Income-Mixing

In measuring economic segregation, previous studies have typically used income cutoffs to create discrete income categories.[9] Others have argued that it is more appropriate to measure economic segregation using a continuous measure of income. Jargowsky (1996) developed the neighborhood sorting index, descried above, by making assumptions about the shape of the metro-level income distribution to calculate the fraction of variance in metro-level income that

---

[8] Tract-level crime data is unfortunately not tabulated for the time periods and national geographies used in this paper.
[9] Massey and Fischer, for example, used three income categories: poor (defined as below the poverty line), affluent (defined as over four time the poverty line), and middle (everyone in between), while Fischer (2003) uses four categories, and Galster et al. (2008) uses six categories.

lies between neighborhoods (see Watson 2007 and Wheeler 2006 for similar measures). It is not possible to create continuous measures of neighborhood economic integration *within* particular neighborhoods, however, given the limited amount of data publicly available from the Census Bureau: estimates of the variance of neighborhood-level income are not available at the level of the census tract. I therefore focus on categorical measures of income here, which contain less information than continuous measures and by necessity will have somewhat arbitrary cutoffs, but they are not sensitive to top coding or to assumptions about the shape of the neighborhood income distribution at the tract-level.

The Census Bureau reports neighborhood family incomes in categories, and these categories change over time.[10] I estimate the 33rd and 66th percentiles of the metropolitan income distribution from aggregated family-weighted tract- level counts for each MSA in each decade. As a result, an equal percentage of families fall into the bottom 1/3, middle 1/3, and top 1/3 of the metropolitan family income distribution for each MSA in each decade.[11] The estimates of the 33rd and 66th percentiles for the largest MSAs are listed in Appendix A.

I then use the 33rd and 66th percentile for each MSA to calculate the fraction of each tract's family population that falls: below the 33rd percentile, between the 33rd and 66th, and above the 66th percentile of the MSA.[12] This results in three variables for each tract that describe its family income distribution:

---

[10] Following previous studies, I focus on family income, rather than household or personal income. Income variation is larger if one considers household or personal income, so family income can be considered a conservative estimate of the amount of income variation in a census tract.

[11] This type of standardization is desirable because it reflects the fact that a family making $30,000 per year faces very different relative social positions and housing market constraints if they live in San Francisco or if they live in Memphis. It is also not sensitive to changes in the metropolitan level income distribution, which means that it will not be affected by rising or falling inequality over time or by differences in inequality between metropolitan areas. This allows us to isolate changes that are due to the changing *social organization* of economic groups within metropolitan areas (Jargowsky 1996).

[12] One computational challenge is that the income values for the 33rd and 66th percentile cutoffs often fell within an income bracket. When this occurred, I assumed that income was distributed uniformly within the income bracket and used linear interpolation to identify the fraction of the population above and below the 33rd percentile within that category (Watson 2007; Galster 2007). Others have shown that measures of economic segregation are not sensitive

- *Low income* is the percent of families in the neighborhood who are in the bottom third of the metropolitan income distribution

- *Middle income* is the percent of families in the neighborhood who are in the middle third of the metropolitan income distribution

- *High income* is the percent of families in the neighborhood who are in the top third of the metropolitan income distribution

Figure 1 shows how these three categories can be combined to create various levels of income mixing.

The use of three categories, rather than four or more, is advantageous because it broadly reflects low, middle, and high income families in each metropolitan area. It allows the income brackets to be wide enough to account for fluctuations in family income from year to year, and the upper bound for the low income category is close to the cutoffs for many government programs.[13]   It also allows for the differences in family incomes between the average family in each group to reflect substantively large and socially meaningful differences in earnings and consumption patterns. The more groups one has, the less true this will be. A neighborhood with relatively even fractions of families in the bottom, middle, and top thirds of the metropolitan income distribution therefore constitutes a *sufficient* threshold for a neighborhood to be considered economically diverse.[14]

Figure 1 shows that low, middle, and high income families can mix with each other to create various types of neighborhoods that range in their economic diversity. I use the conceptual

---

to this assumption of uniformity (Watson 2007). This approach also allowed me to overcome the fact that the census reports income in different bracket widths and values at each decennial census.

[13] It is slightly higher than the 50% of AMI cutoff used for assisted housing programs in many metropolitan areas, for example, and is close to the cutoff for the Earned Income Tax Credit or food stamps for a family of four.

[14] Neighborhoods that are evenly mixed across more than three categories will also be considered mixed income in my 3-group classification, because they fall above this threshold.

model in Figure 1 to create a typology of neighborhoods with different levels of income mixing. Table 1 describes the cutoffs used to create each neighborhood type. Some neighborhoods may be dominated by families in one income bracket, creating majority low, middle, or high income neighborhoods. I define low income, middle income, and high income neighborhoods as neighborhoods where 50% or more of the population falls into that income category.

Other neighborhoods are dominated by families in two of the income brackets, creating what I call low-middle, middle-high and low-high mixed income neighborhoods. Low-middle income neighborhoods are defined as neighborhoods where 75 percent or more of the population is in either the low or middle income categories, with either of those two groups not constituting more than 50 percent of the population (otherwise they would be in one of the non-mixed income neighborhood types). This means that high income families constitute less than 25% of residents in low-middle mixed income neighborhoods. Middle-high income neighborhoods are defined in a similar way: 75 percent or more of the population have incomes in either the middle or high income categories, with neither of those two groups being more than 50% of the total. Low-high income neighborhoods have 75 percent or more of the population in either the low or high income categories (but not more than 50% for any one group), and less than 25% of the population in the middle income category. Finally, 3-group mixed income neighborhoods have relatively equal fractions (25-40%) of residents in each of the low, middle, and high income categories. Taken together, these seven neighborhood types create mutually exclusive and exhaustive categories.

Other Neighborhood Characteristics

I also create tract-level variables measuring characteristics of the population and housing stock. Appendix B includes detailed descriptions of how each variable was created. The population variables, which reflect the characteristics of neighborhood change associated with

invasion-succession models, include: % Black or African American; racial diversity; % foreign born; population size; population density; and age diversity. The housing stock variables, which reflect the characteristics of neighborhood change associated with life cycle models, include: % in living in same house five years ago; vacancy rate; % owner occupied; % old housing stock; % new housing construction; central city location; and affordable housing (LIHTC) units constructed. Finally, I created measures of metropolitan area characteristics using population-weighted aggregations of census tract data. These characteristics include: log of total population; economic and racial segregation; % foreign born; % employed in manufacturing; crime rate; and region (Northeast, Midwest, West, or South). Table 2 shows descriptive statistics for these variables in 2000 separately for neighborhoods that fall into the majority low income, majority high income, and 3-group mixed income neighborhood types. The characteristics of mixed income neighborhoods fall in between the extremes of the homogenous neighborhood types.

Analysis Plan

The analysis proceeds in three parts. First, I test the assumptions of the economic segregation and neighborhood change literatures by examining a) whether low levels of economic segregation are reproduced over time by the stability or the *in*stability of mixed income neighborhoods and b) whether mixed income neighborhoods are less stable than other types of neighborhoods. I use the categorical breakdown of neighborhoods types described above – low, low-middle, mixed, middle-high, and high income – to examine neighborhood change over time using transition matrices. I use these matrices to capture the level of stability and direction of change in neighborhood economic conditions in each decade from 1970-2000 for mixed income neighborhoods relative to other neighborhood types.

Next, I examine the characteristics associated with the stability of mixed-income neighborhoods over time. I borrow from the methods of demography to create a life table that

describes the "survival" of mixed income neighborhoods from one decade to the next. I then estimate a multi-level multinomial logistic regression model, which predicts the log odds that a mixed income neighborhood at time t transitions into either a lower income or a higher income category (vs. remaining stably mixed income) by time $t + 1$, using their tract-level and MSA-level characteristics at time t as predictors:

$$\log\left(\frac{P_{ij(t+1)}}{1-P_{ij(t+1)}}\right) = \beta_0 + \sum_{a=1}^{2} \beta_a X_{aij} + \sum_{m=1}^{M} \beta_m X_{mij} + \sum_{n=1}^{N} \beta_n X_{nijt} + e_{ijt} \qquad (1)$$

where $t = 1970$, 1980, or 1990; $j = 1$ for low income transitions for tract i, $j = 2$ for high income transitions, and $j = 0$ for tracts remaining mixed income at wave $t + 1$, conditional on being mixed income at wave t. I control for time dependence with a dummy variables for census decade. The model includes m time-constant tract-level predictors and n time-varying tract measures observed at wave t. The initial sample includes all census tracts that are mixed-income in 1970, and census tracts contribute additional observations for each wave that they remain mixed income, resulting in 20,603 tract-wave observations. This model then becomes multi-level by including MSA-level predictors:

$$\beta_0 = y_{00} + \sum_{m}^{M} y_{0mj} + \sum_{n}^{N} y_{0njt} + \mu_{0jt} \qquad (2)$$

Where I include m time-constant MSA-level predictors and n time-varying predictors measured at wave t. This model is estimated using robust standard errors that take the nonindependence of observations (that observations are clustered within MSAs and that some tracts contribute multiple observations) into account. These models will test whether the variables suggested by the invasion-succession and life cycle models of neighborhood change predict stability or change in mixed-income neighborhoods.

In the final section of the analysis, I perform a cluster analysis using the tract-level population and housing stock variables to determine whether there are distinct types of stable mixed-income neighborhoods. I use a *K*-means algorithm, which assigns each observation (tract) to the cluster whose centroid is nearest. The centroid is the average of all points in the cluster. This algorithm also minimizes intra-cluster variance.

RESULTS

I first describe the trends in income mixing within neighborhoods over time. Table 3 shows the fractions of neighborhoods that are low, low-middle, mixed, middle-high, and high income in each decennial census from 1970 to 2000. In 1970, about 15% of all neighborhoods were low income, and this increased steadily across decades to 25% in 2000. High income neighborhoods were consistently about 15% of all tracts across the three decades. Homogenously middle income neighborhoods (where more than half of families have incomes in the middle 1/3 of the income distribution) are quite uncommon: they were less than 1% of tracts across all decades. 3-group mixed income neighborhoods were about 27% of tracts in 1970, but this fraction declined to 20% by 2000. This means that neighborhoods with relatively even fractions of families in the bottom, middle, and top of the income distribution were about one-fifth of all neighborhoods in 2000. Low-middle and middle-high income neighborhoods were also relatively common across the decades, with the former representing a consistent 21% of tracts in each decade and the latter declining from 21% to 17% of all tracts between 1970 and 2000. Finally, less than 1% of tracts were low-high income in each decade.[15] In subsequent analyses, I group the low-high income neighborhoods in with mixed-income neighborhoods, and

---

[15] This finding differs from Galster's (2007) finding that the number of "bipolar" neighborhoods increased. This is because Galster does not adjust for rising overall income inequality. Taken together, these two results indicate that the rise in "bipolar" neighborhoods was due largely to rising incomes among the affluent, not due to changes in the spatial organization of the affluent and the poor.

I exclude the homogenously middle income neighborhoods from the analysis since they were less than 1% of tracts in each decade.

The descriptive trends in Table 3 reveal several patterns worth highlighting. First, neighborhood-level trends in income-mixing broadly mirror the trends in economic segregation. Mixed-income neighborhoods became less common as economic segregation rose, and these changes were largest during the 1980s. Second, the decline in mixed-income neighborhoods was offset primarily by a rise in the prevalence of majority low income neighborhoods, not majority high income neighborhoods. While we might have expected low income neighborhoods to become more common, consistent with the rise of high poverty neighborhoods from 1970-1990 (Jargowsky 1997), we might also have expected majority high income neighborhoods to become more common as well, given the rise in "concentrated affluence" identified in previous work (Massey 1996). This discrepancy in trends for high income neighborhoods is due to the fact that the rise in neighborhoods of concentrated affluence was actually quantitatively small (Farley 1996), and, more importantly, to the fact that the categorization of high income neighborhoods used here controls for the overall rise in income inequality. The rise in concentrated affluence was primarily due to rising incomes among well-off families who were already living in neighborhoods with other well-off families, not due to changes in the spatial organization of those who were relatively well-off. In other words, the most affluent third of residents have not increased their tendency to live apart from those who are less affluent, but they (and their neighborhoods) have become even wealthier over time. Third, Table 3 shows that the fraction of neighborhoods that were majority low income increased over each decade, even between 1990 and 2000 when concentrated poverty declined (Jargowsky 2003). This discrepancy also reflects the difference between considering absolute and relative economic change. Concentrated poverty neighborhoods declined mainly because poor residents increased their incomes, not because they

increasingly lived with relatively more affluent neighbors. Even though the incomes of the poor rose, incomes also rose across the income distribution during the 1990s, so residents at the bottom of the income distribution remained at the bottom, and majority low income neighborhoods did not become less common even though poverty rates declined. Finally, the relative lack of homogenously middle income neighborhoods – where the majority of families have incomes in the middle third of the income distribution – is somewhat surprising. The neighborhoods that are typically thought of as "middle class" actually fall into the low-middle and middle-high income categories, which are about 40% of tracts in each decade.

These trends in the relative prevalence of each neighborhood type say nothing about the stability of particular neighborhoods over time, however. One cannot assume, for example, that high income neighborhoods were economically stable because they were a relatively consistent 15% of tracts in each decade. It is possible that many neighborhoods were transitioning into and out of this category, and the same applies to the other categories as well. I address this possibility next by examining the stability of economic conditions within neighborhoods over time.

Stability of Neighborhood Economic Conditions

Table 4 shows the tabulations of transition matrices, where each neighborhood begins in one of five origin neighborhood categories - low, low-middle, mixed, middle-high, or high income – and ends in one of five destination categories at the subsequent census. The diagonal cells indicate the proportion of neighborhoods that remain in the same category in both censuses, and the off-diagonal cells indicate the proportion of neighborhoods that transition into a different neighborhood category between censuses. The marginals of the tables show how the total number of neighborhoods in each category changed in each decade. Three different transition periods are shown in Table 4 - 1970 to 1980, 1980 to 1990, and 1990 to 2000.

Low income neighborhoods have a lower probability of transition than any other neighborhood type, with over 80% remaining low income from one decade to the next. High income neighborhoods are the next most stable neighborhood type, with over 70% remaining high income between decades. Mixed income neighborhoods are much less stable, with only about half remaining mixed from one decade to the next. Yet, mixed income neighborhoods are about as unstable as low-middle and middle-high income neighborhoods, which also have stability rates just under 50%. Mixed income neighborhoods are therefore not *unique* in their instability; in fact, low-middle, middle-high, and mixed income neighborhoods account for more than half of all tracts in each decade. The patterns of neighborhood stability and transition are relatively consistent across each decade.

Transition matrices not only tell us how many neighborhoods are stable or unstable, but also where neighborhoods go when they leave their origin category. For low income neighborhoods, any type of transition is uncommon, but most that do transition become low-middle income. Very few (3.5%) become mixed-income over the course of a decade. We see the same pattern, but in reverse, for high income neighborhoods. Most are stable, but those that are unstable are most likely to end up in the middle-high income category, and transitions to a mixed-income state are quite uncommon (4.9%) over the course of a decade. These transitions became even less common in decades after the 1970s.

For mixed income neighborhoods, transitions are much more likely to occur, and relatively equal fractions of neighborhoods that do transition move to higher and lower income states, although lower income transitions are slightly more common. Over one quarter of mixed income neighborhoods became lower income between 1970 and 1980, while about one fifth of mixed income neighborhoods became higher income. Yet, again the most common movements were to adjacent categories; only 3% became majority low income and majority high income.

This lack of large-scale neighborhood change suggests that while economic change may be a relatively common occurrence for neighborhoods in the middle of the income distribution, the magnitude of this change is modest from decade to decade.

Table 5 summarizes neighborhood change across three decades, with 1970 origin categories and 2000 destination categories. 78% of neighborhoods that were low income in 1970 remained low income in 2000, 12% became low-middle income, and 6.5% became mixed income. At the other end of the distribution, 55% of majority high income neighborhoods remained high income between 1970 and 2000, 24% became middle-high income, and 13% became mixed income. Only 2% of high income neighborhoods became low income, indicating that completely economic transition is quite uncommon even over the course of three decades. Finally, only 30% of neighborhoods that were mixed income in 1970 were mixed income in 2000.

These trends differ for predominantly black and predominantly white neighborhoods. Table 6 shows transition matrices between 1970 and 2000 separately for neighborhoods where over 50% of the residents are black, where 10-50% of residents in the neighborhood are black, and where fewer than 10% of the residents are black. Low income black neighborhoods are more persistent than low income white neighborhoods, with racially diverse neighborhoods falling in between. Over 90% of low income black neighborhoods remained low income, while only 69% of low income white neighborhoods remained stable. All other neighborhood types are *less* stable for black neighborhoods than for white neighborhoods. Twenty-one percent of mixed income black neighborhoods in 1970 remained mixed income in 2000, compared to 31% of white mixed income neighborhoods. Moreover, transitions were much more likely to be downward, to lower income states, for black neighborhoods than for white neighborhoods. For example, over sixty percent of black mixed income neighborhoods in 1970 became low or low-

middle income by 2000, compared to just 40 percent of white mixed income neighborhoods. In white neighborhoods, transitions were more evenly split between upward and downward changes. High income black neighborhoods are quite uncommon. Finally, the patterns of economic change in racially diverse neighborhoods fall in between the patterns for blacks and whites. This means that racially diverse mixed income neighborhoods are not the least stable neighborhoods; they are more stable than black mixed income neighborhoods but less stable than white mixed income neighborhoods

Robustness Checks

It is important to note that these results are potentially sensitive to the ways in which the neighborhood categories were created. It is possible that a neighborhood could experience a relatively small amount of economic change and be coded as experiencing a transition simply because it was initially close to the cutoff points I defined for that neighborhood category, while another neighborhood in that category could experience a larger amount of economic change and not change categories because it was initially farther away from the cutoff. In order to determine the extent of this problem, I examined the cumulative distribution functions (CDFs) of the amount of change in the % of low income and the % of high income residents for neighborhoods that did and did not make a transition between 1970 and 1980. I show the CDFs for low income, mixed income, and high income neighborhoods in Appendix D. These CDFs assuage the concern over the magnitude of neighborhood change because they show that more transitioning neighborhoods have experienced each amount of change than non-transitioning neighborhoods.

A second concern about the neighborhood typology is that the bounds on the mixed income neighborhood category are tighter than the bounds on the majority low and high income categories. The raises the possibility that the amount of economic change that must occur in a mixed-income neighborhood for it to change categories is smaller than for majority low and high

income neighborhoods. For example, a low income neighborhood where over 80% of the residents are in the bottom third of the income distribution could experience substantively large economic improvement (say, reducing the fraction of low income residents from 80% to 51%) but still remain in the majority low income category and be considered stable in the transition matrix framework. This magnitude of change would result in a transition for a mixed-income neighborhood, since they are defined as neighborhoods where 25-40% of residents fall into each of the three income brackets.

I examine the extent of this problem by showing the percentiles of change in the % of low, middle, and high income residents separately for low, mixed, and high income neighborhoods in Table 7. While these percentiles indicate that a small number of low and high income neighborhoods did experience substantial economic change, this change occurred overwhelmingly in the direction *away* from a neighborhood transition. For example, low income neighborhoods lost more high income residents and lost fewer low income residents than mixed-income neighborhoods at each percentile, moving them away from the cutoffs for the low income category. Very few low income neighborhoods experienced large scale neighborhood improvement, measured by losing large percentages of low income residents – 90% of them lost fewer than 7.5% of their low income residents. The same pattern occurs at the other end of the income distribution, with high income neighborhoods gaining more high income and fewer low income residents at each percentile than mixed income neighborhoods. 90% of high income neighborhoods lost fewer than 5% of their high income residents. By and large, the larger bounds of the low and high income neighborhood categories are not masking substantial neighborhood change towards more mixed income states.

Taken together, these results suggest that mixed income neighborhoods are unstable, with only half remaining mixed from one decade to the next. Yet, they are about as unstable as other

neighborhoods that are not at the low and high extremes of the income distribution, meaning that mixed income neighborhoods are not unique in their instability. This instability is driven in part by the fact that mixed income neighborhoods experience more economic change than more homogenously low or high income neighborhoods, and in part by the fact that mixed income neighborhoods are created by a delicate balance of incomes that can be upset by modest amounts of economic change. Thus, the relatively narrow bounds of the mixed-income neighborhood category reflect a real empirical difficulty of sustaining mixed income neighborhoods. Yet, some mixed-income neighborhoods do remain stably mixed over time. I examine what predicts this stability in the following section.

The Survival of Mixed-Income Neighborhoods

Borrowing from the methods of life tables in demography, Table 8 traces the "survival" of neighborhoods that were mixed-income in 1970 across successive decades. Of neighborhoods that were mixed income in 1970, 51% remained mixed by 1980. 27% transitioned to a lower income state, while 21% transitioned to a higher income state. Of the mixed income neighborhoods that survived to 1980, about 53% again remained mixed income in 1990. Finally, of those that remained mixed in 1990, about 56% remained mixed in 2000. Translating this into a cumulative survival rate, 51% of neighborhoods that were mixed income in 1970 "survived" one decade, 27% survived two decades, and only 15% survived all three decades.[16]

What characteristics predict whether a mixed-income neighborhood will remain stably mixed? Table 9 shows the results from a multi-level multinomial event history model that uses tract- and MSA-level characteristics at the start of each decade to predict whether a mixed income neighborhood becomes lower income (vs. remaining stably mixed) or higher income (vs.

---

[16] One may note the discrepancy between the 30% of neighborhoods that were mixed income in 1970 and 2000 reported in Table 5 and the 15% "survival" rate reported in Table 8. This discrepancy occurs because a fraction of neighborhoods that were mixed income in 1970 exit the mixed income category and then return in a subsequent decade. In my analyses, I censor a neighborhood after it leaves the mixed income category for the first time.

remaining stably mixed) by the following decade. Observations are pooled across decades and are censored after a neighborhood transitions out of the mixed-income category. One of the strongest predictors of whether a mixed income neighborhood will transition out of this category is how far away it is from the cutoffs I defined for the mixed income category, so I include controls for the fraction of families in the bottom and middle thirds of the income distribution to account for the fact that observations start out different distances from the cutoff points. Not surprisingly, larger fractions of families in the bottom and middle thirds of the income distribution are positively associated with transitions to lower income states and negatively associated with transitions to higher income states, and the magnitude of these associations is quite large. The results for the rest of the neighborhood characteristics are measured controlling for the initial income distribution in the neighborhood.

At the population level, tracts with more black residents, higher levels of racial diversity, and greater population density are more likely to transition to lower income states by the next decade, but these characteristics have no association with higher income transitions net of the other controls in the model. Tracts with more age diversity are both more likely to become lower income and less likely to become higher income over time. In contrast, tracts with more foreign born residents are less likely to make *both* types of neighborhood transitions, meaning that a higher fraction of foreign born residents is associated with stability for mixed income neighborhoods.

Characteristics of the housing stock are also associated with neighborhood change. Consistent with the predictions of the neighborhood life cycle model, the construction of new housing and higher rates of home ownership are positively associated with subsequent neighborhood economic improvement and decrease the likelihood of a lower income transition for mixed income neighborhoods. In contrast, tracts where affordable housing units are

constructed are more likely to make lower income transitions and less likely to make higher income transitions. Mixed income tracts located within central cities are much more likely to become lower income over time and less likely to become higher income than tracts located outside of central cities. Residential stability is associated with lower likelihood of transition in both directions, predicting the stability of mixed income neighborhoods.

Finally, the metropolitan context influences the likelihood of stability for mixed income neighborhoods, above and beyond their own characteristics. Tracts located within metropolitan areas that are larger and more economically segregated are less stable. Tracts located within metropolitan areas with higher levels of racial segregation, more foreign born residents, and more residents employed in manufacturing are less likely to make lower income transitions, but these characteristics do not predict higher income transitions. Mixed income tracts are less stable in the midwest, south, and west than they are in the northeast. Finally, tracts located within MSAs with higher violent crime rates are more likely to become low income and less likely to become higher income over time.

The results from Table 9 can be summarized by three processes. First, certain characteristics are associated with the process of neighborhood economic decline, including the fraction of black residents, age diversity, population density, location in central cities and in MSAs with larger populations and higher crime rates, and affordable housing construction. Other characteristics are associated with the process of neighborhood economic improvement, including home ownership and new housing construction. Finally, certain characteristics are associated with the stability of mixed income neighborhoods, including the fraction of foreign born residents and residential stability.

Types of Stably Mixed-Income Neighborhoods

The results from the analysis in Table 9 describe how certain neighborhood characteristics are independently associated with the likelihood of neighborhood change, but this does not tell us about the *configuration* of these characteristics and how they relate to one another. I conclude by examining whether there are distinct types of stably mixed-income neighborhoods. To do this, I conducted a cluster analysis on the 3,113 neighborhoods that remained stably mixed between 1970 and 2000. Two distinct types of neighborhoods emerged from this analysis, and their characteristics are summarized in Table 10. The first type of stably mixed income neighborhood is one characterized by primarily non-Hispanic white populations, located outside of the central city, with high levels of home ownership, residential stability, a young housing stock, and low population density. The second type of stably mixed income neighborhood is one characterized by racial and ethnic diversity, high fractions of foreign born residents, and locations in central cities. This type of mixed income neighborhood has lower levels of home ownership and residential stability, an older housing stock, and much higher population density. These two clusters of neighborhood characteristics present two quite different visions of stably mixed income neighborhoods, one that is characterized by population homogeneity and stability and another that is characterized by population diversity and turnover. I discuss the implications of these findings in greater detail below.

DISCUSSION

Previous studies have demonstrated that levels of economic segregation in the U.S. are relatively low, especially compared to levels of racial segregation, which means that there must be a substantial amount of income mixing within neighborhoods. Low levels of economic segregation in each decade could be driven by either economic stability among economically diverse neighborhoods or by economic instability, with many neighborhoods moving into and out of conditions of economic diversity over time. Studies of economic segregation are not able

30

to differentiate between these two contrasting population processes because they only measure the extent of metropolitan-wide segregation, not the characteristics or stability of *particular* neighborhood economic conditions over time. I find evidence that the low levels of economic segregation observed in each decade are reproduced by a constant churning of neighborhoods into and out of conditions of economic diversity. Mixed income neighborhoods are unlikely to remain mixed income across multiple decades, but economic change is also relatively common among neighborhoods that do not fall at the extremes of the income distribution, so other neighborhoods become mixed income and the low levels of cross-sectional economic segregation are thereby reproduced.

This pattern stands in sharp contrast with the remarkable levels of stability among neighborhoods at the low and high ends of the income distribution. Only half of mixed income neighborhoods remain mixed in the next decade, and only 15% "survive" all three decades from 1970 to 2000, compared to over 80% of low income neighborhoods and over 70% of high income neighborhoods. This instability is driven in part by the fact that mixed income neighborhoods experience more economic change than more homogenously low or high income neighborhoods, and in part by the fact that mixed income neighborhoods are created by a delicate balance of incomes that can be upset by modest amounts of economic change. Yet, the majority of neighborhoods do not fall into either of these two extremes of the income distribution, so mixed income neighborhoods are not unique in their instability.

Some mixed-income neighborhoods do remain stably mixed over time, but our current theories of neighborhood economic change are not well equipped to explain this stability because we tend to focus only on the durability of low income neighborhoods. Most characteristics of a neighborhood's population conform to predictions from the invasion-succession models, and most characteristics of the housing stock conform to predictions from the life cycle models. Each

of these models predicts uniform economic change from lower to higher income states, or vice versa. The notable exception is the fraction of foreign born residents, which is associated with stably mixed income neighborhoods.

This regression-based approach to neighborhood change does not give us a clear picture of what stably mixed income neighborhoods are like. Current thinking pits racial diversity and racial homogeneity as competing visions of what stably economically diverse neighborhoods look like. The cluster analysis of stably mixed income neighborhoods reveals that both visions are correct. One type of stably mixed income neighborhood is characterized by racial homogeneity and population stability, while the other is characterized by racial diversity and population turnover. Multiple processes generate stably mixed income neighborhoods, a finding that has implications both for theories of neighborhood stability and change and for public policies designed to promote income mixing and racial diversity.

There are several important limitations to this study, which highlight the need for more research on neighborhood economic change and on mixed-income neighborhoods. First, this study relies on census data and therefore cannot determine how much economic change in a neighborhood is due to population mobility - higher or lower income families moving in or out - versus economic change among families that do not move. With the study of racial change, one can infer that changes in the racial composition of a neighborhood are due to population mobility, because race is an ascribed trait that typically does not change over time; this is not the case for economic change. Future research should focus on how much individual-level residential mobility and economic change contribute to the instability of mixed income neighborhoods found in the present study.

Second, this study cannot make claims about what *causes* mixed income neighborhoods to remain stable or change over time; the analyses are fundamentally associational and descriptive.

Because there is little existing information on mixed income neighborhoods, this descriptive task is important and contributes to our understanding of economic segregation and neighborhood change among non-poor neighborhoods. However, this analysis using census data at the national level cannot tell us about the *processes* that generate the associations observed here, or the key actors involved in creating and sustaining mixed income communities. For example, we need more in-depth and local-level research to study the political forces that support or undermine conditions of economic diversity, residents' perceptions of and preferences for economic diversity, and how decisions are made about where and what type of housing gets built. Previous research has shown how real estate developers, politicians, local activists, community organizations, and regular residents are all involved in processes of gentrification and neighborhood decline (Logan and Molotch 1987; Pattillo-McCoy 2007; Wilson and Taub 2006), but these studies have not examined the forces that help *sustain* mixed income neighborhoods over time.

Several other methodological limitations should be noted. First, I created measures of low, high, and mixed income neighborhoods that guide the analyses in this study. Because there are no set guidelines for what constitutes a mixed income neighborhood, these definitions are open to debate and some might take issue with how they are defined here. Second, this study is limited to the use of repeated cross-sectional measures of neighborhood income composition every ten years. I am unable to examine patterns of change that occur in years between censuses. Finally, these analyses are limited to census tracts and may mask considerable variation in patterns among smaller geographic areas within tracts, or within areas adjacent to census tracts. These tract boundaries do not perfectly correspond to neighborhood boundaries, which are socially constructed and evolve over time.

The existence of stable, mixed-income communities has been a long-standing goal of urban planners, which has manifested itself in different policy initiatives since the early 20th century. Mixed-income neighborhoods are often considered ideal residential contexts because they offer diverse living environments where residents of varying economic positions have access to similar resources and opportunities to interact with each other. Yet economically diverse neighborhoods may also be sites for conflict between residents of different income groups. Housing policies that promote mixed income housing are now commonplace, but they have proceeded without much prior academic research on the stability or desirability of mixed-income neighborhoods. This study highlights the need to broaden the focus of our research efforts beyond high poverty neighborhoods and towards a consideration of the entire income distribution within neighborhoods. This will provide valuable information to the policy community about the likely stability of such neighborhoods and potential policy levers that could promote stable income mixing. We need to ask new questions about neighborhood economic conditions if we are to better understand the processes that reproduce spatial inequalities both within and between neighborhoods.

REFERENCES

Ahlbrandt, R. S. 1984. *Neighborhoods, People, and Community*. New York: Plenum Press.

Allison, Paul. 1990. "Change Scores as Dependent Variables in Regression Analysis." *Sociological Methodology* 20: 93-114.

Anderson, Elijah. 1990. *Streetwise: Race, Class, and Change in an Urban Community*. Chicago: University of Chicago Press.

Bobo, Lawrence and Camille Zubrinsky. 1996. "Attitude on residential integration: Perceived status differences, mere in-group preference, or racial prejudice?" *Social Forces* 74:883-909.

Boisjoly, Johanna, Greg J. Duncan, Michael Kremer, Dan M. Levy, and Jacque Eccles. 2006. "Empathy or Antipathy? The Impact of Diversity." *American Economic Review* 96:1890-1905.

Breitbart, Myrna Margulies and Pader, Ellen J. "Establishing Ground: Representing Gender and Race in a Mixed Housing Development." *Gender, Place and Culture*. 1995; 2(1):5-20.

Briggs, Xavier de Souza. 1997. "Brown Kids in White Suburbs: Housing Mobility and the Many Faces of Social Capital." *Housing Policy Debate* 9:177-221.

Briggs, Xavier de Souza. 1998. "Brown Kids in White Suburbs: Housing Mobility and the Many Faces of Social Capital." *Housing Policy Debate* 9:177-221.

Brooks-Gunn, Jeanne, Greg J. Duncan, Pamela K. Klebanov, and Naomi Sealand. 1993. "Do Neighborhoods Influence Child and Adolescent Development." *American Journal of Sociology* 99:353-395.

Brown, Barbara B., Douglas D. Perkins, and Graham Brown. 2004. "Crime, New Housing, and Housing Incivilities in a First-Ring Suburb: Multilevel Relationships across Time." *Housing Policy Debate* 15(2): 301-345.

Bruch, E. E., and R. D. Mare. 2006. "Neighborhood Choice and Neighborhood Change." *American Journal of Sociology*.112: 667-709.

Buron, Larry E., Susan J. Popkin, Diane K. Levy, Laura E. Harris, and Jill Khadduri. 2002. The HOPE VI resident tracking study: A snapshot of the current living situation of original residents from eight sites. Washington DC: Urban Institute.

Bursik, Robert J. and Harold G. Grasmick. 1993. *Neighborhoods and Crime: The Dimensions of Effective Community Control*. New York: Lexington Books.

Campbell, K.E. and Barrett A. Lee. 1992. "Sources of personal neighbor networks: Social integration, need, or time?" *Social Forces* 70.

Card, David, Alexandre Mas, and Jesse Rothstein. 2007. "Tipping and the Dynamics of Segregation." NBER Working Paper Series 3 13052. Cambridge, MA.

Charles, Camille. 2003. "The Dynamics of Racial Residential Segregation." *Annual Review of Sociology* 29:167-207.

Clark, W.A. 1991. "Residential preferences and neighborhood racial segregation: a test of the Schelling segregation model." *Demography* 28(1): 1-19.

Crane, Jonathan. 1991. "The epidemic theory of ghettos and neighborhood effects on dropping out and teenage childbearing." *American Journal of Sociology* 96:1226-1259.

Cutler, David and Edward Glaeser. 1997. "Are Ghettos Good or Bad?" *Quarterly Journal of Economics* 112:827-872.

Du Bois. W.E.B. 1899. [1996] The Philadelphia Negro. Philadelphia: University of Pennsylvania Press.

Duncan, Otis Dudley and Beverly Duncan. 1957. *The Negro Population of Chicago*. Chicago: University of Chicago Press.

Ellen, Ingrid and Margery Turner. 1997. "Do Neighborhoods Matter? Assessing Recent Evidence." *Housing Policy Debate* 8:833-866.

Ellen, Ingrid. 2000. *Sharing America's Neighborhoods The Prospects for Stable Racial Integration*. Cambridge, MA: Harvard University Press.

Elliott, Delbert S., William Julius Wilson, David Huizinga, Robert J. Sampson, Amanda Elliott, and Bruce Rankin. 1996. "The effects of neigborhood disadvantage on adolescent development." *Journal of Research on Crime and Delinquency* 33:389-426.

Farley, Reynolds and William H. Frey. 1994. "Changes in the Segregation of Whites from Blacks During the 1980s: Small Steps Toward a More Integrated Society." *American Sociological Review* 59:23-45.

Farley, Reynolds. 1996. "Comment on Massy." *Demography* 33: 413-416.

Farley, Reynolds, H Schuman, S Bianchi, and D Colasanto. 1979. "Barriers to racial integration of neighborhoods: The Detroit case." *The Annals of the American Academy of Political and Social Science* 441:97-113.

Fischer, Mary. 2003. "The Relative Importance of Income and Race in Determining Residential Outcomes in U.S. Urban Areas, 1970-2000." *Urban Affairs Review* 38(5): 669-696.

Gale, Dennis. 1979. "Middle-class Resettlement in Older Neighborhoods: The Evidence and Implication." *Journal of the American Planning Associations*. 45: 293-304.

Galster, George C. 2000. "Comment on John T. Metzger's "Planned Abandonment: The Neighborhood Life-Cycle Theory and National Urban Policy" *Housing Policy Debate* 11(1): 61-66.

Galster, George C. 2005. "Consequences from the Redistribution of Urban Poverty During the 1990s: A Cautionary Tale." *Economic Development Quarterly* 19(2): 119-125.

Galster, George C., Jason C. Booza, and Jackie M. Cutsinger. 2008. "Income Diversity Within Neighborhoods and Very Low-Income Families." *Cityscape* 10(2): 257-300.

Gans, Herbert J. 2002. "The Sociology of Space: A Use–Centered View." *City & Community* 1(4): 329-339.

Gans, Herbert. 1962. *Urban Villagers*. New York: Free Press.

Ginther, Donna, Robert Haveman, and Wolfe Barbara. 2000. "Neighborhood Attributes as Determinants of Children's Outcomes: How Robust are the Relationships." *Journal of Human Resources* 35:603-642.

Glass, Ruth. 1963. *Introduction to London: Aspects of Change.* London: Center for Urban Studies.

Glazer, Nathan. 1987. "The South Bronx Story: An Extreme Case of Neighborhood Decline." *Policy Studies Journal* 16(2).

Grannis, R. 2005. "T-Communities: Pedestrian Street Networks and Residential Segregation in Chicago, Los Angeles and New York." *City and Community*, 4 (3): 295-321.

Grannis, Rick. 1998. "The Importance of Trivial Streets: Residential Streets and Residential Segregation." *American Journal of Sociology* 103:1530-1564.

Guest, Avery M., and Barrett A. Lee. 1983. The Social Organization of Local Areas. *Urban Affairs Quarterly* 19:217–40.

Harding, David. 2003. "Counterfactual models of neighborhood effects: The effect of neighborhood poverty on dropping out and teenage pregnancy." *American Journal of Sociology* 109:676-719.

—. 2007. "Cultural Context, Sexual Behavior, and Romantic Relationships in Disadvantaged Neighborhoods." *American Sociological Review* 72:341-364.

Hardman, Anna and Yannis M. Ioannides. 2004. "Neighbors' income distribution: Economic segregation and mixing in US urban neighborhoods." *Journal of Housing Economics* 13:368-382.

Hardman, Anna, and Yannis M. Ioannides. 2004a. "Neighbors' Income Distribution: Economic Segregation and Mixing in U.S. Urban Neighborhoods," *Journal of Housing Economics* 13: 368–382.

Harris, David. 1999. "Property Values Drop When Blacks Move in, Because… Racial and

Socioeconomic Determinants of Neighborhood Desirability." *American Sociological Review* 64:461-479.

Hogan ,J. B. 1996. ``Scattered-site Housing: Characteristics and Consequences." HUD-7470, US Department of Housing and Urban Development, Office of Policy Development and Research, Washington, DC.

Hoover, Edgar M. and Vernon Raymond. 1959. *Anatomy of a metropolis: The changing distribution of people and jobs wtihin the New York metropolitan area*. Cambridge: Harvard University Press.

Iceland, John., Daniel Weinberg, and Erika Steinmetz. 2002. *Racial and Ethnic Segregation in the United States: 1980–2000*. U.S. Census Bureau, Census Special Report, CENSR-3. Washington, DC: U.S. Government Printing Office.

Immergluck, Dan., and Geoff Smith. 2002. "Who's Buying Where? The Second of Two Reports on Home Buying and Neighborhood Change in the Chicago Area in the 1990s." Chicago: The Woodstock Institute.

Ioannides, Yannis M. 2004. "Neighborhood Income Distributions," *Journal of Urban Economics* 56: 435–457.

Ioannides, Yannis M., and Tracey N. Seslen. 2002. "Neighborhood Wealth Distributions," *Economic Letters* 76: 357–367.

Jargowsky, Paul 1997. *Poverty and Place: Ghettos, Barrios, and the American City*. New York: Russell Sage.

-----. 1996. "Take the money and run: Economic segregation in U.S. metropolitan areas." *American Sociological Review* 61:984-998.

-----. 2003. "Stunning Progress, Hidden Problems: The Dramatic Decline of Concentrated Poverty in the 1990s." Washington DC: Brookings Institution Press.

Kefalas, Maria. 2006. Working Class Heroes: *Protecting Home, Community and Nation in a Chicago Neighborhood."* Berkeley and Los Angeles:University of California Press.

Kain, John F. 1968. "Housing segregation, negro employment, and metropolitan decentralization." *Quarterly Journal of Economics* 82(2): 175-197.

Kleit Rachel Garshick. 2001b. ``Neighborhood Relations in Scattered-Site and Clustered Public Housing." *Journal of Urban Affairs* 23: 409- 430.

-----. 2001a, ``The Role of Neighborhood Social Networks in Scattered-Site Public Housing Residents' Search for Jobs." *Housing Policy Debate* 12: 541- 574.

-----. 2005. "HOPE VI New Communities: Neighborhood Relationships in Mixed Income Housing." *Environment and Planning A* 37: 1413-1441.

-----. 2008. "Neighborhood Segregation, Personal Networks, and Access to Social Resources." In James Carr and Nandinee Kutty (Eds.) *Segregation: The Rising Costs for America,* pp. 237-260. New York: Routledge.

Kleit, Rachael and Lynne c. Manzo. 2006. "To Move or not to Move: Relationships to Place and Relocation Choices in HOPE VI." *Housing Policy Debat*e 17(2): 271-308.

Krupka, Douglas J. 2006. The Stability of Mixed-Income Neighborhoods in America, 1990–2000. Working paper no. 06-08. Atlanta: Georgia State University, Urban and Regional Analysis Working Group.

Lee, Barrett A., and Peter B. Wood. 1990. "The Fate of Residential Integration in American Cities: Evidence from Racially Mixed Neighborhoods, 1970–1980," *Journal of Urban Affairs* 12 (4): 425–436.

Lee, Barrett and Matthew Marlay. 2007. "The Right Side of the Tracks: Affluent Neighborhoods in the Metropolitan United States." *Social Science Quarterly* 88(3): 766-789.

Logan, John R. and Harvey Molotch. 1987. *Urban Fortunes: The Political Economy of Place*. Los Angeles: University of California Press.

Logan, John R., Brian J. Stults, and Reynolds Farley. 2004. "Segregation of Minorities in the Metropolis: Two Decades of Change." *Demography* 41:1-22.

Massey, Douglas and Mary J Fischer. 2003. "The Geography of Inequality in the United States, 1950-2000." *Brookings-Wharton Papers on Urban Affairs*:1-40.

Massey, Douglas and Mitchell Eggers. 1990. "The Ecology of Inequality: Minorities and the Concentration of Poverty 1970-1980." *American Journal of Sociology* 95:1153-1188.

Massey, Douglas and Nancy Denton. 1993. *American Apartheid: Segregation and the Making of an Underclass*. Cambridge, MA: Harvard University Press.

Massey, Douglas. 1996. "The Age of Extremes: Concentrated Affluence and Poverty in the Twenty-First Century." *Demography* 33:395-412.

Metzger, John T. 2000. "Planned Abandonment: The Neighborhood Life-Cycle Theory and National Urban Policy." *Housing Policy Debate* 11(1): 7- 40.

Molotch, Harvey. 1976. "The City as a Growth Machine." *American Journal of Sociology* 82:309-331.

Nyden, Philip, J Lukehard, M Maly, and W Peterman. 1998. "Neighborhood racial and ethnic diversity in US cities." *Cityscape* 4.

Pader, Ellen J. and Breitbart, Myrna Margulies. "Transforming Public Housing: Conflicting Visions for Harbor Point." *Places*. 1993; 8(4):34-41.

Park, Robert and E Burgess. 1924. *Introduction to the science of sociology*. Chicago: University of Chicago Press.

Park, Robert. 1916. *The City*. Chicago: University of Chicago Press.

Pattillo, Mary. 2007. *Black on the Block: The Politics of Race and Class in the City*. Chicago: University of Chicago Press.

Pattillo-McCoy, Mary. "The Limits of Out-Migration for the Black Middle Class." *Journal of Urban Affairs* 22(3): 225-242.

Pettigrew, Thomas F. and Linda R. Tropp. 2000. "Does intergroup contact reduce prejudice: Recent meta-analytic findings." in *Reducing prejudice and discrimination*, edited by S. Oskamp. Mahwah, NJ: Lawrence Erlbaum Associates.

Putnam, Robert D. 2007. "E Pluribus Unum: Diversity and Community in the Twenty-First Century." *Scandinavian Political Studies* 30:137-174.

Quillian, Lincoln. 1999. "Migration Patterns and the Growth of High-Poverty Neighborhoods, 1970-1990." *American Journal of Sociology* 105(1): 1-37.

Rankin, Bruce and James Quane. 2000. "Neighborhood Poverty and the Social Isolation of Inner-City African American Families." *Social Forces* 79:139-164.

Rosenbaum, James E., Lisa Reynolds and Stefanie DeLuca. 2002. "How Do Places Matter? The Geography of Opportunity, Self-Efficacy, and a Look Inside the Black Box of Residential Mobility." *Housing Studies*, 17:71-82.

Rosenbaum, James, E., Linda K. Stroh, and Cathy Flynn. 1998. "Lake parc place: A study of mixed income housing." *Housing Policy Debate* 9(4): 703-740.

Rosenbaum, James. 1995. "Changing the Geography of Opportunity by Expanding Residential Choice: Lessons from the *Gautreaux* Program." *Housing Policy Debate* 6:231-69.

Sampson, Robert J., Patrick Sharkey, and Steven Raudenbush. 2008. "Durable Effects of Concentrated Disadvantage on Verbal Ability among African-American Children." *Proceedings of the National Academy of Sciences* 105: 845-853

Sampson, Robert J. and Jeffrey D. Morenoff. 2006. "Durable Inequality: Spatial Dynamics, Social Processes, and the Persistence of Poverty in Chicago Neighborhoods." Pp. 176-203 in Samuel Bowles, Steven N. Durlauf and Karla Hoff (editors), *Poverty Traps*. Russell Sage Foundation.

Sampson, Robert. 2009. "Racial Stratification and the Durable Tangle of Neighborhood Inequality." *Annals of the American Academy of Political and Social Sciences*.

Sampson, Robert J., Jeffrey D. Morenoff, and Thomas Gannon-Rowley. 2002. "Assessing `Neighborhood Effects:' Social Processes and New Directions for Research." *Annual Review of Sociology* 28:443-478.

Sampson, Robert J., Stephen W. Raudenbush, and Felton Earls. 1997. "Neighborhoods and

Violent Crime: A Multilevel Study of Collective Efficacy." *Science* 227:918-924.

Schelling, T.C. 1972. "A process of residential segregation: Neighborhood tipping." in *Racial discrimination in economic life*, edited by A. H. Pascal. Lexington, MS: Lexington Books.

Schlay, Anne B. and Peter H. Rossi. 1981. "Keeping up the neighborhood: Estimating net effects of zoning." *American Sociological Review* 46:703-719.

Sharkey, Patrick. 2008**.** "The Intergenerational Transmission of Context." *American Journal of Sociology* 113:931–69.

Small, Mario Luis and Katherine Newman. 2001. "Urban Poverty after *The Truly Disadvantaged*: The Rediscovery of the Family, the Neighborhood, and Culture." *Annual Review of Sociology* 27: 23-45.

Small, Mario Luis. 2008. "Is there Such a Thing as 'the Ghetto'? The Perils of Assuming that the South Side of Chicago Requests Poor Black Neighborhoods." *City* 11(3): 413-421.

Smith, Neil. 1996. *The new frontier: Gentrification and the revanchist city*. London: Routledge.

South, Scott, J., Kyle Crowder, and Jeremy Pais. 2008. "Inter-Neighborhood Migration and Spatial Assimilation in a Multi-Ethnic World." *Social Forces* 87(1):415-443.

St. John, Craig. 2002. "Concentrated affluence in the United States, 1990." *Urban Affairs Review* 37:500-520.

Tach, Laura. Forthcoming. "More than Bricks and Mortar: Neighborhood Frames, Social Processes, and the Mixed-Income Redevelopment of a Public Housing Project." *City & Community*.

Taeuber, Karl E. and Alma F. Taeuber. 1965. *Negroes in Cities: Residential Segregation and Neighborhood Change*. Chicago: Aldine.

Talen, Emily. 2006. "Neighborhood-level Social Diversity: Insights from Chicago," *Journal of the American Planning Association, 72*(4), 431–446.

Taub, Richard D., Garth Taylor, and Jan Dunham. 1984. *Paths of Neighborhood Change: Race and Crime in Urban America*. Chicago: University of Chicago Press.

Temkin, Kenneth. 2000. "Comment on John T. Metzger's "Planned Abandonment: The Neighborhood Life-Cycle Theory and National Urban Policy" *Housing Policy Debate* 11(1): 55-60.

Thomas, June M., John H. Schweitzer, and Julia A. Darnton. 2004. "Mixed Income Neighborhoods: Issues of Assessment." Paper presented at the annual meeting of the Urban Affairs Association, Washington, DC.

Tigges, Leann, Irene Browne, and Gary Green. 1998. "Social Isolation of the Urban Poor: Race, Class, and Neighborhood Effects on Social Resources." *The Sociological Quarterly* 39:53-77.

Turner, Margery Austin, and Julie Fenderson. 2006. "Understanding Diverse Neighborhoods in an Era of Demographic Change." Washington, DC: Urban Institute, Metropolitan Housing and Policy Center.

Watson, Tara. 2006. "Metropolitan Growth and Neighborhood Segregation by Income." *Brookings-Wharton Papers on Urban Affairs*:1-52.

Wellman, Barry (ed). 1999. *Networks in the Global Village: Life in Contemporary Communities*. Boulder: Westview Press.

Wilson, William Julius and Richard D. Taub. 2006. *There Goes the Neighborhood: Racial, Ethnic, and Class Tensions in Four Chicago Neighborhoods and their Meaning for America*. New York: Alfred Knopf.

Wilson, William Julius. 1987. *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy*. Chicago: University of Chicago Press.

—. 1996. *When Work Disappears: The World of the New Urban Poor*. New York: Alfred Knopf.

Zukin, Sharon. 1982. *Loft Living*. Baltimore: Johns Hopkins University Press.

Table 1. Description of Neighborhood Typology

Label	Description
Not Mixed Income	
Majority Low	- 50% or more in bottom 1/3 of metro income distribution
Majority Middle	- 50% or more in middle 1/3 of metro income distribution
Majority High	- 50% or more in top 1/3 of metro income distribution
Mixed Income	
Low-Middle	- 75% or more in bottom and middle 1/3s of metro income distribution - Less than 25% in top 1/3
Middle-High	- 75% or more in middle and top 1/3s of metro income distribution - Less than 25% in bottom 1/3
Low-High	- 75% or more in bottom and top 1/3s of metro income distribution - Less than 25% in middle 1/3
Low-Middle-High	25-40% in bottom, middle, and top 1/3 of metro income distribution

Table 2. Descriptive Characteristics of Low, Mixed, and High Income Neighborhoods, 2000

	Low Income (N=10,351)	Mixed Income (N=6,868)	High Income (N=6,261)
Income Distribution			
% Families in Bottom 1/3	64	32	13
% Families in Middle 1/3	26	36	25
% Families in Top 1/3	11	32	62
Population			
% Black or African American	39	9	4
Racial Diveristy Score	0.62	0.49	0.42
% Foreign Born	17	11	10
Tract Population Size	3,843	4,633	4,757
Population Density	12,099	5,390	5,512
Age Diversity Score	0.56	0.56	0.56
Housing Stock			
% in Same House 5 Yrs Ago	49	57	58
Vacancy Rate	10	6	4
% Owner Occupied	35	64	76
% Old Housing Stock	60	43	37
% New Housing Stock	6	13	17
Central City	77	36	31
Affordable Housing Built	38	18	7
MSA Characteristics			
Log Total Population	14.3	13.9	15.5
Economic Dissimilarity Index	0.43	0.39	0.43
Racial Dissimilarity Index	0.63	0.6	0.64
% Foreign Born	13	11	15
% Employed in Manufacturing	22	23	21
Crime Rate	0.003	0.002	0.002
Northeast	21	26	27
Midwest	27	25	23
South	31	28	28
West	21	21	22

Table 3. Distribution of Neighborhood Types, 1970-2000

	1970		1980		1990		2000	
	N	%	N	%	N	%	N	%
Low Income	6,017	14.5	7,474	18.0	8,964	21.6	10,333	24.9
Middle Income	415	1.0	207	0.5	290	0.7	290	0.7
High Income	6,308	15.2	6,183	14.9	6,557	15.8	6,266	15.1
Low-Middle Income	8,300	20.0	8,051	19.4	8,424	20.3	8,715	21.0
Middle-High Income	8,922	21.5	8,383	20.2	7,760	18.7	7,096	17.1
Low-High Income	373	0.9	332	0.8	373	0.9	373	0.9
3-Group Mixed Income	11,329	27.3	10,831	26.1	9,088	21.9	8,383	20.2

Notes: Distributions are based on the sample of 41,499 census tracts that existed in all four decennial censuses.

Table 4. Change in Neighborhood Economic Conditions, 1970-1980, 1980-1990, and 1990-2000

Destination Income Category	Origin Income Category, 1970					
	Low Income	Low-Mid Income	Mixed Income	Mid-High Income	High Income	N
1980						
Low Income	83.0	24.4	3.4	0.5	0.3	7,466
Low-Mid Income	12.9	47.4	24.1	5.3	0.7	7,992
Mixed Income	3.5	23.9	51.2	29.9	4.9	11,085
Mid-High Income	0.3	3.6	18.3	49.8	22.6	8,278
High Income	0.3	0.7	3.0	14.5	71.5	6,218
	100%	100%	100%	100%	100%	
N=	6,030	8,253	11,593	8,858	6,305	41,039

Destination Income Category	Origin Income Category, 1980					
	Low Income	Low-Mid Income	Mixed Income	Mid-High Income	High Income	N
1990						
Low Income	87.9	26.7	2.3	0.1	0.1	8,968
Low-Mid Income	9.7	54.9	26.1	4.3	0.2	8,353
Mixed Income	2.1	16.1	52.0	25.4	2.2	9,435
Mid-High Income	0.2	1.8	17.1	53.8	18.9	7,689
High Income	0.2	0.3	2.5	16.4	78.5	6,564
	100%	100%	100%	100%	100%	
N=	7,466	7,985	11,046	8,297	6,215	41,009

Destination Income Category	Origin Income Category, 1990					
	Low Income	Low-Mid Income	Mixed Income	Mid-High Income	High Income	N
2000						
Low Income	87.7	26.0	2.9	0.2	0.1	10,339
Low-Mid Income	10.4	56.4	27.4	4.8	0.2	8,604
Mixed Income	1.5	15.8	51.7	28.8	2.6	8,708
Mid-High Income	0.2	1.5	15.8	53.5	20.2	7,053
High Income	0.2	0.2	2.1	12.8	76.9	6,257
	100%	100%	100%	100%	100%	
N=	8,971	8,352	9,409	7,671	6,558	40,961

Table 5. Change in Neighborhood Economic Conditions, 1970-2000

2000 Destination Income Category	Origin Income Category, 1970					
	Low Income	Low-Mid Income	Mixed Income	Mid-High Income	High Income	N
Low Income	78.4	39.3	14.6	6.0	1.9	10,311
Low-Mid Income	11.6	31.0	28.7	19.4	5.2	8,630
Mixed Income	6.5	18.8	30.2	27.9	13.0	8,726
Mid-High Income	1.8	7.9	18.4	29.7	24.4	7,043
High Income	1.6	2.9	8.1	16.9	55.3	6,251
	100%	100%	100%	100%	100%	
N=	6,021	8,249	11,577	8,825	6,289	40,961

Table 6. Change in Neighborhood Economic Conditions by Racial Composition, 1970-2000

Destination Income Category, 2000	Origin Income Category, 1970					
	Low Income	Low-Mid Income	Mixed Income	Mid-High Income	High Income	N
Over 50% Black						
Low Income	90.2	68.5	29.3	12.7	0.0	2,526
Low-Mid Income	5.8	22.4	38.4	25.4	13.3	379
Mixed Income	2.8	6.0	21.4	26.7	20.0	171
Mid-High Income	0.6	2.2	8.7	28.1	13.3	69
High Income	0.8	0.8	2.2	7.0	53.3	41
	100%	100%	100%	100%	100%	
N=	2,242	629	229	71	15	3,186
10-50% Black						
Low Income	76.9	45.2	19.2	11.5	5.9	1,981
Low-Mid Income	10.5	24.5	27.5	17.2	7.1	931
Mixed Income	7.3	17.7	24.9	27.1	18.8	828
Mid-High Income	2.9	8.5	16.4	24.9	26.5	532
High Income	2.3	4.2	12.0	19.4	42.7	408
	100%	100%	100%	100%	100%	
N=	1,332	1,442	1,241	495	170	4,680
Less than 10% Black						
Low Income	68.5	35.0	13.7	5.6	1.9	5,804
Low-Mid Income	17.6	33.4	28.7	19.5	5.1	7,320
Mixed Income	9.5	20.4	31.0	28.0	12.9	7,727
Mid-High Income	2.3	8.4	18.8	39.9	24.4	6,442
High Income	2.0	2.8	7.8	16.8	55.7	5,802
	100%	100%	100%	100%	100%	
	2,447	6,178	10,107	8,259	6,104	33,095

Notes: Percentages are column percentages for each subsample.

Table 7. Percentiles of Change in Fractions of Families in Bottom, Middle, and Top Thirds of Income Distibution by Neighborhood Type, 1970-1980

| | Percentile | | | | | | | | |
	1%	5%	10%	25%	50%	75%	90%	95%	99%
Mixed Income Neighborhoods									
Change in % Bottom 1/3	-18.9	-12.8	-10.2	-5.8	-0.7	4.9	11.2	15.8	27.5
Change in % Middle 1/3	-15.4	-9.4	-7.2	-3.7	-0.4	2.9	6.4	8.5	12.9
Change in % Top 1/3	-21.2	-13.8	-10.3	-4.9	0.2	5.5	10.8	14.6	24.1
Low Income Neighborhoods									
Change in % Bottom 1/3	-14.2	-9.6	-7.5	-4.3	-0.9	3.1	8.9	13.8	35.3
Change in % Middle 1/3	-18.6	-12.2	-9.3	-5.2	-0.8	4.4	9.7	13.2	22.9
Change in % Top 1/3	-46.5	-22.3	-14.9	-5.7	1.6	7.6	13	16.5	23.9
High Income Neighborhoods									
Change in % Bottom 1/3	-40.3	-24.1	-17.7	-10.4	-3.8	1.9	7.6	11.4	19.5
Change in % Middle 1/3	-13.9	-8.3	-5.5	-1.9	2	6.1	10.3	13.2	21.7
Change in % Top 1/3	-13.7	-7.5	-5.4	-2.1	1.6	5.6	10.8	15.3	30.8

Notes: Changes are between 1970 and 1980 census waves.

Table 8. Survival of Mixed Income Neighborhoods, 1970-2000

Decade	N "At Risk"			By Following Decade:		
		% "Surviving"	N "Surviving"	% Low Income Transition	% High Income Transition	Cumulative Survival
1970	11,593	51.2	5,897	27.4	21.4	51.2
1980	5,897	53	3,113	27.9	19.1	26.9
1990	3,113	55.5	1,729	27.3	17.2	14.9

Table 9. Results from Multi-Level Multinomial Logit Model of Neighborhood Transition from Mixed-Income to Lower or Higher Income

Variable	Lower Income Transition		Higher Income Transition	
	Odds Ratio	Z-Score	Odds Ratio	Z-Score
Initial Census Wave (ref. = 1970)				
1980	0.88 **	-2.61	0.94	-1.09
1990	0.83 **	-3.21	1.04	0.59
Initial Income Distribution				
% in Bottom Third[a]	8.85 ***	35.79	0.19 ***	-25.11
% in Middle Third[a]	5.10 ***	28.37	0.46 ***	-13.19
Tract-Level Characteristics				
Population				
% Black or African American[a]	1.05 **	3.01	1.00	0.17
Racial Diversity Score[b]	1.37 **	2.90	1.17	1.15
% Foreign Born[a]	0.93 *	-1.99	0.90 *	-2.44
Age Diversity Score[b]	1.53 ***	9.69	0.83 ***	-3.59
Population Density	1.01 ***	5.62	1.00	0.59
Housing Stock				
% in Same House 5 Yrs Ago[a]	0.85 **	-2.92	0.88 ***	-5.26
% Owner Occupied[a]	0.91 *	2.09	1.06 *	-2.15
% New Housing[a]	0.92 ***	-4.77	1.14 ***	8.70
Central City (ref. = not in central city)	2.04 ***	17.63	0.68 ***	-7.40
Affordable Housing Built	1.33 ***	6.27	0.62 ***	-8.46
MSA-Level Characteristics				
Log Total Population	1.14 ***	5.67	1.03	1.14
Economic Segregation[b]	20.91 ***	7.46	22.22 ***	7.10
Racial Segregation[b]	0.62 *	-2.33	0.97	-1.23
% Foreign Born[a]	0.77 ***	-5.86	1.44	0.73
% Employed in Manufacturing[a]	0.39 *	-2.50	0.45	-1.94
Crime Rate	1.11 ***	8.14	0.40 ***	-5.56
Region (ref. = Northeast)				
Midwest	1.23 ***	3.97	1.22 ***	3.50
South	1.22 **	3.38	1.36 ***	4.64
West	1.19 **	3.22	1.48 ***	5.07
Pseudo R^2		0.37		

a. Values are for a ten percentage point increase.
b. Values are for a 0.1 point increase (on scales from 0 to ~1).
* p < .05; ** p < .01; *** p < .001 for two-tailed t-tests.
Notes: N = 11,593 mixed-income census tracts and 217 MSAs in 1970. N= 20,603 total neighborhood-wave observations. Values for population density are for a 100 person per square mile increase, and values from crime rate are for a 1-person increase in rates of victimization per 1,000 people. Z-scores were derived from log odds coefficients.

Table 10. Descriptive Statistics for Mixed-Income Neighborhoods
by Categories Derived from K-Means Cluster Analysis

1970 Means	Type 1 (N=697)	Type 2 (N=2,465)
Central City	58.5	18.0
% Black	6.7	2.9
% Foreign Born	11.7	3.4
% Owner Occupied	53.7	68.8
% Residential Stability	39.5	53.5
% Old Housing	49.5	31.1
% New Housing	14.3	32.8
Population Density	1,665.5	139.0

Appendix A. Values of 33rd and 66th Percentiles and Distance between Them for Selected Metropolitan Areas, 1970-2000

MSA Name	1970			1980			1990			2000		
	33rd Pctile	66th Pctile	Distance	33rd Pctile	66th Pctile	Distance	33rd Pctile	66th Pctile	Distance	33rd Pctile	66th Pctile	Distance
Overall	$32,412	$53,373	$20,961	$30,660	$53,092	$22,432	$33,374	$60,256	$26,882	$36,099	$66,356	$30,257
Washington DC	$43,183	$75,835	$32,652	$42,524	$73,902	$31,378	$52,473	$90,254	$37,781	$52,724	$96,745	$44,021
San Francisco	$41,014	$68,499	$27,485	$38,362	$68,582	$30,220	$46,938	$87,205	$40,267	$52,958	$104,610	$51,652
New York	$32,794	$59,084	$26,289	$25,369	$52,626	$27,257	$32,734	$70,618	$37,884	$29,709	$69,305	$39,596
Los Angeles	$36,741	$62,246	$25,506	$31,075	$58,949	$27,875	$35,151	$71,761	$36,611	$31,013	$67,933	$36,920
Houston	$36,741	$62,246	$25,506	$31,075	$58,949	$27,875	$35,150	$71,761	$36,610	$31,013	$67,933	$36,912
Atlanta	$35,613	$59,836	$24,223	$32,424	$57,784	$25,360	$39,810	$71,099	$31,289	$42,923	$79,901	$36,978
San Diego	$33,564	$57,432	$23,867	$30,418	$55,666	$25,247	$37,584	$70,076	$32,493	$37,563	$73,603	$36,039
Chicago	$41,776	$65,532	$23,756	$38,358	$65,275	$26,917	$41,699	$73,929	$32,230	$43,820	$82,844	$39,024
Boston	$39,805	$63,493	$23,688	$35,203	$60,506	$25,303	$47,309	$84,251	$36,943	$49,245	$92,290	$43,045
Detroit	$42,326	$65,959	$23,633	$37,902	$65,421	$27,519	$38,097	$71,123	$33,026	$41,843	$79,959	$38,116
Phoenix	$32,987	$55,767	$22,779	$31,231	$54,348	$23,117	$33,747	$62,157	$28,409	$36,981	$69,430	$32,449
Baltimore	$36,345	$59,092	$22,746	$33,456	$58,664	$25,208	$41,132	$73,059	$31,928	$42,653	$79,309	$36,655
Philadelphia	$37,448	$59,888	$22,440	$32,519	$56,985	$24,466	$40,754	$72,580	$31,826	$41,271	$78,824	$37,553
Denver	$37,099	$59,431	$22,333	$37,662	$62,282	$24,619	$39,345	$68,740	$29,395	$45,127	$81,643	$36,516
Seattle	$41,640	$63,937	$22,297	$39,982	$65,256	$25,274	$43,602	$72,875	$29,272	$47,492	$84,183	$36,691
Cleveland	$40,229	$62,136	$21,907	$35,769	$59,648	$23,879	$35,103	$63,242	$28,139	$37,679	$69,738	$32,059
Saint Louis	$36,469	$57,947	$21,478	$34,235	$57,266	$23,031	$36,871	$65,033	$28,163	$39,389	$71,525	$32,136
Minneapolis	$42,192	$63,253	$21,061	$40,064	$63,248	$23,184	$43,740	$71,893	$28,153	$50,183	$84,749	$34,566
Pittsburgh	$34,509	$53,134	$18,624	$33,865	$56,084	$22,218	$31,336	$57,878	$26,542	$34,304	$65,054	$29,751

Notes: Values are shown in 2000 dollars. Values are sorted by the distance between the 33rd and 66th percentiles in 1970. Percentile values were calculated from Census data, then converted to 2000 dollars using the CPI-U for comparison purposes.

Appendix B. Variable Descriptions

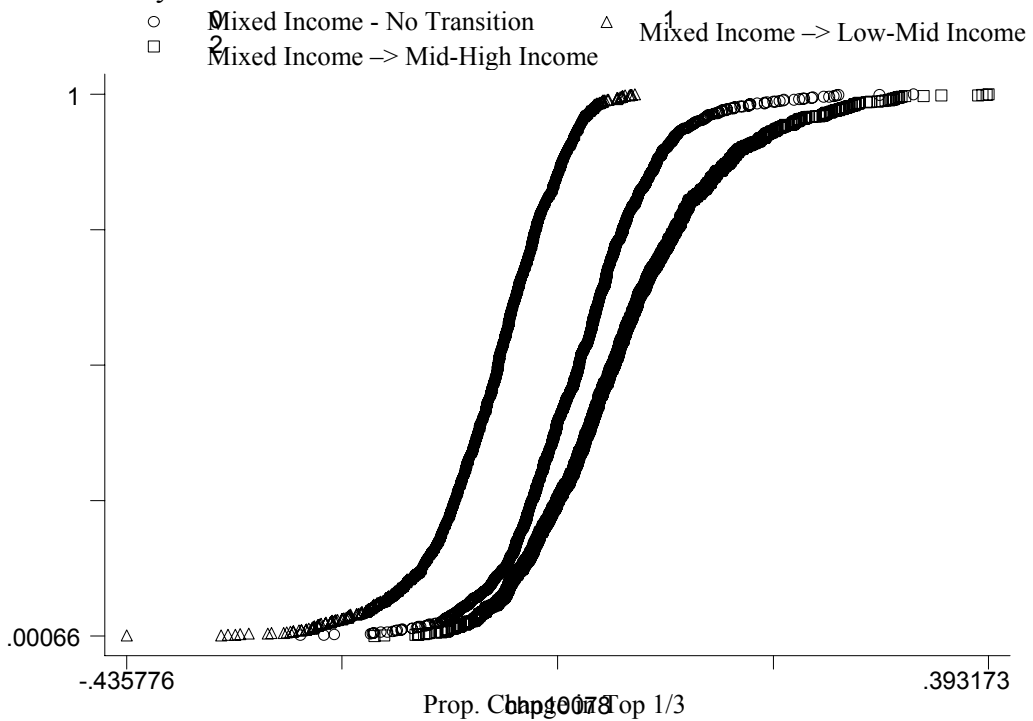| Name	Description
Initial Income Distribution	
% in Bottom Third	Percent of families with incomes below the 33rd percentile of the MSA family income distribution.
% in Middle Third	Percent of families with incomes between the 33rd and 66th percentiles of the MSA family income distribution.
% in Top Third	Percent of families with incomes above the 66th percentile of the MSA family income distribution.
Tract-Level Characteristics	
Population	
% Black or African American	Percent of total population who self-identify as Non-Hispanic Black or African American.
Racial Diversity Score	Measured as 1 - Herfindhal Index. Ranges from 0-1, with higher values equaling greater diversity. Index is maximized when all three racial/ethinic groups (Non-Hispanic White, Non-Hispanic Black, and Other) are equally represented.
% Foreign Born	Percent of total population who report a place of birth outside of the U.S.
Age Diversity Score	Measured as 1 - Herfindhal Index. Ranges from 0-1, with higher values equaling greater diversity. Index is maximized when all four age groups (Under 18, 18-34, 35-54, and Over 54) are equally represented.
Population Density	The number of people per square mile.
Housing Stock	
% in Same House 5 Yrs Ago	Percent of residents over age 5 who lived in the same house five years before
% Owner Occupied	Percent of total housing units that are owner occupied.
% Old Housing Stock	Percent of total housing units that were built more than thirty years ago (before 1939, for 1970).
% New Housing Stock	Percent of total housing units that were built between initial and subsequent decade (e.g. 1970-1980).
Central City	Tract is located within the central city, as defined by the U.S. census.
Affordable Housing Built	A property was built with funding from the Low Income Housing Tax Credit (LIHTC) during the decade (starting in 1980s).
MSA-Level Characteristics	
Log Total Population	Natural log of total MSA population.
Economic Segregation	Index of Dissimilarity for poor (below poverty line) and affluent (more than 4 times the poverty line) families (ranges from 0-1, with higher values indicating greater segregation).
Racial Segregation	Index of Dissimilarity for Non-Hispanic White and Non-Hispanic Black inidviduals (ranges from 0 to 1, with higher values indicating greater segregation).
% Foreign Born	Percent of all MSA residents who were born outside of the U.S.
% Employed in Manufacturing	Percent of all MSA residents over age 16 who were employed as craft workers, operators, or nonfarm laborers.
Crime Rate	Number of people who were victims of violent or property crimes per 1,000 residents (first year is 1977).

Appendix C. Continuous Tract-Level Variable Correlations, 2000

	% Black	Racial Diveristy	% Foreign Born	Tract Population	Population Density	Age Diversity	% in Same House	Vacancy Rate	% Owner Occupied	% Old Housing	% New Housing
% Black or African American	1.00										
Racial Diveristy Score	0.13	1.00									
% Foreign Born	-0.11	0.38	1.00								
Tract Population Size	-0.18	0.07	0.11	1.00							
Population Density	0.13	0.16	0.48	0.04	1.00						
Age Diversity Score	-0.11	0.26	0.15	0.05	0.16	1.00					
% in Same House 5 Yrs Ago	0.00	-0.45	-0.18	-0.11	-0.02	-0.53	1.00				
Vacancy Rate	0.33	0.02	0.15	-0.19	-0.02	-0.04	-0.17	1.00			
% Owner Occupied	-0.34	-0.38	-0.38	0.14	-0.44	-0.32	0.58	-0.39	1.00		
% Old Housing Stock	0.20	-0.03	0.09	-0.35	0.28	-0.06	0.18	0.13	-0.24	1.00	
% New Housing Stock	-0.18	-0.12	-0.18	0.35	-0.23	0.08	-0.2	-0.03	0.27	-0.52	1.00

Appendix D. Cumulative Distribution of Changes in the Percent of Families in the **Bottom 1/3** for **Mixed-Income Neighborhoods** by Transition Type, 1970-1980
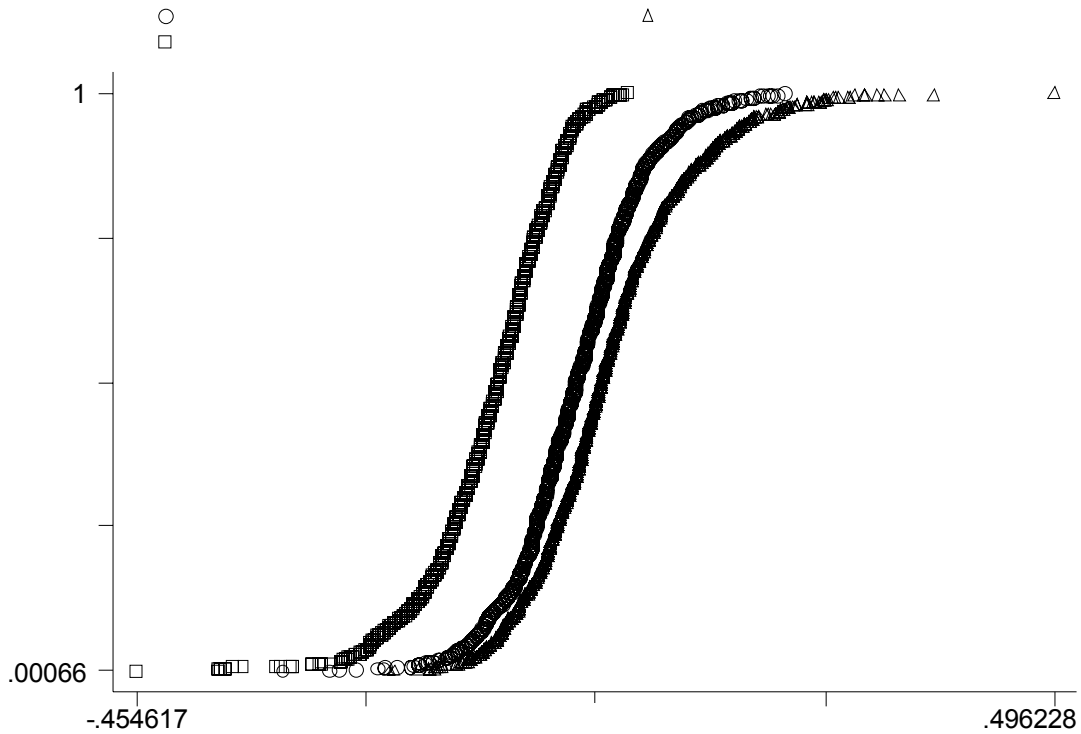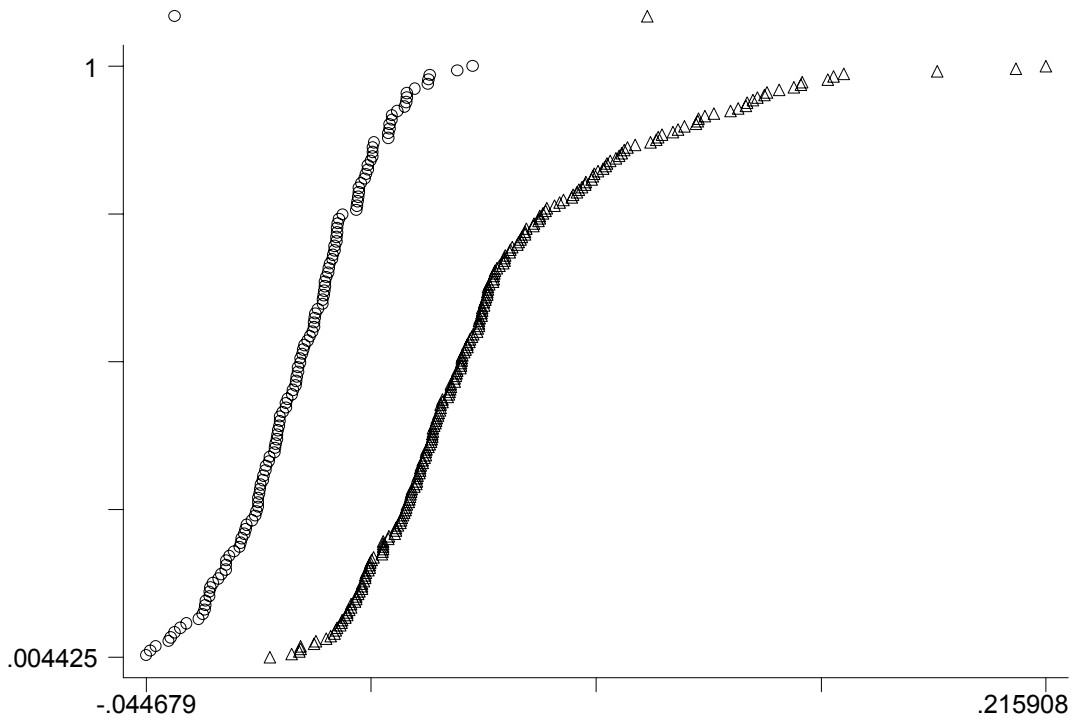

Cumulative Distribution of Changes in the Percent of Families in the **Top 1/3** for **Mixed Income Neighborhoods** by Transition Type, 1970-1980

○   Mixed Income - No Transition   △   Mixed Income –> Low-Mid Income
□   Mixed Income –> Mid-High Income
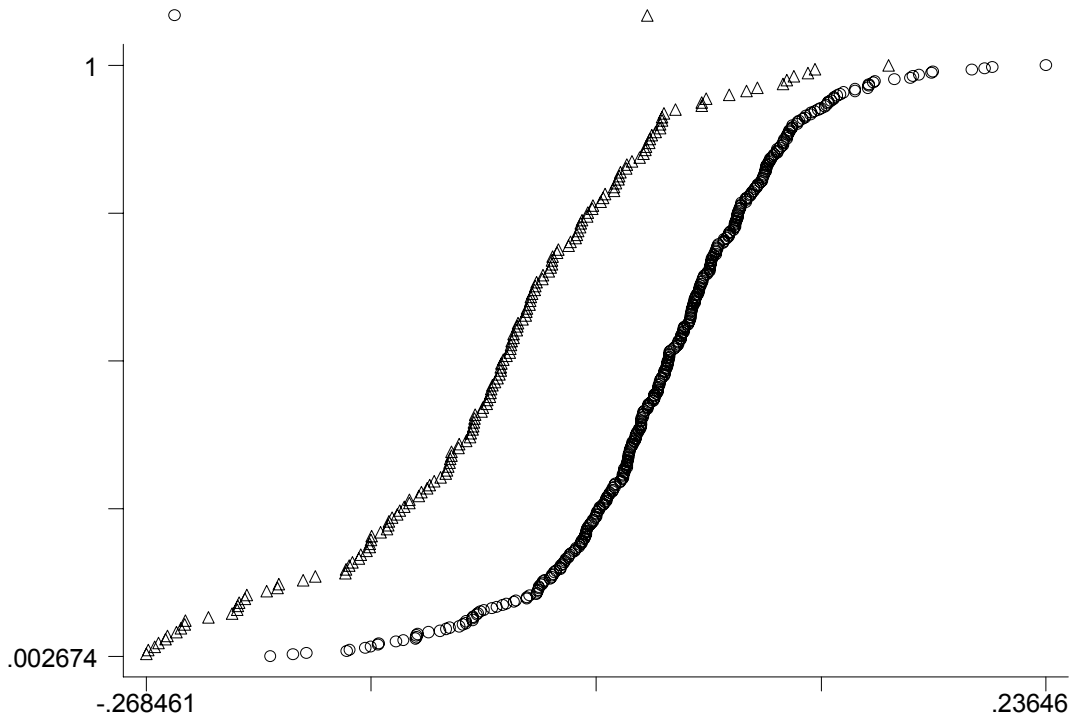

Prop. Change in Top 1/3

Cumulative Distribution of Changes in the Percent of Families in the **Bottom 1/3** for **High Income Neighborhoods** by Transition Type, 1970-1980

Cumulative Distribution of Changes in the Percent of Families in the **Top 1/3** for **High Income Neighborhoods** by Transition Type, 1970-1980
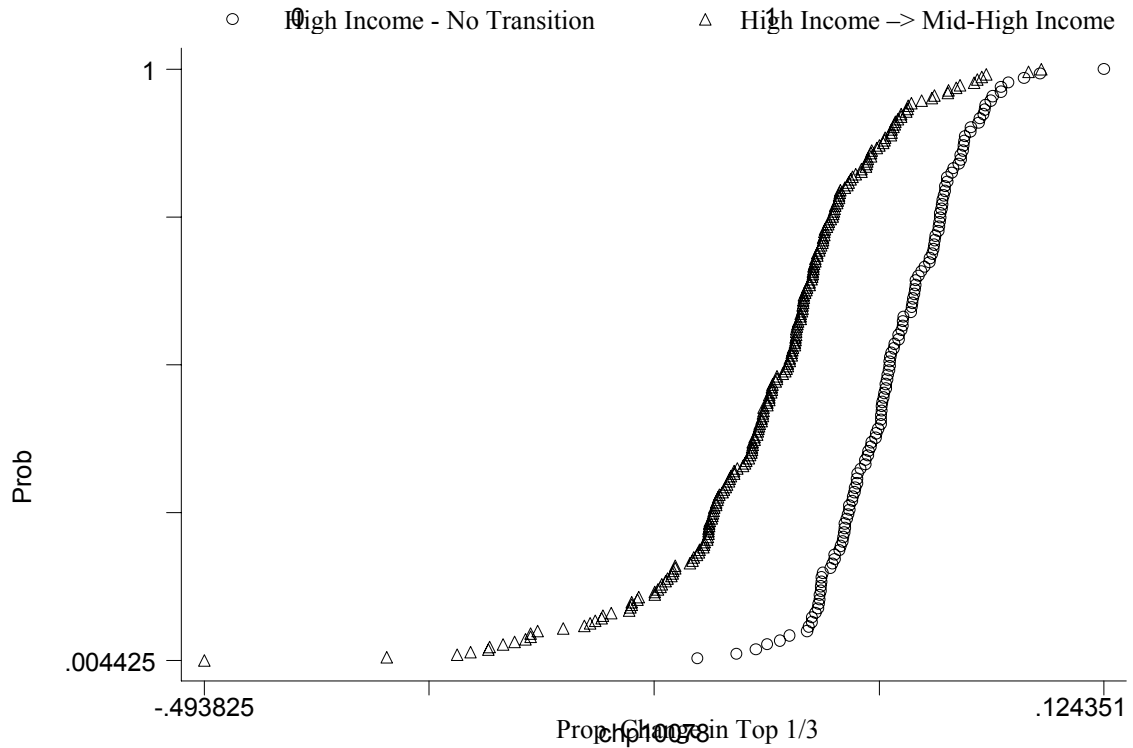
Cumulative Distribution of Changes in the Percent of Families in the **Bottom 1/3** for **Low Income Neighborhoods** by Transition Type, 1970-1980

Cumulative Distribution of Changes in the Percent of Families in the **Top 1/3** for **Low Income** Neighborhoods by Transition Type, 1970-1980