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Affluent Neighborhood Persistence and Change in U.S. Cities

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Abstract

Places are stratified along a hierarchy, with the affluent occupying the most resource-rich neighborhoods. Affluent neighborhood advantages include safety, high quality schools, and proximity to jobs. An additional benefit may be local economic stability over time. In a national context of rising interpersonal income inequality since 1970 and of the Great Recession, trends in neighborhood persistence and change expose this spatial advantage of the affluent. Using census data from 1970 to 2010, I find increasing rates of stability in the affluence and poverty of neighborhoods through 2000, with declines during the last decade. I also find that rates of chronic poverty and persistent affluence are high, ranging between 30 and 35 percent of neighborhoods across the 40-year period. This study highlights the structural persistence of affluence and poverty of neighborhoods as a vehicle for perpetuating social inequality and economic segregation.

Keywords

neighborhood inequality; residential segregation; affluence

Introduction

The hierarchy of places has been long documented (Dreier, Mollenkopf, and Swanstrom, 2001). Those residing in the top of the hierarchy enjoy a number of social advantages such as access to high quality schools, safety, and political power. An additional advantage among those at the top may include neighborhood economic persistence, such that affluent neighborhoods maintain their economic advantage over time. In the context of widening individual level income inequality since the 1970s in the US (Autor, Katz, and Kearney, 2005; Neckerman and Torche, 2006), affluent neighborhood persistence may also be increasingly prevalent. In addition, the Great Recession starting in 2008 may be eroding the advantaged position of affluent neighborhoods (Grusky, Western, and Weimer, 2011).

Living in a persistently affluent neighborhood may reinforce interpersonal income inequality. Neighborhoods can shape the quality of opportunities, institutions, and social networks of residents that can, in turn, influence individual wellbeing, independent of personal and family characteristics. Scholarly interest in neighborhood change or persistence has traditionally focused on poor neighborhoods that remain poor over time. Persistently poor neighborhoods suffer from disinvestment, deteriorating physical structures (e.g. roads,

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school buildings, and empty lots), increased crime, and a lack of political power (Briggs, 2003; Massey and Eggers, 1993). Living in such chronically distressed areas can compound the disadvantage upon their already impoverished residents, making it increasingly difficult for poor families to exit poverty (Wilson, 1987; Jencks and Mayer, 1990; Quillian, 1999). Relatively little attention, however, has been paid to the effects of living in persistently affluent neighborhoods. This paper expands a strong tradition in neighborhood economic research of comparing poor to non-poor neighborhoods by disaggregating non-poor areas into middle and affluent neighborhoods.

Persistently affluent neighborhoods may enjoy steady or increasing investment, renovation and maintenance, and political power to help maintain their economic status (Briggs, 2005; Albrecht and Albrecht, 2007; Swanstrom, Dreier, and Mollenkopf, 2002). Such beneficial neighborhood resources can help residents accumulate advantages over time (DiPrete and Eirich, 2006). Affluent neighborhoods may preserve their status by actively excluding non-affluent households (Daly and Silver, 2008), thereby depriving those left behind of beneficial resources, such as financial and social capital (Massey, 1996). Processes between neighborhoods can in turn affect individual opportunities and the future socioeconomic status of the next generation (Sharkey, 2008).

This paper builds on recent literature that compares affluent and poor neighborhoods over time (Timberlake, 2007; Massey and Eggers, 1993) to understand trends in spatial inequality. Much of the work on affluent neighborhoods has conceptualized affluence in relation to poverty (Timberlake, 2007; Massey, 1996; Massey and Eggers, 1993; Massey and Fischer, 2003; St. John 2002). Some multiple, such as four or seven, of the poverty line for a family of four uses as markers of affluence are too low to fit with social conceptions of affluence. For instance, a CBS News/New York Times poll of a random sample of US adults in March 2005 (N=1764) found that nearly half of the respondents felt that a typical American family of four is “rich” if its annual income is \$100,000 to \$199,999 (27%) or \$200,000-\$299,999 (20%). While researchers have tested levels below which someone faces disadvantage and hardship, less effort has been invested to determine a level above which residents face luxury and privilege. Examining truly affluent neighborhoods can reveal increasingly stable clustering of rich Americans.

Background

A rich literature explores urban neighborhoods in transition and the struggle for social space. From the Near North Side (Zorbaugh, 1929) and North Kenwood-Oakland in Chicago (Pattillo, 2007) to Venice in Los Angeles (Deener, 2012) and Battery Park in New York (Smithsimon, 2011), case studies reveal a range of processes of neighborhood change and the formation of socio-spatial hierarchies. However, fewer studies examine urban trends in neighborhood inequality in the entire country. National research initially found increasing economic divergence between affluent and poor neighborhoods. From 1980 to 2000, the average income of affluent neighborhoods increased relative to the median, with inequality at the top of the income distribution exceeding levels at the bottom (Burtless, 2007; Solari, 2010; Reardon and Bischoff, 2011a). In addition, poor neighborhoods were growing in numbers from 1970 through 1990 with a higher density of poor families living in such

neighborhoods (Jargowsky, 1997). The 1990s showed a reversal of this trend (Jargowsky, 2003; Ellen and O'Regan, 2008), but more recent findings suggest a resurgence of high poverty neighborhoods during the 2000s and following the Great Recession (Kneebone, Nadeau, and Berube, 2011).

Neighborhood effects research and contextual studies of urban neighborhood transitions offer empirical evidence of the importance of where one lives for personal status attainment. Trends of between-neighborhood inequality and economic segregation are associated with trends in interpersonal and interfamily income inequality (Swanstrom, Dreier, and Mollenkopf, 2002). Between 1970 and 2009, family income inequality grew and the proportion of affluent families living in affluent neighborhoods also increased (Reardon and Bischoff, 2011b). Specifically, the income of households at the top five percent increased by 75% between 1973 and 2003, while the median household income increased by only 13% (Massey, 2007).

This paper examines neighborhood persistence and change in affluence and poverty. Given widening interpersonal inequality in the US, I expect neighborhood affluence will increasingly persist over time, not only neighborhood poverty. In light of the Great Recession, I expect more volatility in neighborhood income levels during the 2000s, but it should be easier for affluent neighborhoods than poor ones to stay at their 2000 level.

Neighborhood Persistence

An affluent neighborhood can fortify its residents' affluence by providing an infrastructure of privacy, protection, resources, and/or social networks (Durlauf, 1996). These structural benefits contribute to a process of cumulative advantage (DiPrete and Eirich, 2006; Albrecht and Albrecht, 2007). As affluent residents congregate and shape their neighborhood environment, the environment in turn increases safety, residential privacy, access to leisure space, and the quality of schools and other locally provided public resources. In addition, affluent neighborhoods may privatize their goods as a further means of exclusion, preserving the exclusivity of their neighborhood. For instance, many residents from the political elite living in Georgetown in Washington DC fought to prevent a Metro station in the area in order to keep out lower-income people who are more dependent on public transportation (Marx 1995, pg. 230). In this case, a neighborhood used political power to influence transportation decisions to preserve the exclusivity of the area. With isolation and exclusion, affluent residents can further shape their neighborhood environment so as to sustain and perpetuate the advantage of its residents, independent of their personal or family level characteristics.

The reputation of neighborhoods can play a role in maintaining their stability (Sampson, 2012). Although stigma and broken windows theories have been applied primarily to poor areas, affluent areas also carry a reputation that can help sustain their economic status. While boarded windows, graffiti, and barred doors are visual cues of social disorder and poverty, manicured landscaping, cleanliness, and fancy boutiques can serve as visual cues of affluence. Indeed, those indicators of affluence can communicate not only the high economic status of the neighborhood but also its unattainability and exclusivity. One of the clearest visual cues of social exclusion are gates and walls (Blakely and Snyder, 1999; Low,

2003; Deener, 2010). Through social exclusion, the affluent preserve scarcity of access and thus, the status of their neighborhood.

Finally, the place stratification model suggests another mechanism preserving neighborhood stability. Given a hierarchy of places, the advantaged have the means to distance themselves socially and spatially from disadvantaged groups (Logan, 1978; Alba and Logan, 1991; Timberlake and Iceland, 2007). Congruent with the spatial mismatch hypothesis, the decentralization of jobs from central cities to the suburbs makes jobs more accessible to affluent communities (Mouw, 2000) and stabilizes spatial segregation.

Neighborhood Change

Among the many theories applicable to neighborhood change, some are directly relevant to affluent neighborhoods. First, the out-migration of affluent residents will influence the socioeconomic stability of neighborhoods. The rich may flee perceived spillover effects of incoming poor residents or increasing concentrations of poverty in the surrounding neighborhoods that make proximity to these areas undesirable (Massey and Eggers, 1993). This process is referred to as “affluent flight” (Massey, 1996). Affluent households may exit the city enticed by better environments in the suburbs, leaving behind poorer residents who lose their former neighbors’ resources and/or creating vacancies for poor residents to move in. As the affluent move out and the poor move in, living in a poorer neighborhood in turn may reduce the incomes of the non-affluent left behind. South and Crowder (1997) find that high rates of violent crime and unemployment within central cities are associated with high rates of families moving from city to suburb. Therefore, affluent flight and suburbanization may be twin processes that create affluent neighborhoods.

Second, gentrification may make poor neighborhoods more affluent. Middle income or affluent households move into poorer neighborhoods, rehabilitating housing and the surrounding neighborhood, attracting more non-poor families and pushing out poorer families (Hamnett, 1991; Freeman, 2005). Gentrification is not only about the upward economic change of neighborhoods, but also the displacement of long-term low-income residents who are priced out through increasing rents and housing prices, higher property taxes, and higher costs of basic needs. Poor households must relocate to already poor neighborhoods or to middle-income neighborhoods where they reduce average income.

Finally, structural processes associated with the neighborhood itself, such as aging of the housing stock, may induce economic change. The filtering model suggests that newer housing tends to be occupied by higher income households, and recent research suggests new housing construction has been increasingly targeted towards affluent households (Dwyer, 2007). As housing ages and its quality deteriorates, higher income residents vacate to seek higher quality and newer homes (Ellen and O’Regan, 2008). The vacated housing becomes available to lower-income occupants, thereby transforming the economic profiles of the old and new neighborhoods (Alonso, 1964; Smith, 1988).

These theories identify multiple mechanisms of change and stability of affluent and poor neighborhoods, and suggest the following four research questions: 1) what are the rates of change and stability for affluent, poor, and middle-income neighborhoods over time? 2)

What are the rates of persistent affluence and chronic poverty over the 40-year period? 3) What are the overall neighborhood change patterns among neighborhoods within MSAs? 4) What are the trends in other social characteristics of affluent and poor neighborhoods over time? Neighborhood characteristics in the data include income, racial composition, education, occupational composition, and unemployment rate.

Data and Methods

Data

This analysis uses two data sources that aggregate U.S. Census data and the American Community Survey (ACS) to the census tract level for each decade from 1970 to 2010: the Neighborhood Change Database (NCDB) and the Longitudinal Tract Database (LTDB). The NCDB is developed by the Urban Institute and GeoLytics Inc. and contains three periods of long-form U.S. decennial census data from 1970 to 2000 (GeoLytics, Inc., 2003). These data feature standardized census tract boundaries, normalized to the year 2000, allowing for consistent comparisons of tracts with constant boundaries and their residents' characteristics over time. Standardized boundaries are important in analyses of neighborhood persistence or change because tracts undergo a high degree of boundary change between censuses. For instance, between 1990 and 2000, 49% of all tract boundaries in the country were redefined (Tatian, 2003, pg. 1-1).

The LTDB is offered to the public through the Spatial Structures in the Social Sciences (S4) of Brown University (<http://www.s4.brown.edu/us2010/Researcher/Bridging.htm>). The LTDB contains aggregate ACS data and includes key demographic variables in their full count datasets and an array of descriptive variables, such as housing, income, and education, in their sample count files. The ACS replaced the long-form of the decennial U.S. Census, creating challenges for researchers. For 2010 estimates, I use 2006-2010 pooled ACS data at the census tract level to approximate neighborhoods¹. The LTDB also makes these data available in new 2010 census tract boundaries and transfers NCDB data into 2010 boundaries. The LTDB reliably connects the Census and ACS.

I limit this analysis to neighborhoods within all Metropolitan Statistical Areas (MSAs), or cities, in the U.S. (excluding the territories, N=51,437). I exclude tracts with zero population and tracts with greater than 40 percent of the population residing in group quarters in order to discard those areas dominated by prisons, colleges, and other formal institutions (Massey and Denton, 1987; Wagmiller, 2007). My final sample contains 48,596 neighborhoods in 281 cities.

Definitions

I refer to a Metropolitan Statistical Area (MSA) as a "city." I measure a neighborhood's income by taking the average household income (last year) of residents within a census tract². The LTDB 2010 only offers a median household income value, so I adjust the median

¹Census tracts are locally-determined geographic units averaging 4,000 persons that contain a relatively homogenous group of residents based on population characteristics, economic status, and living conditions. Although census tracts may not capture people's conceptions of their neighborhoods (St. John, 2002), this is the best approximation that is tracked consistently over time (White, 1983) and is the smallest geographic unit available in the NCDB and LTDB.

to an equivalent average for comparability³. Average household incomes are adjusted to the 2010 national Consumer Price Index for all urban consumers (CPI-U) annual average for all items.

The definition of “affluence” can be arbitrary (Massey and Eggers, 1993; Coulton et al., 1996). Researchers do not yet share an accepted conceptual (and operational) definition of poverty (Wilson, 1987; Iceland, 2003), no less one of affluence. Although recent popular books (Brooks, 2000; Murray, 2012) and older works on elites (Domhoff 1983; Mills 1963) have sought to characterize the affluent population quantifying affluence is a relatively new enterprise.

For this analysis, I use a relative measure of affluence and poverty. A relative measure is based on comparative advantage or disadvantage that varies based on shifts in the standard of living, controlling for inflation. The advantage of a relative measure is that the threshold marking the affluent or poor changes in relation to the real needs of the local population (Iceland, 2003; Citro and Michael, 1995). The characteristics of these relative groups are allowed to vary over time. A disadvantage of the relative measure is that the thresholds change. Relative affluence and poverty are always present, and the prevalence does not increase or decrease, making relative measures more difficult for purposes of policy.

I adopt one relative definition of affluent, middle income, and poor neighborhoods that divides the neighborhood income distribution by percentile groups. This defines the top 10 percent of neighborhoods in the neighborhood income distribution within each MSA as affluent, the bottom 10 percent as poor, and the remaining 80 percent of non-affluent/non-poor neighborhoods as middle income. The average income among affluent neighborhoods ranges between \$109,103 and \$152,430 for the five data-points, which corresponds more closely with social conceptions of affluence than those based on the official poverty line.

The top, middle, and bottom of the neighborhood income distribution within MSAs are measured for each decade. At each point in time, every city has neighborhoods that fall within the three income categories so that even poorer cities across the nation will have local affluent neighborhoods, and vice versa. Some researchers use a similar relative measure of affluence and poverty (Fischer et al., 2004; Ellen and O’Regan, 2008; Watson 2009; Reardon and Bischoff, 2011b), while others have used an absolute threshold measure based on a dollar value to mark income groups. Results vary based on definitions, which reinforces the need for additional investigation.

I define “neighborhood change” as a rise or fall in a neighborhood’s average income that moves it out of one category (affluent, poor, or middle-income) and into another. As mentioned above, a neighborhood can change its economic characteristics through several

²Household income in the ACS is measured differently than in the decennial census. The ACS asks the respondent to assess their income based on the last 12 months from the point of interview, which can be at any time of year during the interview period. The decennial census surveys were distributed around tax season and asked about their income in the last calendar year. The decennial census annual income data is likely more reliable because it was administered at a time when people need to know their income for that same specified time period.

³I multiply the median household income value for 2010 in the LTDB by 1.365 (70883/51914) to adjust the median to a mean value. I determined this factor based on the Current Population Survey (CPS) national average household income to median household income.

processes. First, a neighborhood's average income can change if residents of certain incomes move into the neighborhood and/or if residents of certain incomes selectively move out. For instance, poorer households could move into what was once a middle-income neighborhood and drive down the average income, thereby altering its economic status. Perhaps the poorer households do not significantly drive down the average income until middle income households react by moving out and the once middle-income neighborhood falls on average into poverty. In addition to income-selective population turnover, the second mechanism of neighborhood transition is change in the income characteristics of in-place residents. For instance, a new factory opening nearby can create job opportunities for the residents of a poor neighborhood. The incomes of those residents would increase and drive up the neighborhood's average income from poor to middle-income. In addition, using a relative measure of affluence and poverty introduces yet another source of neighborhood change. As one neighborhood changes status, another neighborhood must replace it in the place hierarchy. Thus, a neighborhood may not change economically, but its status in relation to other neighborhoods may be altered nonetheless.

"Neighborhood persistence" occurs when a neighborhood remains in its economic state from one point in time to the next. Although a neighborhood may remain in one of the three income groupings over time, it may substantially change rank within that broader economic group. For instance, the neighborhood at the 90th percentile of income within a city can dramatically increase its average income over time and remain affluent, without affecting the economic group ranking of another neighborhood. I consider a neighborhood as "persistently affluent" when it remains in the affluent economic group at every data point available – 1970, 1980, 1990, 2000 and 2010. Drawing an analogy to a chronic medical condition, a neighborhood is defined as "chronically poor" if it remains in the poor economic group for all four decades.

Methods

The economic trajectory of neighborhoods over time is analyzed with transition matrices that others have used to model social patterns of stability and change (Alba et al., 1995; Morenoff and Tienda, 1997; Hout, 1983). I assigned neighborhoods to one of the three economic categories—affluent, middle income, and poor—with their baseline positions cross-classified against their position at later time points. The main diagonal of the matrix indicates a steady state, or neighborhood persistence, between time one and time two, while the off-diagonal cells indicate upward or downward transitions or change. Outflow rates are calculated from the row marginals and interpreted as conditional probabilities/percentages.

Rates of neighborhood persistence vary over time, neighborhood economic types, and levels of geography (Fischer et al., 2004). Thus, I explore patterns of chronic poverty and persistent affluence for all MSAs, within MSAs by census region, and within Primary Metropolitan Statistical Areas (PMSAs), which roughly correspond to the top 25 largest cities.

Beyond the description of neighborhood persistence and change in transition matrices, loglinear analysis identifies neighborhood trajectories both across classes and over time (Fienberg, 1980; Hout, 1983; Agresti, 2002; Treiman, 2009). The baseline or independence

model (1) indicates no association between the economic origin and destination of neighborhoods. This “naïve” model is contrasted with model (2), the saturated model, which completely fits the data. Subsequent models provide a useful middle ground, allowing for an association between starting and ending states while summarizing the relationship more parsimoniously. Model (3) fits a “quasi-independence” model, which estimates a single parameter for the main diagonal (stability) and allows for a baseline estimate of overall neighborhood stability by time period. Differences in stability between neighborhood types are ignored, as are transitions (off-diagonal estimates). A preference for model (3) suggests that neighborhood origin and destination states are correlated. Each coefficient reveals the direction and magnitude of change over time.

Concept of Diagonal Transition Pattern for Model (3)

	Poor	Mid	Aff
Poor	1	0	0
Middle	0	1	0
Affluent	0	0	1

I also investigate a fourth model (4) which allows for variation in the origin-destination relationship by neighborhood type. A preference for this model suggests that rates of stability vary by neighborhood type as well as over time.

Concept of Diagonal Transition Pattern for Model (4)

	Poor	Mid	Aff
Poor	2	1	1
Middle	1	3	1
Affluent	1	1	4

Finally, characteristics of affluent and poor neighborhoods, such as racial composition, education, occupational composition, and unemployment rate, can change over time. I first measure the difference in values of characteristics between affluent and poor neighborhoods within the same year. I then calculate the percentage change in the affluent-poor difference between adjacent time points (time $t+1$ and time t) and across the full time span between 1970 and 2010.

Results

Transition matrices track the economic life-course of neighborhoods across their economic position for each time period. Table 1 shows transition matrices for affluent (top 10 %), poor (bottom 10 %), and middle-income (middle 80 %) neighborhoods within MSAs. The diagonals indicate neighborhood persistence, while the cells above the diagonal indicate upward socioeconomic change and the cells below the diagonal indicate downward change. The first panel of the table offers the raw numbers that track the economic category of neighborhoods over time. For instance of the 5,013 poor neighborhoods in 1970, 3,380 remain poor in 1980, 1,628 transition to middle income, and five neighborhoods transition from poor to affluent in one decade. The diagonals have the largest cell sizes. The outflow

percentages along the diagonal reveal the percentage of economically persistent neighborhoods between adjacent decades.

Neighborhood Persistence

Figure 1 displays the stability rates for affluent and poor neighborhoods across the four periods. Stability rates for affluent neighborhoods increase from the 1970s through the 1990s, but decline during the 2000 to 2010 period. Of affluent neighborhoods in 1970, 62.4% remain persistently affluent in 1980, 70.7% of affluent neighborhoods in 1980 remain affluent in 1990, and 73% in 1990 remain affluent in 2000. This trend of increasing stability rates in neighborhood affluence reverses in the 2000 to 2010 period, to 67.1%.

The stability rates of poor neighborhoods increased from the 1970s to 1980s, stabilized through the 1990s, and declined during the last decade. Of poor neighborhoods in 1970, 67.4% remained poor in 1980. This proportion increases to 70.8% between 1980 and 1990, and remains stable at 71% between 1990 and 2000. Like trends with affluent neighborhood stability, the proportion of poor neighborhoods that remains poor between 2000 and 2010 declines (66%). For the last two decades, the proportion of affluent neighborhoods that remain so slightly exceeds the proportion of stably poor neighborhoods.

Chronic Poverty, Persistent Affluence

A substantial proportion of neighborhoods remain in their respective economic category at all five time points across the 40-year period. Figure 2 shows that 35% of neighborhoods that were poor in 1970 (N=5,013) were also poor in 1980, 1990, 2000, and 2010. Of all affluent neighborhoods in 1970 (N=5,007), 29.6% remained affluent in 1980, 1990, 2000, and 2010.

I also investigated chronic poverty and persistent affluence within a subset of MSAs, namely, Primary Metropolitan Statistical Areas (PMSAs) that correspond to the 25 largest MSAs in the country. Within the largest, most populous metro areas in contrast to the broader set of MSAs in the US, the proportion of persistently affluent neighborhoods (37%) exceeds that of chronically poor neighborhoods (33%).

Regional variation is also apparent. The prevalence of chronically poor neighborhoods is highest in the Midwest (40%), and the rate of persistently affluent neighborhoods is highest in the Northeast (41%). In the Northeast, the rate of persistently affluent neighborhoods (41%) exceeds that of chronically poor neighborhoods (39%). In the South and West, which are growing in population, rates of chronically poor and persistently affluent neighborhoods are lower than in the average MSA. Rates of chronic poverty are about the same level as persistent affluence (29%) in the West, while in the Midwest and South the prevalence of chronic poverty was about 10 percentage points higher than the prevalence of persistent affluence. [See on-line Figures A1 and A2 and Appendix Table A1 for metropolitan and regional variation in stability rates]

Loglinear Analysis

The next analysis systematically investigates the transition patterns of affluent, middle-income, and poor neighborhoods. Loglinear analysis provides an alternative way of looking at the transition matrices that also enables tests for statistical significance. This section presents the results for the four models of the relationship between neighborhoods at one time point (origins) and those neighborhoods one decade later (destinations). Model (1) indicates that the relationship between neighborhood origins and destinations does not change over time. Model (2) is a saturated model that indicates each cell in the relationship between neighborhood origins and destinations changes over time. Models (3) and (4) are less complex than the saturated model based on the diagonal cells of the origin to destination relationship compared to the off-diagonal cells. Model (3) specifies that the rates of stability, or the relationship between origin and destination along the diagonal, vary over time intervals but the off-diagonals do not. Model (4) specifies that the rates of stability for each type of neighborhood group vary differently over time intervals while the off-diagonals do not vary over time (See Appendix Table A2 for goodness-of-fit statistics).

Table 2 shows the beta coefficients for the time interval and diagonal interaction in models (3) and (4). For each interaction parameter, I show the beta coefficient as well as the odds ratio (OR), the standard errors, and p-values. The parameter estimates of model (3) indicate that the stability rates of neighborhoods have increased steadily over time. The odds of stability in the 1980-1990 period is nominally significantly larger than the stability rate in the 1970-1980 period ($OR = 1.27 = e^{.238}$). The odds of neighborhood stability in the 1990 to 2000 period are 1.32 times that in the 1970 to 1980 period. This confirms the descriptive findings that neighborhood stability increased significantly from 1970 to 2000. The final coefficient shows that the odds of stability in the 2000-2010 period is nominally significantly larger than the stability rate in 1970-1980 ($OR = 1.06 = e^{.062}$). Still, the odds of stability in 2000-2010 are lower than the earlier two periods. Although data sources in 2000 and 2010 do not precisely correspond, I believe the reduction in neighborhood stability is more likely in response to the Great Recession than measurement error.

The second panel of Table 2 shows the coefficients for model (4). I find lower stability rates for poor neighborhoods in the second time interval compared to the first, with higher rates of stability present among affluent and middle-income neighborhoods. The odds of stability among affluent neighborhoods in the second time interval is higher ($OR = 1.14 = e^{.185}$, $p = .488$) than that in the first time interval although this difference is not statistically significant. This result suggests that the higher stability rate in the 1980s is mainly due to middle income neighborhoods. In contrast, the third time period, during the 1990s, has significantly higher rates of poor and affluent neighborhood stability compared to the first time period in the 1970s, and lower rates of middle-income stability. The odds of a poor neighborhood in 1990 staying poor in 2000 are 24.5 ($= e^{3.197}$) times higher than it was for a poor neighborhood to stay poor from 1970 to 1980. The odds of stability for affluent neighborhoods between 1990 and 2000 are 42.4 ($= e^{3.748}$) times the odds in the 1970 to 1980 period.

The odds of poor and affluent neighborhood stability are higher in the 2000-2010 period than during the 1970s, although by a lower factor than the odds in the 1990s. The odds of

poor neighborhood stability in the 2000s are 5.88 ($=e^{1.772}$) times higher than it was for poor neighborhoods to stay poor from 1970 to 1980. The odds of affluent neighborhoods staying affluent in 2000 and 2010 is 9.4 ($=e^{2.241}$) times greater than the odds of affluent stability during the 1970 to 1980 period.

Neighborhood Change

Although the majority of neighborhoods remain economically stable, one third (33.6%) transition throughout the 40-year period. Due to the nature of the relative measure of poverty and affluence, the extent of upward and downward change will be virtually the same. However, it is possible to explore the extent of different types of neighborhood change and variation over time. The proportion of neighborhoods that transition upward (from poor to middle income, middle income to affluent, or poor to affluent) are most prevalent in the latest period, from 2000 to 2010 (20%). The period with the lowest prevalence of neighborhood upward change is from 1980 to 1990 (15%), with about 17% upwardly transitioning during the 1970s and 1980s. About 36% of neighborhoods transition upward into affluence at some point during the 40-yr period.

A small proportion of neighborhoods are characterized by extreme neighborhood economic transition, changing from poor to affluent or affluent to poor within one decade. The prevalence for such shifts across the 40-yr period consists of less than one percent of all transitioning neighborhoods. However, the prevalence of extreme transition is concentrated at certain times. Throughout most time periods, the cases of extreme transition are so few they are at or nearly zero percent of cases. Referring to Table 1, the respective cells in the lower left and upper right of the outflow percentages correspond to poor/affluent and affluent/poor transitions. In 1970, a higher proportion of neighborhoods that were affluent became poor in 1980 (1.1%). This pattern coincides with the process of suburbanization or “affluent flight” (Massey and Eggers 1993), leaving behind poorer residents and/or creating space for poor residents to enter. In addition, a higher proportion of neighborhoods that were poor in 1980 became affluent in 1990 (1.3%). This pattern could reflect gentrification, a process whereby higher income households re-enter the city, purchase low-cost housing in poor neighborhoods with the goal of rebuilding their home and their community by attracting other affluent households to the neighborhood. The resulting increases in housing and living costs push out poor residents. This process thus pulls poor neighborhoods into affluence. Despite the higher levels of neighborhood economic change during the 2000s, only eight neighborhoods throughout all MSAs underwent extreme transition.

Neighborhood Characteristics

How do the characteristics of affluent neighborhoods compare to poor neighborhoods over time? Using a relative definition of neighborhood affluence and poverty allows for income to change within economic groups even if neighborhoods remain within the broad group over time. Not only can affluent and poor neighborhoods’ economic characteristics change, but other characteristics may change in concert, such as the unemployment rate, racial, educational, occupational, and family compositions.

Table 3 outlines the median value of a series of characteristics among neighborhoods within affluent and poor categories. In 1970, the median income value among affluent neighborhoods is \$102,962 (in 2010 dollars), while the median income among poor neighborhoods is \$38,186. The gap in income between affluent and poor neighborhoods is \$64,776 (102,962 - 38,186). In 1980, this gap in income is \$71,891 (105,993-34,101). From 1970 to 1990, the gap in income between affluent and poor neighborhoods increased by 11% $((71,891 - 64,776) / 64,776)$. This gap increased between every decade through 2010, despite the Great Recession. Between 2000 and 2010, the gap in income between the affluent and poor increased 12%. From 1970 to 2010, the income gap between affluent and poor neighborhoods increased 74%. The majority of these increases are due to rising median incomes among affluent neighborhoods, except for the gap between 2000 and 2010 which is due both to increasing incomes among affluent neighborhoods affluent (up to \$145,073 from \$139,150) and declining incomes among poor neighborhoods (down to \$32,099 from \$38,209).

Other characteristics of affluent and poor neighborhood change over time. Like median income, the gap between affluent and poor neighborhoods in the percentage of residents with a college degree or higher increased consistently over time. Although the proportion with a college degree or higher has been increasing within poor neighborhoods over time, it has been increasing at a slower rate compared to affluent neighborhoods. The gap between affluent and poor neighborhoods in the percentage with a college degree or higher increased 82% from 1970 to 2010, although the smallest percent change is from 2000 to 2010. As for the remaining characteristics – unemployment rate, percent white and black, percent in professional occupations, and proportion in female-headed households - the gap between affluent and poor neighborhoods all increased from 1970 to 2010. Neighborhoods transitioning to a different economic group were also likely to experience change in other characteristics. For instance, Logan Circle in Washington DC had much crime, prostitution, and abandonment until the early 2000s when the area gentrified. The transition of this neighborhood increased the average income and percent white, and decreased the percent black (Wurth and Lasker, 2004). Although this paper does not focus on race, it obviously contributes to neighborhood income persistence and change, interacting with economic segregation trends.

Discussion

This paper has analyzed trends of affluent and poor neighborhood persistence and change from 1970 to 2010. Affluent and poor neighborhoods in U.S. cities were increasingly likely to remain in a similar economic state from 1970 to 2000, suggesting rising rigidity of the neighborhood stratification structure. As interpersonal inequality increased (Reardon and Bischoff 2011a; Solari 2010), it was becoming more difficult for poor neighborhoods to transition out of poverty while affluent neighborhoods could more easily maintain their relative economic position. During the 2000 to 2010 period, however, the stability of neighborhood income position was disrupted somewhat, and rates of neighborhood stability for both poor and affluent neighborhoods declined.

Persistently poor and affluent neighborhoods are cause for concern. For example, the finding that over one-third of neighborhoods that were poor in 1970 were also poor in 1980, 1990, 2000, and 2010 has implications for research on “chronically poor” neighborhoods (Jargowsky 1997). Neighborhoods with long-term concentrated poverty often have poor quality hospitals, parks, housing, schools, poor air quality and violence that limit individual wellbeing (Kozol, 1995; Elliott et al., 1997; Robert, 1999; Alder and Newman, 2002). In contrast, affluent neighborhoods can afford high quality public and private schools, good policing to lower crime rates, clean and green public spaces, collective resources that enhance resident affluence over time (Wen, Browning, and Cagney, 2003; Peterson and Krivo, 2009). Persistence of poverty and affluence in neighborhoods increases inequality and economic segregation (Swanstrom, Dreier, and Mollenkopf, 2002).

In the 2000s, stability rates of both affluent and poor neighborhoods declined somewhat, most likely in response to the Great Recession. Still, affluent neighborhood stability rates in the 2000s exceed those levels in the 1970s. Overall, the loglinear analysis shows that neighborhoods within cities are characterized more by persistently affluent and poor neighborhoods in the 2000s than in the 1970s. Indeed, the average income of affluent neighborhoods increased at every decennial census through 2010. In light of the economic recession during the 2000s, the affluent neighborhoods that remain stably rich throughout the 40-year period seem especially resilient. Although I do not have the data to determine if the same households live in these affluent neighborhoods at all data points, stably affluent neighborhoods contribute to persistent socioeconomic inequality and neighborhood segregation.

Most neighborhoods remain stable in their income characteristics, but one-third go through a transition. Most neighborhood change occurs between adjacent income categories (e.g. poor to middle income, or affluent to middle income), but some neighborhoods undergo extreme transition, changing from affluent to poor or poor to affluent within just one decade. This phenomenon of extreme transition may be due to processes of suburbanization or affluent flight during the 1970s or to gentrification during the 1980s. More research is needed to explore instances of extreme transition over time as well as mechanisms responsible for such change.

The findings of this study suggest that previous research focusing solely on neighborhood poverty has distracted attention from important processes at the opposite end of the income spectrum. This analysis shows that affluent neighborhoods can also maintain their affluence. Affluent households benefit in turn from living in an economically stable neighborhood.

Research on poor neighborhoods during the 2000s points to a rising prevalence of poor neighborhoods (Kneebone, Nadeau, and Berube, 2011). My research confirms that the median income of poor neighborhoods dropped in 2010 from 2000, and, in fact, is the lowest median income of any decade in the observed time frame. This drop in income among poor neighborhoods comes in combination with lower rates of stability, suggesting a greater vulnerability among neighborhoods at the bottom of the income distribution to fall into poverty. Affluent neighborhoods are experiencing a similar increase in instability during the 2000s, such that neighborhoods at the top of the income distribution are

fluctuating in and out of affluence at a higher rate than the previous periods. Unlike their poor counterparts, however, the median income among affluent neighborhoods continued to increase from 2000 to 2010. Despite the Great Recession and neighborhood change during the 2000s, the affluent neighborhoods in 2010 fared well.

In addition, we found that characteristics of affluent and poor neighborhoods diverge over time. Affluent neighborhoods not only continue to have higher relative income than poor neighborhoods, but also a greater proportion of highly educated residents. Differences between affluent and poor neighborhood in the proportion unemployed, percent white, percent black, and proportion of female-headed households all widened over time.

This analysis has been primarily descriptive and does not test explanations for the trends it documents. Although the paper proposes some possible processes that could motivate such trends, additional research is necessary for understanding why neighborhoods change or remain stable over time. Aggregate neighborhood-level data do not allow for an analysis of residential movement, such as the inflow or outflow of households among neighborhoods. Yet regardless of individual level changes, neighborhood-level processes are important. The social mobility literature is rich with investigations of individual socio-economic status designed to understand social stratification and inequality among individuals (e.g. Blau and Duncan, 1967). I extended this “mobility” approach to neighborhood socioeconomic status, and investigated the full economic spectrum. The results contribute to our understanding of how neighborhood inequality and economic segregation are perpetuated.

Future research on neighborhoods might explore tracts that have zero population in early time points but populate over time. Given trends in suburbanization and theories of affluent flight, some affluent neighborhoods at the periphery may have been excluded from this analysis. Based on descriptive statistics, I find that these excluded tracts have on average higher income and other more favorable characteristics, suggesting this analysis a conservative estimate of neighborhood affluence. This paper does, however, describe key trends in affluent neighborhood persistence and change and how poor neighborhoods are faring in comparison. It provides clues for testable hypotheses that can guide future research on the processes creating these patterns, as well as possible ways to reduce neighborhood inequality.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1
Transition Matrix of Poor, Middle-Income, and Affluent Neighborhoods, MSAs 1970-2010

	N			Outflow%				
	1980			1980				
	Poor	Middle	Affluent	Total	Poor	Middle	Affluent	Total
1970								
Poor	3,380	1,628	5	5,013	67.4	32.5	0.1	100
Middle	1,569	35,110	1,897	38,576	4.1	91.0	4.9	100
Affluent	53	1,829	3,125	5,007	1.1	36.5	62.4	100
Total	5,002	38,567	5,027	48,596	10.3	79.4	10.3	100
1990								
Poor	3,542	1,393	67	5,002	70.8	27.8	1.3	100
Middle	1,459	35,701	1,407	38,567	3.8	92.6	3.6	100
Affluent	0	1,471	3,556	5,027	0.0	29.3	70.7	100
Total	5,001	38,565	5,030	48,596	10.3	79.4	10.4	100
2000								
Poor	3,553	1,447	1	5,001	71.0	28.9	0.0	100
Middle	1,445	35,769	1,351	38,565	3.7	92.7	3.5	100
Affluent	1	1,355	3,674	5,030	0.0	26.9	73.0	100
Total	4,999	38,571	5,026	48,596	10.3	79.4	10.3	100
2010								
Poor	3,304	1,692	3	4,999	66.1	33.8	0.1	100
Middle	1,683	35,265	1,623	38,571	4.4	91.4	4.2	100
Affluent	5	1,647	3,374	5,026	0.1	32.8	67.1	100
Total	4,992	38,604	5,000	48,596	10.3	79.4	10.3	100

Note: The average income among poor neighborhoods ranges between \$32,082 and \$38,846; among middle income neighborhoods ranges between \$63,150 and \$77,432; and among affluent neighborhoods ranges between \$109,103 and \$152,430.

Table 2

Parameter Estimates for Preferred Models, MSAs (N=48,596)

Interactions	Model (3)				Model (4)				
	Beta	OR	SE	p	Interactions	Beta	OR	SE	p
1980-90*Diag	0.238	1.27	0.020	0.000	80-90*Diag_Poor	-0.243	0.78	0.185	0.189
1990-00*Diag	0.281	1.32	0.020	0.000	80-90*Diag_Mid	0.534	1.71	0.183	0.004
2000-10*Diag	0.062	1.06	0.020	0.002	80-90*Diag_Aff	0.128	1.14	0.185	0.488
					90-00*Diag_Poor	3.197	24.46	0.721	0.000
					90-00*Diag_Mid	-2.928	0.05	0.720	0.000
					90-00*Diag_Aff	3.748	42.44	0.721	0.000
					00-10*Diag_Poor	1.772	5.88	0.380	0.000
					00-10*Diag_Mid	-1.899	0.15	0.379	0.000
					00-10*Diag_Aff	2.241	9.40	0.380	0.000

Table 3
 Affluent and Poor Median Neighborhood Characteristics and Percent Change, MSAs 1970-2010

ALL MSAs	Income(\$)	%Unemployed	%White	%Black	%College+	%Professional	%Female headed
Affluent 1970	102,962	2.5	99.2	0.3	29.2	46.0	5.9
Poor 1970	38,186	6.5	78.2	18.6	3.4	11.0	25.9
Difference	64,776	-4.0	21.0	-18.3	25.8	34.9	-20.0
Affluent in 1980	105,993	3.3	96.9	0.7	37.7	44.8	8.2
Poor in 1980	34,101	10.5	57.5	19.6	6.1	14.7	39.9
Difference	71,891	-7.1	39.5	-18.9	31.6	30.1	-31.7
%Change 1970-80	11	80	88	3	23	-14	58
Affluent in 1990	127,118	3.0	95.1	1.1	46.4	50.1	9.3
Poor in 1990	34,664	13.4	40.2	29.4	6.5	16.2	48.6
Difference	92,453	-10.4	54.9	-28.3	39.9	33.9	-39.3
%change 1980-90	29	46	39	50	26	13	24
Affluent 2000	139,150	2.6	92.5	1.7	54.6	56.0	9.6
Poor 2000	38,209	12.4	38.8	30.5	7.9	17.3	48.3
Difference	100,942	-9.8	53.7	-28.8	46.6	38.7	-38.7
%change 1990-00	9	-5	-2	2	17	14	-1
Affluent 2010	145,073	4.5	85.3	1.5	57.3	56.3	4.5
Poor 2010	32,099	14.2	16.3	26.1	10.3	18.3	31.1
Difference	112,974	-9.7	69.0	-24.6	47.0	37.9	-26.6
%change 2000-10	12	-1	29	-15	1	-2	-31
% Change between 1970-10 differences	74	146	228	34	82	9	33