The Persistence of Affluent Neighborhoods: Neighborhood Income Inequality and Economic Stability among U.S. Cities

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Introduction

Neighborhood income inequality within cities may lead to increases in affluent neighborhood stability and overall neighborhood economic stability. High levels of inequality between neighborhoods within a city could suggest that affluent neighborhoods can more easily stay affluent over time. Higher income residents that congregate together have a greater ability to exclude residents with lower incomes. This affluent isolation points towards neighborhood economic persistence and stability over mobility. Middle-income income residents cannot afford to live in affluent communities, whose average income in high inequality cities is far from reach. Poor residents living in cities with higher levels of neighborhood income inequality are increasingly forced to remain in poor communities.

In this paper, I use census data aggregated to the city level to determine whether higher levels of income inequality between neighborhoods affects the level of affluent neighborhood persistence and overall neighborhood economic stability between 1970 and 2000. I distinguish neighborhood income inequality at the top and bottom of the income distribution to uncover that higher levels of upper-tail inequality increase the likelihood of affluent neighborhood stability and overall neighborhood economic stability. The effects of neighborhood income inequality at the bottom of the income distribution do not significantly predict a city's affluent neighborhood stability, but it does tend to decrease overall neighborhood economic stability. A further exploration of the negative relationship between lower-tail neighborhood income inequality and neighborhood economic stability suggests that this relationship is limited to the 1980 to 1990 period. Levels of neighborhood income inequality are persistent after accounting for city occupational structure, city size, and population growth.

Background

Increasing economic inequality has been a characteristic of the U.S. since the 1970s. Individual, family, and household income inequality all increased starting in the early 1970s. (Danziger & Gottschalk 1993, 1995; Neckerman & Torche 2006; Autor, Katz, & Kearney 2005). In prior work, I find that this increasing economic inequality also extends to the neighborhood level. Neighborhood income inequality grew from 1970 to 2000, although the top of the income distribution behaves differently than that at the bottom. In response to this upswing in inequality, researchers speculate an accompanying increase in economic residential segregation (Sassen 1991; Massey & Eggers 1993; Massey & Fischer 2003). My earlier work supports this notion of increasing economic residential segregation. High levels of neighborhood income inequality and segregation may have implications for the neighborhood economic structure of a city, namely its likelihood for economic change. Higher levels of neighborhood income inequality suggest a widening gap in a household's ability for neighborhood upward mobility. Neighborhood economic mobility can occur in two ways. First, residents of different economic characteristics can move into or out of the neighborhood, changing the overall economic characteristic of the neighborhood. Second, existing residents of the neighborhood alter their economic characteristics. My current research does not allow me to distinguish these causes; however I can observe how the level of neighborhood income inequality in a city can affect the likelihood of the neighborhood economic mobility or stability of a city.

Although individual or household income inequality increases, it does not necessitate that households geographically sort themselves by economic characteristics. Each neighborhood within a city has an average income among their residents. As households increasingly sort themselves by income into neighborhoods, levels of economic residential segregation increase. If the average income of affluent neighborhoods widens from the average income of non-affluent neighborhoods, these affluent neighborhoods may become more costly to inhabit and require more exclusive entry, thereby maintaining their economic characteristic over time. As the level of neighborhood income inequality increases, the benefits of being in an affluent neighborhood may bring more advantage to its residents. This cumulative advantage increasingly enables affluent neighborhoods to resist economic downward mobility and deny their beneficial resources to residents of non-affluent neighborhoods (Albrecht & Albrecht 2007). Not only are affluent residents more able to maintain their neighborhood's economic status by excluding other lower-income residents, but poor residents are less able to exit poor neighborhoods (Wilson 1989, Jargowsky 1996). A high level of neighborhood income inequality, then, may result in greater neighborhood economic stability. Mechanically, increased neighborhood inequality means that the income of non-affluent neighborhoods must travel a greater distance in order to cross the marker into affluence. Because neighborhood income inequality trends at the top of the income distribution are not correlated with trends at the bottom, I expect that growing inequality at the top of the income distribution will have a stronger effect on *affluent* neighborhood stability than will the level of inequality at the bottom of the income distribution. In addition, because neighborhood income inequality is driven by the top of the income distribution starting in 1980, I expect inequality at the top of the income distribution to more strongly affect overall neighborhood economic stability.[1]

[1] It is also possible that neighborhood economic mobility or stability affects neighborhood income inequality. For

My goal for this work is to improve our understandings of urban neighborhood economic mobility and stability, with a focus on the role of neighborhood income inequality. I estimate the direct relationship between neighborhood income inequality and neighborhood economic stability within cities, and gradually introduce other city characteristics to determine if the relationship holds. I first explore how the occupational structure might alter the relationship between neighborhood income inequality and neighborhood economic stability over time.

A city's occupational structure may vary by its level of neighborhood inequality. For instance, cities with low levels of neighborhood income inequality may have a lower proportion of professional and managerial occupations. Some researchers argue that modernization or post-industrialization has increased occupational inequality as jobs have increasingly high educational requirements, leaving those with lower educational attainment in worse-quality jobs (Solga 2002). The low-end jobs are characterized by low wages, instability, and no benefits, while the high-end jobs have high salaries and benefits, allow for upward mobility, and are stable. These two sectors of the labor market do not compete with one another because there is limited mobility between the two, forming a primary and secondary economy. The segmentation of the labor market can play a role in individual level income inequality and can manifest spatially in neighborhoods. I operationalize this segmentation by using the percent of the population working in professional and managerial occupations, such as a business executive. With a higher proportion of people in occupations that can offer very high wages, a higher proportion of households can have incomes substantially above the rest in the city, and have the ability to form affluent neighborhoods that are out of reach from those residents in non-professional and non-managerial occupations (Albrecht & Albrecht 2007). The income inequality literature tends to

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instance, stably affluent neighborhoods can magnify their advantage and produce higher levels of inequality. To get a better handle on this possible reverse causality, I measure income inequality at time t to predict economic neighborhood stability rates between time t and t+1.

focus on the proportion of manufacturing occupations as determinants of inequality levels (Watson, Carlino, & Ellen 2006); however Jargowsky (1996) notes that, in the case for predicting the level of neighborhood poverty, it is not the percent of the population working in manufacturing that matters, but the percent working in professional and managerial occupations. As the share of high-skilled occupations increases, the log-odds of neighborhood poverty decline. It may be that an increase in the proportion of professional and managerial occupations increases the likelihood of affluent neighborhood stability.

Another set of city characteristics that might affect the relationship between neighborhood income inequality and neighborhood economic stability is population size and growth. Larger cities may have a more economically diverse population and perpetuate economic residential segregation, thereby creating higher levels of neighborhood income inequality (Watson, Carlino, & Ellen 2006). In contrast, it may not be the size of the city but the rate of population growth or decline that affect the level of neighborhood income inequality. Cities with greater population change, either growth or decline, may cause neighborhood residential disruptions and more neighborhood economic mobility. For instance, cities in population decline may lose its more affluent residents and leave behind a city with less neighborhood income inequality, thereby altering the economic characteristics of neighborhoods and increasing neighborhood economic mobility. Rapidly growing cities are imposing new populations with their own characteristics into their geographic structure and may cause a shift in the economic characteristics of neighborhoods. Some research suggests that the relationship between population growth and economic residential segregation is U-shaped, with both rapidly growing and stagnant cities experiencing increasing income segregation (Watson, Carlino, & Ellen 2006; Nielsen & Alderson 1997).

In earlier work, I describe neighborhood economic mobility patterns for U.S. cities. Overall, I find increasing rates of neighborhood economic stability, such that affluent neighborhoods are more likely to remain affluent over time and poor neighborhoods are more likely to remain poor. In this paper, I focus on factors that influence a city's neighborhood economic structure to be more or less stable; this analysis explores the role of neighborhood income inequality, which I find is increasing over time across all cities. Cities with higher levels of neighborhood income inequality may be more likely to have neighborhoods maintain their economic structure. Although there are a number of factors that might be responsible for neighborhood economic stability within cities, I begin with an analysis addressing income inequality, occupational structure, and population size and growth. The stabilizing of the neighborhood stratification system means a reduction in the chances for upward mobility and equality in access to geographic space within our cities. Past work has focused on the circumstance of poor compared to non-poor neighborhoods (e.g. Jargowsky 1997). I observe poor, middle-income, and affluent neighborhoods within cities to better understand neighborhood economic structures and how likely those structures are to change.

Research Questions

To better understand the neighborhood economic stability and mobility structures of U.S. cities, I ask the following research questions: 1). How does neighborhood income inequality affect overall neighborhood economic stability and affluent neighborhood stability? 2). How does the percent of a city's population working in professional and managerial occupations, population size, and population growth affect the relationship between income inequality and the level of neighborhood economic stability overall and affluent neighborhood stability?

Data

For this analysis predicting neighborhood stability within U.S. cities, I use aggregated neighborhood data from the Neighborhood Change Database (NCDB). Developed by the Urban Institute and GeoLytics Inc., this dataset contains three periods of long form U.S. decennial census data, from 1970 to 2000 (GeoLytics, Inc. 2003). I use neighborhood-level, or census tract,[2] information to create aggregate characteristics of the 65 Primary Metropolitan Statistical Areas (PMSAs). The number of census tracts change for every census decade as neighborhood demographics change. The NCDB, however, offers standardized census tract boundaries set to the year 2000 boundaries. This means that the tract boundaries drawn in 2000 were mapped the same in earlier years and neighborhood characteristics were recalculated to describe residents residing within the same boundary over time. This trait of the data is important because I observe the same geographic spaces over time, enabling me to appropriately tease out change in the characteristic of the residents within the neighborhood from change in the neighborhood boundary. In earlier work, my unit of analysis is the neighborhood and I have a sample of 23,030 census tracts. I exclude tracts with zero population[3] and tracts with greater than 40 percent of the population residing in group quarters in order to discard those areas dominated by military bases, prisons, colleges, and other formal institutions (Massey & Denton 1987; Wagmiller 2007). In this work, the PMSA is the unit of analysis and the characteristics of these cities are constructed from aggregated census tract data based on those 23,030 tracts. Each city has three periods of

[2]Census 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. See http://factfinder.census.gov/home/en/epss/glossary_c.html viewed on 6/12/08.

[3] Some tracts contain a zero population in 1970 because the data are standardized to year 2000 tracts. As cities developed and expanded, more census tracts formed. Uninhabited land became populated and census tracts were created by 2000. I compare the characteristics of these census tracts lost due to standardization with the neighborhood characteristics remaining in the sample and find that the lost tracts have slightly higher mean and median neighborhood income, lower poverty rate, lower proportion of households on welfare, and lower high school drop-out rate. Despite the selectivity of neighborhoods, the magnitude of these differences is small. Still, these excluded tracts may have served as a destination for affluent households. In this case, the findings in this study will underestimate the prevalence of concentrated affluence as well as the processes of affluent mobility either due to affluent flight or suburbanization. More details concerning this issue can be made available upon request from the author.

information about neighborhood mobility or stability. The dataset is thus constructed by city-periods, with a sample size of 195 (65 cities X 3 periods).

Definitions

I refer to a Primary Metropolitan Statistical Area (PMSA) as a city, and a census tract as a neighborhood. I measure a neighborhood's income by taking the average[4] household income (last year) of residents within a census tract. Average household incomes are adjusted to the 1999 national Consumer Price Index for all urban consumers (CPI-U) annual average for all items.

Each city for each time-point has 10 percent of its neighborhoods defined as affluence and ten percent as poor. The top 10 percent of a city's local neighborhood income distribution are considered affluent; the bottom 10 percent is considered poor. And, the remaining 80 percent are defined as middle income neighborhoods.

Dependent Variables

The log-odds of neighborhood economic stability and the log-odds of affluent neighborhood stability within a city are the two main dependent variables. Neighborhood economic stability is constructed between decades. Based on neighborhood mobility tables in prior work, I identify which neighborhoods experience change in economic categories.[5] Between decades, a proportion of all neighborhoods will remain stable between 1970 and 1980, between 1980 and 1990, and between 1990 and 2000. For each period, the proportion of neighborhoods that remain stable within cities are divided by the proportion of all neighborhoods within cities. The first dependent variable is the log-odds of the proportion of economically stable neighborhoods, or the log-odds of neighborhood economic stability, for each city for each

[4] I would have preferred the median over the average income, but this was not available for 1970 and 1980
[5] Contact the author for more details on mobility tables and determinants of stability rates.

period. It is important to use a log-odds form of neighborhood stability to avoid ceiling and floor effects on estimated regression coefficients.

The second dependent variable captures the log-odds of affluent neighborhood stability. Ten percent of neighborhoods in 1970 are defined as affluent.[6] A proportion of affluent neighborhoods remains affluent or experience downward mobility between 1970 and 1980. This proportion is divided by the number of affluent neighborhoods in 1970. I take the log-odds of the proportion of affluent neighborhoods that remain stable between time *t* and time *t+1* divided by the number of all affluent neighborhoods at time *t*. Every period for every city has a log-odds of affluent neighborhood stability.

Independent Variables

I measure neighborhood income inequality in two ways to predict neighborhood economic stability. From the neighborhood income distribution within each city, the first measure of income inequality is the logged ratio of the income value at the 90^{th} percentile to the income value at the 10^{th} percentile. This measures the income ratio between neighborhoods whose average household incomes at the top of the city's neighborhood income distribution to those at the bottom of the distribution. Higher values of the log ratio of the 90^{th} to 10^{th} percentiles indicate that those neighborhoods at the top of the income distribution have a relatively higher income level compared to those neighborhoods at the bottom of the distribution.[7] The second measure of neighborhood income inequality consists of two variables, one that measure inequality at the top of the income distribution and one at the bottom. The first variable is a logged ratio of the 90^{th} percentile of the neighborhood income distribution among

[6] In analyses predicting affluent neighborhood stability, I use both the full set of city-periods and a smaller sample of cities. The smaller sample excludes smaller cities. Details on this analysis are available upon request.

[7] Income inequality in this analysis is exclusively based on neighborhood income inequality. The NCDB does not offer enough data to estimate household income inequality within cities. Thus, I am unable to separate the effects of neighborhood inequality from those of household inequality. This is an area for further research.

neighborhoods within a city to the median neighborhood income. The second variable is a logged ratio of the median neighborhood income along the distribution within cities to the income at the 10th percentile. In earlier work, I find that neighborhood economic stability rates increase over time. I include a series of dummy variables to specify time period: 1970-1980, 1980-1990, and 1990-2000.

Another predictor of neighborhood economic stability is the percent of a city's population in professional and managerial occupations. Each neighborhood has an aggregate value of the total civilian employed persons ages 16 and older. Within each city, I sum the total employed persons for all neighborhoods within a city for each city and each decennial census year. The total number of employed persons serves as the denominator for the percent in professional and managerial occupations calculation. The numerator is based on a sum of persons 16+ years old employed in professional and managerial occupations and persons 16+ years old employed as executives, managers, and administrators (excluding. farms). These are the highest two occupational categories among the general occupation groups (1 to 9).[8]

The final predictors of neighborhood economic stability are city population size and change in population size. Each neighborhood in the NCDB has a total population size. I sum the total population of all neighborhoods within each city to identify the city population size. To measure population growth or decline, I calculate the percent change in population size from time t to $t+1$ between census decades (1970 to 1980, 1980 to 1990, and 1990 to 2000). For instance, I take the city population in 1980 minus city population in 1970 divided by the city population in 1970, times 100. I repeat this for each time period to calculate the percent change

[8] Other general occupation groups include: sales workers; administrative support and clerical workers; precision production, craft, and repair workers; operators, assemblers, transportation, and material moving workers; nonfarm laborers; service workers; and farm workers or in forestry and fishing.

in the population size.[9] A negative value of percent change in population size indicates population decline, a zero value indicates no change in population size, and a positive value indicates population growth. Among the 65 cities across the three periods, values range from -9.44% to 66.6%.

Methods

I analyze a series of ordinary least squares (OLS) regression models to understand the effects of a city's income inequality, occupational structure, population size and growth on its neighborhood stability and mobility structure. The first set of models predicts each independent variable separately. The second set of models begins with the focal independent variable, neighborhood income inequality, and progressively adds the effects of time period, the percent in professional and managerial occupation, and population size and growth. My regression models account for the clustering of cities over time.[10] Each city is represented once for each of the three time periods: 1970 to 1980, 1980 to 1990, and 1990 to 2000.

Results

I first explore the zero-order relationship between each independent variable and the log-odds of neighborhood stability. Table 1a lists the coefficients, p-values, and R-squared values for the series of zero-order models (Models 1a-1g). Model 1a is a regression where time period, with 1970 to 1980 as the reference category, predicts the log-odds of neighborhood stability. Model 1a reveals that the log-odds of neighborhood stability increase by .198 in 1980 to 1990 compared to 1970 to 1980. The log-odds of neighborhood stability increase by a greater degree (beta=.359) in 1990 to 2000 compared to 1970 to 1980. This finding is consistent with the results from my

[9] In this analysis, I assume that population growth between periods predicts neighborhood stability between time periods, however there is a possibility of reverse causality. Neighborhood economic stability within a city may cause population change within the city.
[10] Due to clustering, I estimate a model with city-specific fixed effects. I utilize the xtreg command in Stata for my regression models and specify that my cities are clustered.

earlier work showing increasing rates of neighborhood stability over time. In Model 1b a one percent increase in the logged ratio of neighborhood income inequality between the top (90^{th} percentile) and bottom (10^{th} percentile) of the neighborhood income distribution produces a .695 percent change in the odds of neighborhood economic stability. In Model 1c, a one percent increase in neighborhood income inequality at the top of the neighborhood income distribution (90^{th} to 50^{th} percentiles) produces a 1.830 percent increase in the odds of neighborhood economic stability. The magnitude of the effect of income inequality at the top of the neighborhood income distribution is larger than that between the top and bottom. Isolating neighborhood income inequality at the bottom of the neighborhood income distribution reveals that the magnitude of the effect on neighborhood stability is much smaller than the top. Relying only on a measure of neighborhood income inequality between the top and bottom of the distribution ($90/10^{th}$ percentile) masks and mutes the difference in the relationship between neighborhood income inequalities at the top versus the bottom of the neighborhood income distribution.

The next model outlines how the effect of the percent of persons working in professional and managerial occupations in a city has on a city's neighborhood stability. Model 1e shows that the log-odds of neighborhood economic stability increases by .038 for each point increase in the percent of people working in professional and managerial occupations. Model 1f indicates that a one percent increase in the population size of a city corresponds to a .163 percent increase in the odds of neighborhood economic stability. Although an increase in city population size increases neighborhood stability, population growth decreases neighborhood stability. This is consistent with the hypothesis that change in population size can result in less neighborhood stability. A one percent increase in population size corresponds to a decline in the log-odds of neighborhood stability by .014. All of the models described thus far are zero-order models and do not control for other factors.

The same models are conducted predicting the log-odds of affluent neighborhood stability instead of overall neighborhood stability (Table 1b). Overall neighborhood stability consists of the sum of affluent neighborhood stability, middle-income neighborhood stability, and poor neighborhood stability. This part of the analysis isolates the stability of affluent neighborhoods. In summary, all of the coefficients are larger in magnitude when predicting affluent neighborhood stability compared to overall neighborhood economic stability. The direction of the coefficients in Tables 1a and 1b are the same.

Prior to complicating the models with multiple independent variables, I investigate the correlation coefficients between all variables. The correlation matrix, shown in Table 2, reveals a high correlation (>.8) between the 90/10th neighborhood income inequality variable and both neighborhood income inequality at the top and bottom of the distribution, as expected. The correlation between neighborhood income inequality at the top (90/50th) and bottom (50/10th) is relatively low (.393), however, suggesting that they are capturing two separate processes. In the remaining models, I will exclude the 90/10th neighborhood income inequality measure and include both the measures of income inequality at the top (90/50th) and bottom (50/10th) of the neighborhood income distribution. I also expected a high correlation between the log-odds of overall neighborhood economic stability and affluent neighborhood stability (.725). The percent change in population is negatively correlated with other variables in the model, except for the percent in professional and managerial occupations, while population size is positively correlated with the other variables (except population change). The percent change in population size and the population size itself are not highly correlated (-.126). The remaining correlations between the variables are less than .6.

The next set of models, Model 3a to 3d, begin with neighborhood income inequality predicting neighborhood economic stability and add controls for time period, occupational structure, and population size and growth. In Model 3a, a one percent increase in the ratio of the 90th to 50th percentile incomes from a city's neighborhood income distribution increases the odds of neighborhood economic stability by 1.821 percent, controlling for income inequality at the bottom of the income distribution. Controlling for neighborhood income inequality at the top of the neighborhood income distribution, there is a non-significant (p=.912) and small effect (beta=.026) of income inequality at the bottom of the neighborhood income distribution on neighborhood economic stability.

In earlier work, I find a persistent pattern of increasing neighborhood stability over time. In Model 3b, I add time periods to the model with neighborhood income inequality to predict the log-odds of neighborhood economic stability. Compared to Model 3a, the magnitude of the effect of neighborhood income inequality at the top of the distribution drops slightly (beta=1.424). The main change in the effect of neighborhood income inequality on neighborhood stability occurs at the bottom of the neighborhood income distribution. A one percent increase in the ratio of the 50th to 10th percentile incomes from a city's neighborhood income distribution decreases the odds of neighborhood economic stability by .513, controlling for income inequality at the top of the neighborhood income distribution and the effects of time periods. An increase in neighborhood income inequality between the median and 10th percentile, then, decreases the log-odds of neighborhood stability, and the effect is nominally marginally statistically significant. Once period is controlled for, the effect of the 50th to 10th percentile income ratio turns negative.

The period coefficients in Model 3b are significant and suggest that in the log-odds of neighborhood economic stability are higher in the second period, from 1980 to 1990 (beta=.246), compared to the first, from 1970 to 1980. In addition, the third period has a larger effect (beta=.288) on the log-odds of having stable neighborhoods in 1990 to 2000 than in 1970 to 1980. The period coefficients are consistent with findings from prior work that indicate higher rates of stable neighborhoods over time. The results in Model 3b still support the finding that neighborhood stability increases over time.

In Model 3c, I include the two measures of neighborhood income inequality, the period indicator, and the percent of the population in professional and managerial occupations. In this model, the coefficients remain in the same direction as Model 3d, but the magnitude of the coefficients for income inequality and time period drop. The magnitude of the effect of the second time period (beta=.205) compared to the first period (1970-1980) is now larger than the effect of period three (beta=.185) to the first period, and the third period coefficient is nominally statistically insignificant (p=.057). Compared to the zero-order model for the percent in professional and managerial occupations (Model 1d), the coefficient drops to .016 and becomes nominally statistically insignificant (p=.108).

Model 3d expands Model 3c by including population size and population growth. The addition of these population characteristics reduces the magnitude of the effect of neighborhood income inequality at the top of the neighborhood income distribution, but only from 1.190 to 1.013, and it is still nominally significant. The magnitude of the negative effect of neighborhood income inequality at the bottom of the neighborhood income distribution increased from -.494 to -.563 and it is now nominally statistically significant (p=.026). The time period effects on the log-odds of neighborhood stability declines slightly from Model 3c to 3d, but the relationship remains stable. The percent in professional and managerial occupations becomes nominally statistically significant (p=.003) such that a unit increase of the percent in professional and managerial occupations increases the log-odds of neighborhood stability by .025, controlling for neighborhood income inequality, time period, and population size and growth. The effect of population size on the log-odds of stability is positive (beta=.027) but it is not nominally statistically significant (p=.474) controlling for the other factors in the model. In contrast, a unit increase in the percent of population change corresponds to a .015 decrease in the log-odds of neighborhood economic stability, net of the other variables.

I repeat the models in the Model 3 series to predict the log-odds of affluent neighborhood stability, displayed in Table 3b. Model 4a explores how neighborhood income inequality at the top and bottom of the neighborhood income distribution affects the log-odds of affluent neighborhood stability. A one percent increase in the ratio of the 90^{th} to the 50^{th} neighborhood income percentiles increases the odds of affluent neighborhood stability by 2.876 percent. The magnitude of the effect of income inequality at the top of the neighborhood income distribution is larger in Model 4a predicting affluent stability than in Model 3a predicting overall neighborhood economic stability. A one percent increase in neighborhood income inequality at the bottom of the neighborhood income distribution increases the odds of affluent neighborhood stability by .523 percent, but this is not nominally statistically significant (p=.311).

Model 4b adds time period indicators to the neighborhood income inequality measures. The neighborhood income inequality coefficient for the top of the income distribution basically does not change with the addition of period indicators, but the inequality at the bottom of the neighborhood income distribution changes signs. While increasing income inequality at the bottom of the income distribution was suggesting an increase in affluent neighborhood stability, the addition of the time period controls reverses the direction of the relationship. The period variables show an increase in the log-odds of affluent neighborhood stability over time, with the most increase in the 1980 to 1990 period. The log-odds of affluent neighborhood stability is .593 higher in 1980 to 1990 compared to 1970 to 1980. The log-odds of affluent neighborhood stability is .480 higher in 1990 to 2000 compared to 1970 to 1980.

Model 4c adds the effect of the percent in professional and managerial occupations to the model of neighborhood income inequality and time periods. The coefficients from Model 4b all increase in magnitude slightly, and the coefficient for the percent in professional and managerial occupations is small, non-significant, and negative. Essentially, the proportion working in professional and managerial occupations within a city is not related to the stability of affluent neighborhoods, contrary to predictions.

The full model, in Model 4d, continues to assert that neighborhood income inequality at the top of the neighborhood income distribution increases affluent neighborhood stability. A one percent increase in the ratio of income at the 90^{th} to the 50^{th} percentiles along the neighborhood income distribution within cities increases the odds of affluent neighborhood stability by 2.423 percent, controlling for neighborhood income inequality at the bottom of the income distribution, time periods, the percent in professional and managerial occupations, population size, and population change. The ratio of income at the 50^{th} to the 10^{th} percentiles along the neighborhood income distribution remains statistically insignificant (p=.187) and has a negative effect (beta=-.715) on affluent neighborhood stability.[11]

Time period remains a significant predictor of affluent neighborhood stability. The 1980 to 1990 period shows a significantly higher (beta=.576, p=.001) log-odds of affluent

[11] I conduct a series of additional exploratory analyses on the relationship between lower-tail inequality, or the 50/10 ratio, and neighborhood economic stability. These are available upon request of the author.

neighborhood stability compared to 1970 to 1980. The 1990 to 2000 period also shows significantly higher (beta=.479, p=.014) log-odds of affluent neighborhood stability than the 1970 to 1980 period, but the magnitude of the increase is less than the 1980 to 1990 period. The percent of the population working in professional and managerial occupations remains nominally statistically insignificant (p=.764), and the direction of the coefficient switches from negative in Model 4c to positive in Model 4d. The effect size of the percent in professional and managerial occupations is so small and insignificant in Model 4c and 4d that the direction is not informative or suggestive. The Model 3 series suggest that there is a positive relationship between the percent in professional and managerial occupations and neighborhood economic stability. Higher population size in Model 4d increases the log-odds of affluent neighborhood stability by .049, but this is nominally statistically insignificant (p=.442). A percent increase in population size corresponds to a decline in the log-odds of affluent neighborhood stability by .025.

Model 5 explores the effects of neighborhood income inequality at the top and bottom of the neighborhood income distribution interacted with time period indicators. The results shown in Table 4-4 reaffirm a nominally significant negative effect of neighborhood income inequality at the bottom of the distribution during the second period and positive effects in the first and third time periods. The coefficient for the log 50th to 10th percentile ratio corresponds to its effect in the first time period, 1970 to 1980. A one percent increase in neighborhood income inequality at the bottom of the distribution increases the odds of neighborhood economic stability by 1.341 percent (p=.033). During the second period, a one percent increase in income inequality at the bottom of the neighborhood income distribution decreases the odds of neighborhood economic stability by 1.301 percent (1.341+ (-2.642)), and this effect is significantly different from the effect at the first time period (p=.000). The coefficient for the log 50th to 10th percentile ratio in the third period is not significantly different from the first time period and the effect is positive (beta=.32 = 1.341+ (-1.021)). The effect of neighborhood income inequality at the top of the income distribution remains positive and significant with no significant change in the effect over time. A one percent increase in the 90^{th} to 50^{th} percentile ratio increases the odds of neighborhood economic stability by 1.371 percent in 1970 to 1980. Although the interaction coefficients are not significant, they suggest that the effect of the 90^{th} to 50^{th} percentile ratio further increases the odds of neighborhood economic stability to 2.017 (=1.371+.646) during the second time period compared to the first, and declines slightly (beta=1.371+(-.015)=1.356) in the third period compared to the first.

Discussion

The goal of this paper is to gain a better understanding of the relationship between the level of neighborhood income inequality and neighborhood economic stability and affluent neighborhood stability within cities. Neighborhood income inequality between the top and bottom of the neighborhood income distribution (90/10 ratio) masks the differing relationship between upper-tail and lower-tail income inequality. When measured separately, increasing upper-tail neighborhood income inequality increases overall neighborhood economic stability, but more dominantly predicts affluent neighborhood stability. Lower-tail income inequality does not play a role in predicting affluent neighborhood stability and plays an inconsistent role in overall neighborhood economic stability. Although increasing neighborhood income inequality at the lower tail increases neighborhood economic stability during the 1970s and the 1990s, it has a negative effect on neighborhood economic stability during 1980s. Despite a detailed investigation[12] of the cause for this direction reversal, the reason is still unclear.

[12] For more information about these detailed investigations, please contact the author.

Many events during the 1980s could have altered the direction of lower-tail neighborhood income inequality on neighborhood economic stability from positive to negative. For instance, the McKinney Vento Homeless Assistance Act of 1987 could have had some effect on the lower-tail of households in poor neighborhoods. The act instigated programs that provide a continuum of care for the homeless that instigated and connected emergency shelter programs, temporary housing programs, and permanent supportive housing programs. Also, the Section 8 housing program was instigated in 1983, such that poor households can access housing in the private housing market. Qualified households could take their voucher to any landlord that would accept the voucher and live outside of government housing projects, thereby causing residential economic change rather than stability. In addition, the 1981 to 1982 economic recession was accompanied by nearly half (44%) of all unions in the U.S. conceding to lower wages. This declining protection from unions could have cause residential upheaval if people changed jobs and moved closer to new jobs. Housing and labor policy, along with other broader national issues[13], could be responsible for the negative relationship between neighborhood income inequality and neighborhood economic stability during the 1980s in the U.S.

A number of other city-level characteristics could be affecting the relationship between income inequality and neighborhood economic stability, such as the unemployment rate, the educational structure, the proportion of female-headed families, the racial composition, racial inequality, the proportion of elderly residents, new housing construction, and changes in these variables over time. For instance, Affluent households tend to inhabit newer housing (Alonso

[13] In 1986, the Immigration Reform and Control Act (IRCA) granted a path towards legalization to certain agricultural seasonal workers and immigrants. It made it illegal to knowingly hire or recruit illegal immigrants, and required employers to attest to their employees' immigration status. It also granted amnesty to certain illegal immigrants. Newly legal immigrants could feel more freedom to move around and cause a degree of neighborhood economic instability. In addition, illegal immigrants that were forced out of jobs due to this new act could have also migrated and caused neighborhood economic upheaval. Nearly 7.3 million new immigrants arrive in the U.S. during the 1980s, making this a potentially strong source of neighborhood economic change (Waldinger & Bozorgmehr 1996, pg. 9).

1964; Smith 1982). Newly built housing has increasingly been targeted to higher income households and is in proximity to other new housing (Dwyer 2007). A higher proportion of new construction housing within a city may lead to higher rates of short-term neighborhood change, but long-term neighborhood economic stability, especially for affluent neighborhoods. In the future, I would like to investigate a number of these characteristics. Overall, the results suggest that cities with higher rates of neighborhood income inequality are more likely to have economically stable neighborhoods.

The relationship between neighborhood income inequality and economic stability are not affected by the percent in professional and managerial occupations, city size, or population growth. In fact, the percent in professional and managerial occupations has a very small and nominally insignificant effect on neighborhood economic stability. City size was also not significantly related to neighborhood economic stability, but cities that experience increases in population size have less neighborhood economic stability, or more mobility.

The rising neighborhood income inequality within cities has implications for the maintenance of the neighborhood economic structure.[14] Affluent neighborhoods are more likely to stay affluent over time and poor neighborhoods are more likely to stay poor. With growing neighborhood income inequality at the top of the income distribution, the stability of affluent neighborhoods is an area of increasing social concern. Neighborhood affluence is playing a more important role in the structure of social stratification and inequality. As households with the greatest resources share these benefits with their affluent neighbors, the advantage of the affluent

[14] In this paper, I focus on levels of the independent variables rather than change in the predictors. For instance, I explore how the level of inequality affects the log-odds of neighborhood economic stability rather than change in the level of inequality. It may be that increasing inequality can affect neighborhood economic stability differently than the level of inequality. This analysis would confound the causal order; therefore it is not discussed here. Please contact the author for elaborations.

magnifies. As affluent households exclude non-affluent households from their resources, it simultaneously compounds the disadvantage of the non-affluent, thereby increasing inequality. Neighborhood-level processes have implications for individual-level opportunities and life chances. This research suggests the importance of not investigating poor neighborhoods, but affluent and middle-income neighborhoods as well, to gain a clearer understanding of neighborhood stratification and inequality. This offers insight into what determines the economic mobility and stability behavior of urban neighborhoods.

References

Table 1a. Zero-Order OLS Regression of each Independent Variable Predicting Log-Odds of Neighborhood Economic Stability

Model 1	IVs	Coeff.	Std. Err.	p-value	R^sq
a	1980-1990	0.198	0.059	0.001	0.076
	1990-2000	0.359	0.059	0.000	
b	ln 90/10th	0.695	0.160	0.000	0.118
c	ln 90/50th	1.830	0.306	0.000	0.200
d	ln 50/10th	0.456	0.232	0.050	0.023
e	% professional	0.038	0.006	0.000	0.157
f	ln population	0.163	0.045	0.000	0.076
g	%pop change	-0.014	0.003	0.000	0.174

Note: Reference category in Model 1a is 1970-1980.

Table 1b. Zero-Order OLS Regression of each Independent Variable Predicting Log-Odds of Affluent Neighborhood Stability

Model 2	IVs	Coeff.	Std. Err.	p-value	R^sq
a	1980-1990	0.588	0.151	0.000	0.090
	1990-2000	0.697	0.151	0.000	
b	ln 90/10th	1.515	0.323	0.000	0.113
c	ln 90/50th	3.124	0.587	0.000	0.140
d	ln 50/10th	1.392	0.503	0.006	0.041
e	% professional	0.049	0.013	0.000	0.053
f	ln population	0.226	0.069	0.001	0.062
g	%pop change	-0.028	0.005	0.000	0.126

Note: Reference category in Model 2a is 1970-1980.

Table 2. Correlations among Variables Affecting Neighborhood Economic Stability

Variables	S	A	I	It	Ib	Po	P	Pc	T2	T3
S: ln odds stability	1									
A: ln odds affluent stability	0.725	1								
I: ln 90/10th	0.344	0.336	1							
It: ln 90/50th	0.448	0.374	0.801	1						
Ib: ln 50/10th	0.153	0.203	0.865	0.393	1					
Po: % professional	0.396	0.229	0.437	0.534	0.224	1				
P: ln population	0.275	0.250	0.418	0.522	0.205	0.263	1			
Pc: %pop change	-0.418	-0.355	-0.161	-0.095	-0.167	0.096	-0.126	1		
T2: 1980-1990	0.017	0.111	0.132	-0.103	0.289	-0.092	0.003	-0.051	1	
T3: 1990-2000	0.230	0.186	0.306	0.339	0.186	0.516	0.065	-0.006	-0.500	1

Table 3a. Models Predicting the Log-Odds of Neighborhood Economic Stability

	Model3a		Model 3b		Model3c		Model 3d	
Variables	**Coeff.**	**p-value**	**Coeff.**	**p-value**	**Coeff.**	**p-value**	**Coeff.**	**p-value**
ln 90/50th	1.821	0.000	1.424	0.000	1.190	0.002	1.013	0.007
	(.326)		(.358)		(.387)		(.379)	
ln 50/10th	0.026	0.912	-0.513	0.054	-0.494	0.063	-0.563	0.026
	(.232)		(.267)		(.266)		(.252)	
1980-1990			0.246	0.001	0.205	0.007	0.162	0.029
			(.072)		(.076)		(.074)	
1990-2000			0.288	0.000	0.185	0.057	0.115	0.202
			(.074)		(.097)		(.090)	
% professional					0.016	0.108	0.025	0.003
					(.010)		(.009)	
ln population							0.027	0.474
							(.037)	
%pop change							-0.015	0.000
							(.003)	
Intercept	1.186	0.000	1.391	0.000	1.067	0.000	0.761	0.109
	(.137)		(.145)		(.246)		(.475)	
R^sq	0.200		0.221		0.240		0.423	

Note: Standard Errors are in parentheses

Table 3b. Models Predicting the Log-Odds of Affluent Neighborhood Stability

	Model4a		Model 4b		Model4c		Model 4d	
Variables	**Coeff.**	**p-value**	**Coeff.**	**p-value**	**Coeff.**	**p-value**	**Coeff.**	**p-value**
ln 90/50th	2.876	0.000	2.803	0.000	2.914	0.000	2.423	0.001
	(.637)		(.674)		(.751)		(.754)	
ln 50/10th	0.523	0.311	-0.437	0.449	-0.458	0.431	-0.715	0.187
	(.516)		(.577)		(.582)		(.541)	
1980-1990			0.593	0.001	0.610	0.001	0.576	0.001
			(.175)		(.182)		(.176)	
1990-2000			0.480	0.006	0.518	0.011	0.479	0.014
			(.174)		(.205)		(.195)	
% professional					-0.006	0.729	0.005	0.764
					(.017)		(.015)	
ln population							0.049	0.442
							(.064)	
%pop change							-0.025	0.000
							(.005)	
Intercept	-0.488	0.068	-0.396	0.142	-0.280	0.514	-0.595	0.467
	(.267)		(.270)		(.429)		(.819)	
R^sq	0.143		0.189		0.190		0.294	

Note: Standard Errors are in parentheses

Table 4. Neighborhood Income Inequality Variation over Time Period to Predict the Log-Odds of Neighborhood Economic Stability

	Model 5	
Variables	**Coeff**	**p-value**
ln 90/50th	1.371	0.011
	(.540)	
ln 50/10th	1.341	0.033
	(.629)	
1980-1990	1.053	0.000
	(.267)	
1990-2000	0.539	0.050
	(.275)	
1980-90*ln90/50	0.646	0.336
	(.672)	
1990-00*ln90/50	-0.015	0.980
	(.602)	
1980-90*ln50/10	-2.642	0.000
	(.681)	
1990-00*ln50/10	-1.021	0.148
	(.706)	
Intercept	0.771	0.001
	(.234)	
R^sq	0.323	

Note: Standard errors are in parentheses.