

Does a Neighborhood's Neighbors Matter?: Spatial Lag Effects on Urban Neighborhood Economic Mobility or Stability

Claudia D. Solari, PhD
Abt Associates Inc.

Introduction

Recent work on neighborhood economic segregation and mobility in the U.S. reveals increasing neighborhood income inequality within cities (Reardon and Bischoff 2011; Solari 2010). Research points to a rising prevalence of poor neighborhoods (Kneebone, Nadeau, and Berube 2011) and falling median neighborhood income among poor neighborhoods (Solari 2012) during the 2000s, in the face of the Great Recession. This drop in income among poor neighborhoods came in combination with higher rates of neighborhood change, suggesting a greater vulnerability among neighborhoods at the bottom of the income distribution to fall into poverty. Affluent neighborhoods experienced a similar increase in instability during the 2000s, such that neighborhoods at the top of the income distribution were fluctuating in and out of affluence at a higher rate than in previous decades (Solari 2012). This analysis enhances prior research by incorporating spatial methods to better understand neighborhood change or mobility and neighborhood stability within U.S. cities before and after the Great Recession.

Background

Increasing economic inequality has been a characteristic of the U.S. since the 1970s. Individual and family income inequality increased starting in the early 1970s (Danziger & Gottschalk 1993, 1995; Neckerman & Torche 2006; Autor, Katz, & Kearney 2005). In response to this upswing in inequality, researchers speculated an accompanying increase in economic residential segregation (Sassen 1991; Massey & Eggers 1993; Massey & Fischer 2003). In fact, from 1970 to 2000, affluent neighborhoods were more likely to stay affluent over time, and poor neighborhoods were more likely to remain in their poor status (Solari 2010). Residents of affluent neighborhoods can fortify their economic status by providing an infrastructure, including improving safety, investments in high quality schools and other local resources, and residential privacy (Durlauf 1996). Further, residents of affluent neighborhoods can instigate practices of exclusion such that they are protected from any potentially negative spillover effects of surrounding neighborhoods. These structural benefits with the assistance of isolation and exclusion, can contribute to the process of cumulative advantage (DiPrete and Eirich 2006; Albrecht and Albrecht 2007), such that affluent residents can sustain and perpetuate the advantage of its neighborhood, independent of personal or family level characteristics.

Poor neighborhoods faced similar stability between 1970 and 2000, with theories of cumulative disadvantage suggesting challenges of improving neighborhood conditions and the economic situation of its residents. Theories surrounding the negative effects of physical features within poor neighborhoods refer to poor quality hospitals, parks, housing, schools, and transportation, for example, as sources of disadvantage that poor families face (Robert 1999). Neighborhood effects studies have mainly focused on the notion that distressed areas compound disadvantage upon their impoverished residents (Wilson 1987; Quillian 1999). Neighborhoods can shape the quality of opportunities, institutions, and social networks that can, in turn, influence people's wellbeing, independent of their individual and family characteristics.

Between 2000 and 2010, however, affluent and poor neighborhoods faced higher rates of instability than in previous decades (Solari 2012). The Great Recession compromised the economic stability of residents (Kneebone, Nadeau, and Berube 2011), and likely thereby the neighborhoods they inhabit. Neighborhood change research notes how change in the residential composition of surrounding areas can have spillover effects (Durlauf 1994). For example, the in-migration of poor residents creating concentrations of poverty adjacent to affluent neighborhoods can result in “affluent flight” or the fleeing of affluent residents to escape possible social ills, such as increased crime (Massey & Eggers 1993). This analysis investigates spillover effects at the neighborhood level. Using spatial methods, I explore how the characteristics of surrounding neighborhoods, or spatial lags (Anselin 2003), can affect the economic conditions of a given urban neighborhood.

In this analysis, I ask: How do the characteristics of surrounding neighborhoods affect a neighborhood’s economic stability or mobility? Are affluent or poor neighborhoods surrounded by other affluent or poor neighborhoods less likely to experience mobility? Similarly, are neighborhoods surrounded by other neighborhoods of a different economic status more likely to experience mobility? Beyond this, I ask whether change in the economic and other characteristics of surrounding neighborhoods affect the economic mobility or stability of neighborhoods. This project will enhance our understanding of the economic stability and mobility behavior of urban neighborhoods, and offer insight on neighborhood stratification and inequality.

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 percent of all tract boundaries in the country were redefined (Tatian 2003, p. 1–1).

The LTDB is offered to the public through the Spatial Structures in the Social Sciences (S4) of Brown University. 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 neighborhoods. 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 United States (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

The definition of “affluence” can be arbitrary (Massey and Eggers 1993; Coulton, Chow, Wang, and Su 1996). Researchers do not yet share an accepted conceptual (and operational) definition of poverty (Wilson 1987; Iceland 2003), much 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 within each city, 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 nonaffluent/nonpoor 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, or cities, 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, Stockmayer, Stiles, and Hout 2004; Ellen and ORegan 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 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. In contrast, “neighborhood persistence” occurs when a neighborhood remains in its economic state from one point in time to the next.

Neighbors of neighborhoods, or spatial lags, can be defined in a number of ways, such as contiguity or distance. I explore a number of different spatially lagged variables to conduct this analysis (inverse of linear distance, inverse of distance-squared, inverse of logged distance, and queens-matrix adjacency). These various specifications of spatial lags will offer different values of the average characteristics of these lags.

References

- Albrecht, Don E., and Scott G. Albrecht. 2007. The Benefits and Costs of Inequality for the Advantaged and Disadvantaged. *Social Science Quarterly* 88 (2):382-403.
- Anselin, Luc. 2003. Spatial Externalities, Spatial Multipliers, and Spatial Econometrics. *International Regional Science Review*. 26(2): 153-166.
- Autor, David H., Lawrence F. Katz, and Melissa S. Kearney. 2005. Trends in U.S. Wage Inequality: Re-Assessing the Revisionists. *NBER WORKING PAPER SERIES* Working Paper 11627.
- Brooks, David. 2000. *Bobos in Paradise: The New Upper Class and How They Got There*. New York: Simon & Schuster.
- Citro, Constance F., and Robert T. Michael, eds. 1995. *Measuring Poverty: A New Approach, Panel on Poverty and Family Assistance*. Washington, D.C.: National Academy Press.
- Coulton, Claudia J., Julian Chow, Edward C. Wang, and Marilyn Su. 1996. Geographic Concentration of Affluence and Poverty in 100 Metropolitan Areas, 1990. *Urban Affairs Review* 32 (2):186-216.
- Danzinger, Sheldon, and Peter Gottschalk, eds. 1993. *Uneven Tides: Rising Inequality in America*. New York: Russell Sage Foundation.
- DiPrete, Thomas A., and Gregory M. Eirich. 2006. Cumulative Advantage as a Mechanism for inequality: A Review of Theoretical and Empirical Developments. *Annual Review of Sociology* 32:271-297.
- Domhoff, G. William. 1983. *Who Rules America Now?* Englewood Cliffs, NJ: Prentice-Hall.
- Durlauf, Steven N. 1994. Spillovers, Stratification, and Inequality. *European Economic Review* 38(3-4): 836-845.
- Durlauf, Steven N. 1996. A Theory of Persistent Income Inequality. *Journal of Economic Growth* 1:75-93.
- Ellen, Ingrid Gould, and Katherine O-Regan. 2008. “Reversal of Fortunes? Lower-income Urban Neighborhoods in the US in the 1990s.” *Urban Studies* 45(4):845–69.
- Fischer, Claudie S., Gretchen Stockmayer, Jon Stiles, and Michael Hout. 2004. Distinguishing the Geographic Levels and Social Dimensions of U.S. Metropolitan Segregation, 1960-2000. *Demography* 41 (1):37-59.
- Freeman, Lance. 2005. Displacement or Succession?: Residential Mobility in Gentrifying Neighborhoods. *Urban Affairs Review* (40):463-491.
- GeoLytics, Inc. 2003. *CensusCD neighborhood Change Database 1970-2000 Tract Data, [MRDF]*. East Brunswick, NJ.
- Iceland, John. 2003. *Poverty in America: A Handbook*. Berkeley, CA: University of California Press.

- Kneebone, Elizabeth, Carey Nadeau, and Alan Berube. 2011. The Re-Emergence of Concentrated Poverty: Metropolitan Trends in the 2000s. In *Metropolitan Opportunity Series*, edited by M. P. Program. Washington DC: Brookings.
- Massey, Douglas S. 1996. The Age of Extremes: Concentrated Affluence and Poverty in the Twenty-First Century. *Demography* 33 (4):395-412.
- Massey, Douglas S., and Nancy A. Denton. 1987. Trends in the Residential Segregation of Blacks, Hispanics, and Asians. *American Sociological Review* 52:802-825.
- Massey, Douglas S., and Mitchell L. Eggers. 1993. The Spatial Concentration of Affluence and Poverty During the 1970s. *Urban Affairs Quarterly* 29 (2):299-315.
- Massey, Douglas S., and Mary J. Fischer. 2003. The Geography of Inequality in the United States, 1950-2000. In *Brookings-Wharton Papers on Urban Affairs*.
- Mills, C. Wright. 1963. *The Power Elite*. New York: Oxford University Press.
- Murray, Charles. 2012. *Coming Apart: The State of White America, 1960-2010*. New York: Crown Forum.
- Neckerman, Kathryn M., and Florencia Torche. 2007. Inequality: Causes and Consequences. *Annual Review of Sociology* 33:335-357.
- Quillian, Lincoln. 1999. Migration Patterns and the Growth of High-Poverty Neighborhoods, 1970-1990. *The American Journal of Sociology* 105 (1):1-37.
- Reardon, Sean F., and Kendra Bischoff. 2011a. Income Inequality and Income Segregation. *American Journal of Sociology* 116 (4):1092-1153.
- Reardon, Sean F., and Kendra Bischoff. 2011b. Growth in the Residential Segregation of Families by Income, 1970-2009. In *US2010 Discover America in a New Century*: Russell Sage Foundation.
- Robert, Stephanie A. 1999. Socioeconomic Position and Health: The Independent Contribution of Community Socioeconomic Context. *Annual Review of Sociology* 25:489-516.
- Sassen, S. 1991. *The Global City: New York, London, Tokyo*. Princeton: Princeton University Press.
- Solari, Claudia D. 2010. The Presence and Persistence of Affluent Neighborhoods. in *University of California, Los Angeles*. Ann Arbor, MI: ProQuest.
- Solari, Claudia D. 2012. Affluent Neighborhood Persistence and Change in U.S. Cities. *City & Community* 11(4): 370-388.
- Tatian, Peter A. 2003. Census CD Neighborhood Change Database (NCDB) 1970 – 2000 Tract Data, Data Users' Guide Long Form Release. Washington DC: The Urban Institute.
- Wagmiller, Robert L. 2007. Race and the Spatial Segregation of Jobless Men in Urban America. *Demography* 44 (3):539-562.
- Watson, Tara. 2009. Inequality and the Measurement of Residential Segregation by Income in American Neighborhoods. *Review of Income and Wealth* 55 (3):820-844.
- Wilson, William Julius. 1987. *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy*. Chicago, IL: University of Chicago Press.