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A popular and powerful narrative focuses on a crisis of suburban decline in the United States. However, a consensus regarding the scope and scale of one dimension of suburban decline—poverty—is hindered by the use of contradictory definitions of suburban space. This research presents an alternative approach to measuring suburban poverty that is less computationally intensive yet capable of capturing complex shifts in the spatial distribution of poverty within metropolitan areas. An analysis of the distribution of poverty in the largest 100 metropolitan areas between 1990 and 2007–11 concludes that while poverty is increasing in the low-density suburbs of a handful of large metropolitan areas, the more general trend in most other metropolitan areas is an increase in poverty in moderately dense residential areas. Implicated in these trends are long-term trends in metropolitan area economic growth, a secular decline in inner-ring suburbs, and the impact of gentrification on housing opportunities for at-risk populations in large cities.

Keywords: suburbs; poverty; methods; inner-ring suburbs

Introduction

A popular and powerful narrative in United States urbanism focuses on a crisis of suburban decline (Schafran, 2013; Short, Hanlon, & Vicino, 2007; Vicino, 2008b). Notably, Kneebone and Berube (2013a, pp. 1–2) summarize a decade of influential research on suburban poverty by the *Brookings Institution* by painting a picture of a nearly ubiquitous increase in suburban poverty: "From Cleveland's long-struggling inner suburbs, to the immigrant portals south of Seattle, to aging communities surrounding Chicago, or the traditionally affluent Maryland suburbs of the nation's capital—almost every major metropolitan area in the country has experienced rising poverty beyond its urban core." Suburban decline and an increase in suburban poverty, in particular, are of particular importance because social services are disproportionately lacking in suburban settings (Allard, 2004; Murphy, 2010), while municipal fragmentation and reliance on property taxes strains the ability of suburbs—and older, inner-ring suburbs in particular—to deal with a growing, spatially dispersed poor population (Hudnut, 2003; Orfield, 2002; Pendall, Weir, & Narducci, 2013; Puentes & Warren, 2006; Vicino, 2008a).

However, the broader evidence regarding suburban poverty indicates that it is not a universal phenomenon. Indeed, Kneebone and Berube's (2013b) own data indicate that in only 42 of the 95 metropolitan areas for which they provide data did the share of the poor living in suburbs significantly increase between 1970 and 2011 and that the share of the poor living in suburbs actually decreased in 18 of these metropolitan areas. This

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echoes existing peer-reviewed research that identifies the inner-ring suburbs of declining industrial cities and the outer-ring suburbs of rapidly growing Hispanic immigrant destinations as the nexus of suburban poverty (Cooke & Marchant, 2006; Hanlon, 2008; Hanlon, Vicino, & Short, 2006; Holliday & Dwyer, 2009; Madden, 2003; Puentes & Warren, 2006). Thus, inter-metropolitan patterns of suburban poverty appear to be driven by the same factors that drive urban poverty within a metropolitan area (Cooke, 2010; Cooke & Marchant, 2006): the size of the at-risk population, the degree of economic segregation, and the shifting location of housing opportunities for the poor (Jargowsky, 1997).

That said, research on the suburbanization of poverty is limited in two important respects. First, only Kneebone and Berube (2013a) track the long-term trend in the suburbanization of poverty up to or through the deep recession of the late 2000s. Given the depth of the Great Recession, it is expected that the suburbanization of poverty has intensified and an appropriate approach would be to track this development over a long period of time to gauge its significance. Second, previous studies of suburban poverty each rely upon their own idiosyncratic measure of what constitutes a suburban area. The lack of a common definition and typology for suburbia makes it difficult to compare and reconcile different findings. Hence, the purpose of this research is to provide a reliable empirical picture of the emergence of suburban poverty in the 100 largest metropolitan areas from 1990 through the period covering the deep recession of the late 2000s.

What is a suburb?

Conceptualizing suburban space is problematic both theoretically and empirically (Soja, 2011). Empirically, there is no standard definition for what constitutes suburban space. Common practice is to rely upon Census definitions. Specifically, the United States Census identifies the *principal city* or *cities* (previously referred to by the Census as *central cities*) of each core-based statistical area (CBSAs include both metropolitan and micropolitan areas) on the basis of population size and/or concentration of employment:

(1) the largest incorporated place with a 2010 Census population of at least 10,000 in the CBSA or, if no incorporated place of at least 10,000 population is present in the CBSA, the largest incorporated place or census designated place in the CBSA; and

(2) any additional incorporated place or census designated place with a 2010 Census population of at least 250,000 or in which 100,000 or more persons work; and

(3) any additional incorporated place or census designated place with a 2010 Census population of at least 50,000, but less than 250,000, and in which the number of workers working in the place meets or exceeds the number of workers living in the place; and

(4) any additional incorporated place or census designated place with a 2010 Census population of at least 10,000, but less than 50,000, and at least one-third the population size of the largest place, and in which the number of workers working in the place meets or exceeds the number of workers living in the place (Office of Management and Budget, 2010, p. 37250).

Based on population size, up to three principal cities are then used to name each metropolitan area. For example, what is commonly referred to as the San Jose metropolitan area actually includes seven principal cities (i.e., San Jose, Sunnyvale, Santa Clara,

Mountain View, Milpitas, Palo Alto, and Cupertino) but only three of these appear in the official name (i.e., the San Jose-Sunnyvale-Santa Clara Metropolitan Statistical Area). Suburban space is then commonly defined as any part of a metropolitan area that is not part of a principal city (e.g., Holliday & Dwyer, 2009; Howell & Timberlake, 2013; Kneebone & Berube, 2013a; Madden, 2003; Vicino, 2008a).

However, using census definitions of principal cities to define urban space and defining the residual portion of metropolitan areas as suburban space introduces a high level of misclassification. First, in metropolitan areas with underbounded principal cities (e.g., Boston, St. Louis, or San Francisco) there may be many smaller urban exclaves that are not identified as principal cities just because they have small populations or are not centers of employment. Second, in metropolitan areas with overbounded principal cities (e.g., Columbus, Indianapolis, or Jacksonville) many suburban enclaves are wrongly treated as urban. Third, the Census only defines principal cities on the basis of population size and employment concentration but these criteria exclude other, perhaps more important, dimensions of urbanism such as population density and population heterogeneity. Finally, reliance on population size to identify principal cities means that many large suburban municipalities may be classified as principal cities and consequently as urban. Thus, it is not readily clear the degree to which principal cities can be accurately assumed to be urban and whether the balance of metropolitan areas can be accurately assumed to be suburban.

That said, there are two important benefits to using these Census-based definitions of urban and suburban space. First, they rely upon municipal boundaries and these are arguably the correct scale of analysis because it is at the municipal scale that policies designed to address poverty are traditionally directed and implemented. Second, despite their flaws the census-based definitions are objective and relatively easy to replicate, despite concern that researchers may inconsistently identify all of the principal cities in a metropolitan area. For example, Kneebone and Berube (2013a) use Census-based principal cities to define urban and suburban space but then, with little justification, restrict their definition of urban space only to the first principal city identified in the name of a metropolitan area plus any other principal city identified in the name of a metropolitan area that has a population of at least 100,000. Such ad-hoc decisions regarding which principal cities to define as urban may affect conclusions regarding the scope and scale of suburban poverty (see Cooke, 2014).

Recognizing the limitations to using Census-based definitions to identify urban and suburban spaces, another approach has been to identify suburban space by classifying census tracts or municipalities on the basis of variables such as population and housing density, relative location, contiguity, age of the housing stock and various demographic variables (e.g., Cooke, 2010; Cooke & Marchant, 2006; Hanlon, 2008, 2009; Hanlon et al., 2006; Holliday & Dwyer, 2009; Lee, 2011; Lee & Leigh, 2007; Leigh & Lee, 2005; Reibel, 2011; Séguin, Apparicio, & Riva, 2012). The primary benefit to a multivariate classification approach is that it allows for a more nuanced identification of types of urban and suburban space without the greater risk of misclassification inherent in the principal city approach. However, these approaches are both data and computationally intensive and particular to each study, making it difficult to make generalizations from study to study. For example, Cooke and Marchant (2006, p. 1974) classify all metropolitan census tracts in the United States according to the following scheme:

> The urban core of a metropolitan area consists of: census tracts with greater than 400 pre-1940 housing units per square mile; plus any contiguous tract which has both greater than 200

pre-1940 housing units per square mile and a population density of at least 1000 people per square mile. The inner ring of a metropolitan area consists of: any tract which is not labeled as part of the urban core; tracts with greater than 400 1950–69 housing units per square mile; plus any contiguous tract which has both greater than 200 1950–69 housing units per square mile and a population density of at least 1000 people per square mile.

It seems unlikely that an approach this particular will ever be exactly replicated, thereby limiting the accumulation of consistent evidence with respect to the suburbanization of poverty.

Given the limitations of both approaches to studying suburban poverty, the objective of this research is to construct a consistent, less data-intensive, and easily replicated method for measuring the suburbanization of poverty. The unit of analysis is the census tract. The argument that the municipality is the correct scale of analysis for the study of suburban poverty is countered by several realities. First, unlike principal cities, which vary greatly in extent and content, census tracts are consistently defined as neighborhood units with a population of about 4,000 people. Second, concentrations of poverty are neighborhood-level phenomena, and it is axiomatic that the scale of analysis should match the scale at which the phenomenon occurs. Third, the lines between urban and suburban spaces are increasingly blurred: there is increased diversity of both urban and suburban spaces (Swanstrom, Casey, Flack, & Dreier, 2004). Many inner-ring suburbs, in particular, are facing the same sets of issues that confronted old urban core municipalities a half century earlier (Hudnut, 2003). Finally, to continue to treat traditional urban cores as distinctly different from surrounding suburban spaces obfuscates the reality that addressing issues such as poverty—whether it be in urban or suburban spaces—requires regional—and not merely municipal—solutions (Dreier, Swanstrom, & Mollenkopf, 2004; Orfield, 2002). Thus, the focus here is on the types of metropolitan census tracts that have seen an increase in poverty rates.

Metropolitan area poverty has traditionally been viewed as occurring in high-density neighborhoods. Of particular concern have been the consequences associated with the concentration of large numbers of poor people. Suburban poverty presents a different set of issues: the concern is with the difficulty of providing services to the poor in a low-density, politically fragmented environment (Hudnut, 2003; Orfield, 2002; Pendall et al., 2013; Puentes & Warren, 2006; Vicino, 2008a). Thus, a key difference between urban and suburban poverty is that one is associated with high-density neighborhoods and the other is associated with low-density neighborhoods. Indeed, density is a fundamental difference between urban and suburban space. Density is responsible for the interactions that form the basis of the urbanization economies that lie at the root of urbanism itself (Jacobs, 1969; Marshall, 1890; Mumford, 1961), and the lack of density is a fundamental characteristic of suburban space (Fishman, 1987; Jackson, 1985; Soja, 2011). Toward that end, the United States Census Bureau uses population density to create its definition of urban areas (U.S. Census, 2011), and most of the previously discussed classification schemes use population density as a primary variable distinguishing between types of urban and suburban census tracts and municipalities.

Thus, a simple way to conceptualize the suburbanization of poverty is in terms of the relationship between census tract poverty rates and population density. Figure 1 plots this relationship for the Detroit metropolitan area and highlights those observations that are within the City of Detroit using data from the 2007–11 American Community Survey (see 'Data and methods' section). Included in this plot are predicted poverty rates based upon a fractional polynomial regression of the effect of census tract population density on census tract poverty rates (see 'Data and methods' section). Detroit is a particularly challenging
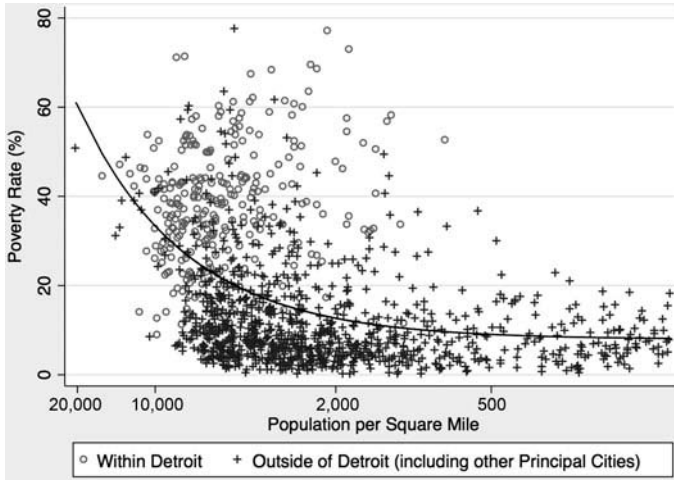
Figure 1.   Census tract poverty rates: Detroit, 2007–11 (Source: Author).

area for measuring the suburbanization of poverty because decades of population loss means that many of Detroit's neighborhoods may be similar in many dimensions to suburban areas. However, Figure 1 indicates that even in this extreme case the relationship between poverty and density is clearly positive, and Detroit's census tracts are generally both higher in poverty and density than all other census tracts. One benefit of thinking about the suburbanization of poverty in this way is that high-density neighborhoods in other principal cities or small urban exclaves are correctly treated as being more urban because of their higher density.

Despite lower levels of poverty in the low-density (i.e., suburban) census tracts of the Detroit metropolitan area, the key question is whether poverty has been on the increase in these census tracts. Toward that end, Figure 2 plots fractional polynomial models for both
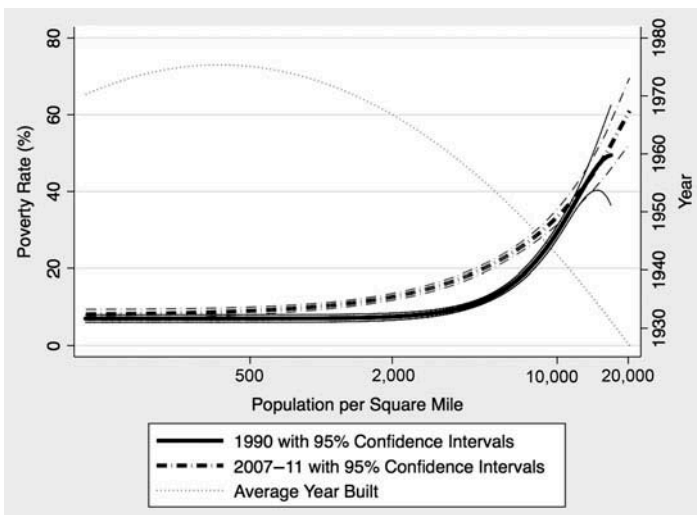

Figure 2.   Change in census tract poverty rates: Detroit, 1990 to 2007–11 (Source: Author).

1990 and 2007–11 along with their 95% confidence intervals. Where the confidence intervals do not overlap there is a statistically significant difference between the lines. Figure 2 also includes the fractional polynomial line that describes average housing age for 2007–11 as a function of census tract population density. These data suggest that within the Detroit metropolitan area, census tracts with the greatest increase in poverty between 1990 and 2007–11 are associated with density levels of around 5,000 people per square mile and a housing stock built around 1955. This is consistent with the first wave of post World War II suburbanization: in Detroit, poverty has been increasing within post World War II inner-ring suburban spaces along the boundaries of the city of Detroit and contiguous suburban municipalities (also see Jargowsky, 2003).

This exercise highlights the problem of focusing on municipal boundaries rather than neighborhood types. For example, in Detroit the emergence of poverty in moderately dense neighborhoods represents the expansion of poverty in post World War II housing along the edges of the city of Detroit and surrounding inner-ring municipalities. However, in metropolitan areas with underbounded central cities these same places would be defined exclusively as suburban spaces and in metropolitan areas with overbounded central cities these places would be defined exclusively as urban spaces. Rather, this analysis more accurately defines these as moderately dense post World War II inner ring suburbs. The conclusion that poverty is not rapidly expanding in newer, low-density suburbs suggests that policy concerns regarding the need to deliver services to low-density suburban municipalities are unwarranted in this case. Rather, policy should be focused on areas that have traditionally been middle class and which, depending upon the spatial structure of a particular metropolitan area, may or may not lie within a traditionally defined urban municipality.

This approach offers a more general method for evaluating the suburbanization of poverty across American metropolitan areas. The expectation is that the relationship between census tract population density and census tract poverty is generally positive, reflecting the traditional concentration of poverty in urban (i.e., more densely settled) areas. Then, if concentrations of poverty are emerging in suburban areas (i.e., less densely settled areas) the positive relationship between census tract population density and census tract poverty rates should become less positive over time.

Data and methods

To test this hypothesis, this analysis estimates fractional polynomial models of the effect of census tract population density on census tract poverty among the 100 largest metropolitan areas for 1990 and then again for 2007–11. Data are drawn from the International Public Use Microdata Sample (IPUMS) National Historical Geographic Information System (NHGIS) which provides census tract data on population density and poverty rates for the 1990 United States Census and the 2007–11 American Community Survey (ACS) (Minnesota Population Center, 2011). The 2007–11 ACS provides the most recently available period estimate for census tract poverty rates and reflects the changes the Census has made in reporting small-area social and demographic data since the 2000 Census. It is treated as a point estimate for comparison to the 1990 United States Census data on poverty rates. While both census tract definitions and metropolitan area boundaries change over time, no attempt is made to address the changing boundaries of census tracts since the interest is not in how poverty changes in each census tract but in the

relationship between census tract poverty rates and density within a metropolitan area. To control for shifting metropolitan area boundaries, census tracts are selected that fall entirely within or overlap 2010 metropolitan area boundaries.

However, metropolitan areas differ dramatically in their spatial structure. For example, it would be inappropriate to compare the relationship between the change in census tract poverty and 1990 census tract population density between New York City and Indianapolis. That is, a census tract with a population density of 5,000 people per square mile may be more of an inner-ring suburb in a city like Houston but more of a new suburban area in a metropolitan area like Chicago. So, it would be unwise to use population density alone as a measure to compare the position of a census tract on the urban–suburban continuum without first controlling for variations in spatial structure between metropolitan areas. To control for inter-metropolitan variations in spatial structure, census tract population density values are standardized within each metropolitan area to a mean of zero and standard deviation of 1. This allows for a one-to-one comparison of census tracts between metropolitan areas based upon the degree to which a census tract is urban or suburban relative to each metropolitan area's unique spatial structure.

Both to simplify the analysis and to account for inter-metropolitan differences in economic and demographic structure, the analysis then pools data for similar types of metropolitan areas according to an existing classification of metropolitan areas which is based primarily on population growth, population diversity, and education (Berube et al., 2010) (see Figure 3):
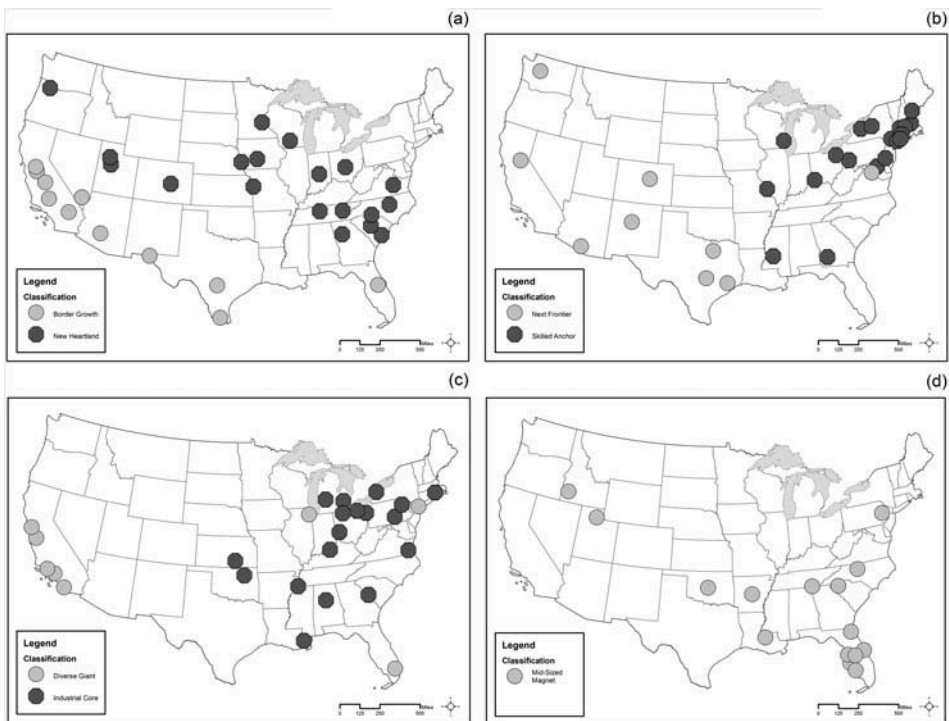

Figure 3.   Classification of metropolitan areas (Source: Author).

- Eight of the nine *Next Frontier* cities are west of the Mississippi river. These cities are rapidly growing, diverse, and well educated (e.g., Austin, TX; Seattle, WA; Dallas, TX; and Washington, DC). They are destinations for young internal migrants and their diverse and buoyant economies helped these cities escape the most extreme hardships of the deep recession of the late 2000s.
- *New Heartland* metropolitan areas include 19 cities that have diverse and vibrant service economies (e.g., Columbus, OH; Indianapolis, IN; Minneapolis, MN; and Columbia, SC). These are primarily in the Southeast and the Midwest and are characterized by high rates of population growth, low levels of diversity, and high educational attainment. Many of them have large universities, which is reflected in their relatively young age profile.
- *Diverse Growth* cities include many of the largest cities in the country (e.g., New York, NY; Chicago, IL; San Diego, CA; and San Francisco, CA). These nine cities have above average educational attainment and diversity but below average population growth due to their large sizes.
- There are 11 *Border Growth* cities along the southern United States border (e.g., Bakersfield, CA; Fresno, CA; Las Vegas, NV; and Riverside, CA). These cities have young, foreign-born populations with a high degree of educational inequality. They experienced rapid growth both through internal and international migration and were active in the housing boom and bust of the 1990s and 2000s.
- *Mid-Size Magnet* cities number 15 and are largely located in the South. These are slow-growing areas with low levels of educational attainment. Many of these are destinations for retirees and hence have an older age profile (e.g. Boise, ID; Cape Coral, FL; Jacksonville, FL; Lakeland, FL; and Tampa, FL).
- *Skilled Anchors* consist of 19 medium-to-large cities with diverse industrial economies in the Northeast quadrant of the country (e.g., Boston, MA; Hartford, CT; Philadelphia, PA; and Pittsburgh, PA). These cities have slow population growth, low levels of diversity and high levels of educational attainment.
- There are 18 *Industrial Core* cities of the Northeast and the South (e.g., Birmingham, AL; Buffalo, NY; Detroit, MI; and Providence, RI). These cities have slow population growth, low levels of diversity, and lower education levels.

The effect of standardized population density on census tract poverty is then estimated by type of metropolitan area for both 1990 and 2007–11 using fractional polynomial models. Fractional polynomial models provide an empirically driven and flexible approach to characterizing what is likely to be a curvilinear relationship between standardized census tract population density and census tract poverty rates. Following Royston and Altman (1994), fractional polynomial methods select from a suite of possible models of the form

$$\beta_0 + \beta_1 x^{(p_1)} + \beta_2 x^{(p_2)} + \ldots + \beta_m x^{(p_m)}$$

where for a power, p,

$$x^{(p)} = \begin{cases} x^p & \text{if} \quad p \neq 0 \\ \log x & \text{if} \quad p = 0 \end{cases}$$

Standard practice is then to select the best two-factor model based upon the overall model fit where the choice of powers is restricted to the set (-2, -1, -0.5, 0, 0.5, 1, and 2).

Results

Figures 4 through 10 present fractional polynomial curves for each of the seven types of metropolitan areas for both 1990 and 2007–11 with left-hand side values having higher densities (up to two standard deviations above the mean) and right-hand side values having lower densities (up to two standard deviations below the mean). In the most general sense, the relationship between population density and census tract poverty is similar across all seven types of cities in both 1990 and 2007–11: the poverty rate in the most densely settled tracts is about 25% to 30% which then declines to about 5% to 10%
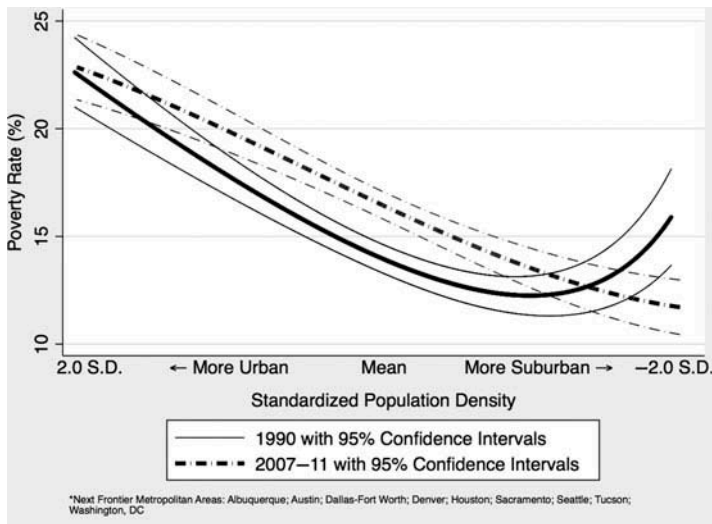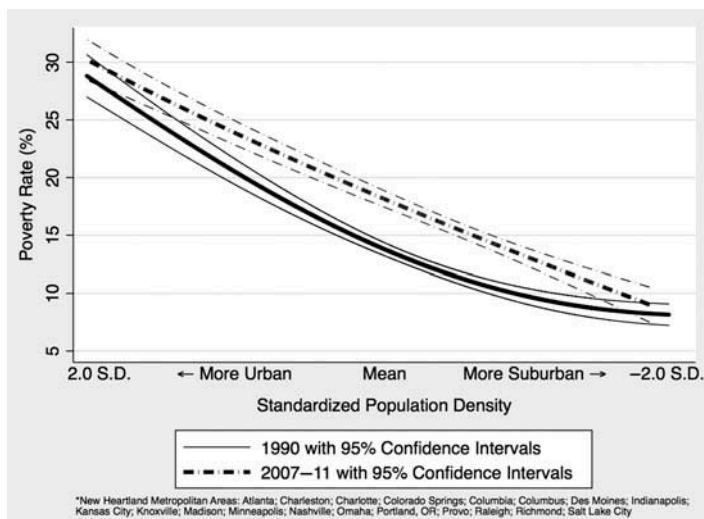

Figure 4.   Next Frontier cities* (Source: Author).

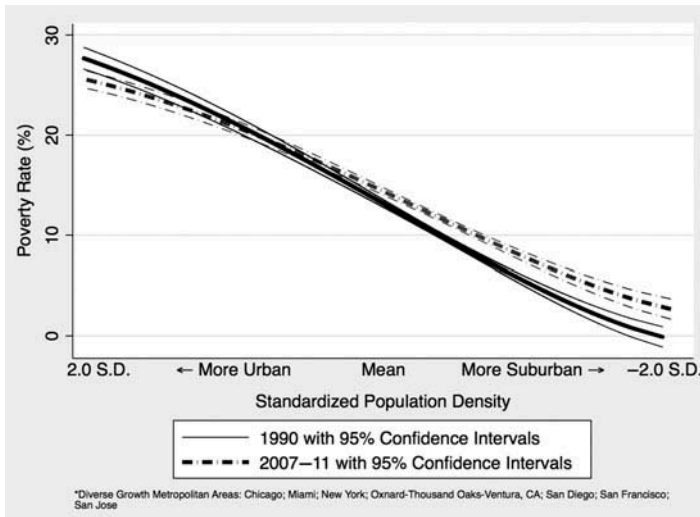

Figure 5.   New Heartland cities* (Source: Author).

Figure 6. Diverse Growth cities* (Source: Author).
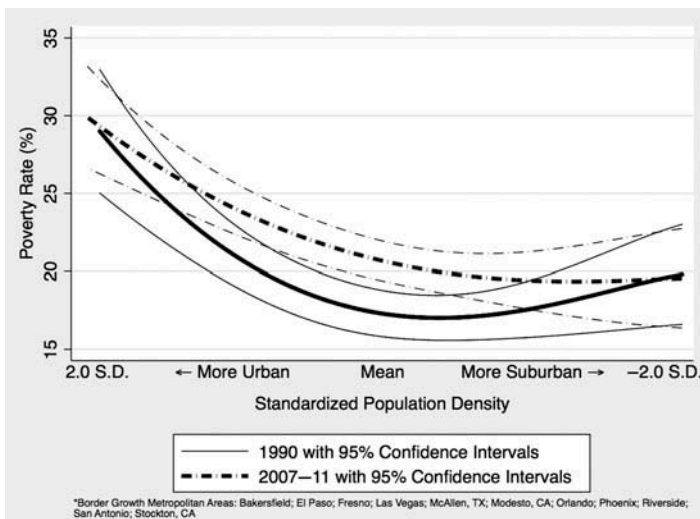

Figure 7. Border Growth cities* (Source: Author).

among the most sparsely settled tracts. In five of the seven types of cities (*Next Frontier, Border Growth, New Heartland, Mid-Sized Magnets*, and *Industrial Core* cities), this relationship between population density and census tract poverty is more convex in 1990 and more linear in 2007–11. As a result, these cities had an increase in poverty across the middle of the population density distribution. However, this effect is almost negligible among *Border Growth* cities. The exceptions to this pattern are *Diverse Growth* cities, which experienced an increase in poverty only in low-density neighborhoods, and *Skilled Anchors*, which had an increase in poverty in all types of neighborhoods.
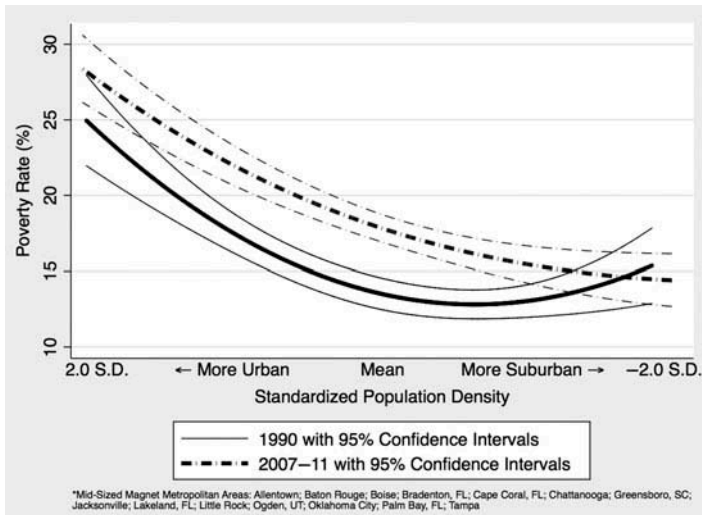
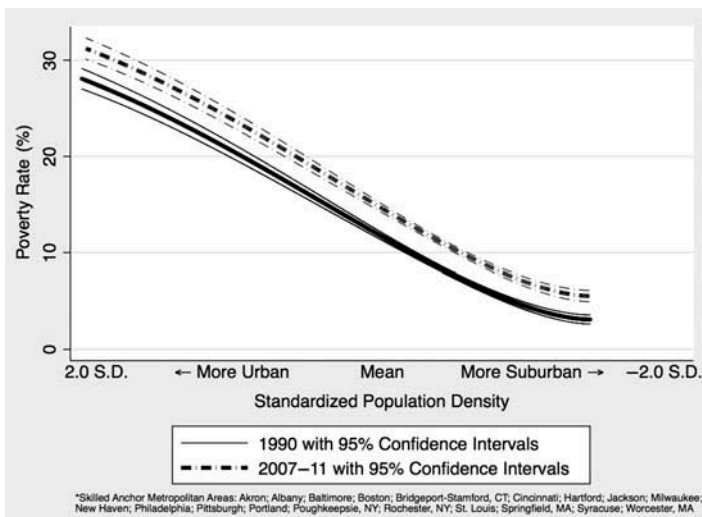Figure 8.   Mid-Sized Magnet cities* (Source: Author).

Figure 9.   Skilled Anchor cities* (Source: Author).

The expansion of poverty in the middle of the population density distribution among *Next Frontier, Border Growth, New Heartland, Mid-Sized Magnets*, and *Industrial Core* cities is consistent with previous research that points toward inner-ring suburbs as the locus of suburban poverty: smaller municipalities with an older housing stock, aging infrastructure, and high tax rates are unable to compete with newer suburbs for more affluent residents. This creates new housing opportunities for less affluent residents, resulting in an increase in poverty in medium-density neighborhoods at the boundary of the traditional urban core. The importance of the shifting location of housing opportunities
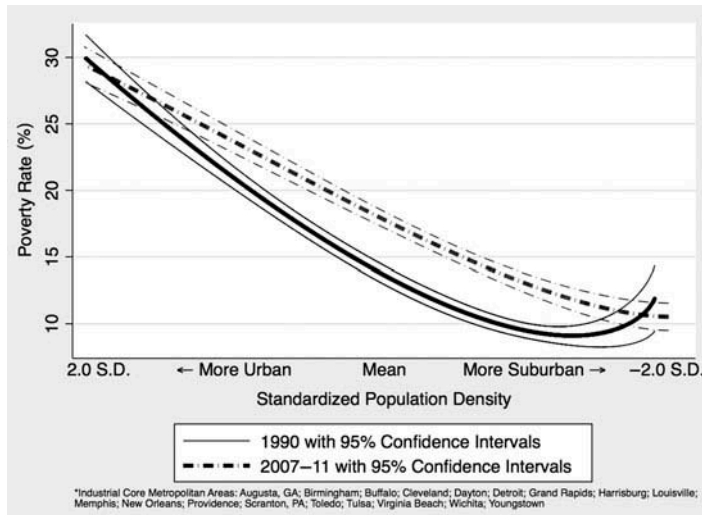
Figure 10.   Industrial Core cities* (Source: Author).

for less affluent residents in shaping the changing location of poverty may also explain the expansion of poverty in the low-density neighborhoods of large, *Diverse Growth* cities. In this case, however, high rates of gentrification in these cities suggest that the increase in poverty in low-density neighborhoods may be due to the lack of housing opportunities for at-risk populations in higher density neighborhoods.

These results also suggest that the long-term economic vitality of a metropolitan area may play a role in the emergence of poverty across the middle of the population density distribution. Specifically, cities that have enjoyed long-term economic vitality had the smallest increase in poverty across the middle of the population density distribution (i.e., *Border Growth* and *Next Frontier* cities), while cities experiencing long-term decline had an increase in poverty across all of the population density distribution (i.e., *Skilled Anchors*). Indeed, the recent housing and economic crisis appears to have had little effect on the shifting location of poverty. For example, *Border Growth* cities were particularly challenged by the housing and economic crisis but these saw the smallest increase in poverty at any location of the population density distribution.

Conclusions

This research qualifies the narrative of universal suburban decline. While suburban poverty appears to be on the increase in nearly every type of metropolitan area, its spatial expression appears to be contingent upon the particular characteristics of a metropolitan area. Thus, while poverty is increasing in the low-density suburbs of a handful of the largest metropolitan areas, the more general trend is of an increase in poverty in medium-density neighborhoods at the boundaries of the traditional urban core. Implicated are long-term trends in metropolitan area economic growth, a secular decline of inner-ring suburbs, and the shifting location of housing opportunities for at-risk populations in large cities.

This research has approached the problem of defining suburban space as an empirical issue. In the name of expediency, applied empirical urban research willfully ignores the high degree of misclassification caused by census-based definitions of "urban" and

"suburban." Alternative multivariate classification procedures may more accurately reflect the diversity of places along a continuum from "urban" to "suburban" but the complexities inherent to classification procedures mean that few studies will be replicated. This research presents a method that is less data and computationally intensive and is more likely to be replicated.

References

Allard, Scott W. (2004). *Access to social services: The changing urban geography of poverty and service provision*. Washington, DC: The Brookings Institution.

Berube, Alan, Frey, William H., Friedhoff, Alec, Garr, Emily, Emilia, Istrate, Kneebone, Elizabeth, & Wilson, Jill H. (2010). *State of Metropolitan America: On the front lines of demographic transformation*. Washington, DC: The Brookings Institution.

Cooke, Thomas J., & Marchant, Sarah Haight. (2006). The changing intrametropolitan location of high-poverty neighbourhoods in the US, 1990–2000. *Urban Studies*, *43*(11), 1971–1989.

Cooke, T. J. (2010). Residential mobility of the poor and the growth of poverty in inner-ring suburbs. *Urban Geography*, *31*(2), 179–193.

Cooke, T. J. (2014). Book review: Confronting suburban poverty in America. *Economic Development Quarterly*, *28*(2), 182.

Dreier, Peter, Swanstrom, Todd, & Mollenkopf, J. H. (2004). *Place matters: Metropolitics for the twenty-first century*. Lawrence: University Press of Kansas.

Fishman, Robert. (1987). *Bourgeois Utopias: The rise and fall of suburbia*. New York, NY: Basic Books.

Hanlon, Bernadette. (2008). The decline of older, inner suburbs in metropolitan America. *Housing Policy Debate*, *19*(3), 423–456.

Hanlon, Bernadette. (2009). A typology of inner-ring suburbs: Class, race, and ethnicity in US Suburbia. *City & Community*, *8*(3), 221–246.

Hanlon, Bernadette, Vicino, Thomas, & Short, John Rennie. (2006). The new metropolitan reality in the US: Rethinking the traditional model. *Urban Studies*, *43*(12), 2129–2143.

Holliday, A. L., & Dwyer, R. E. (2009). Suburban neighborhood poverty in U.S. metropolitan areas in 2000. *City & Community*, *8*(2), 155–176.

Howell, Aaron J., & Timberlake, Jeffrey M. (2013). Racial and ethnic trends in the suburbanization of poverty in US metropolitan areas, 1980–2010. *Journal of Urban Affairs*, *36*, 79–98.

Hudnut, William H. (2003). *Halfway to everywhere: A portrait of America's first-tier suburbs*. Washington, DC: Urban Land Institute.

Jackson, Kenneth T. (1985). *Crabgrass frontier*. New York, NY: Oxford University Press.

Jacobs, Jane. (1969). *The economy of cities*. New York, NY: Random House.

Jargowsky, Paul A. (1997). *Poverty and place: Ghettos, barrios, and the American city*. New York, NY: Russell Sage Foundation.

Jargowsky, Paul A. (2003). *Stunning progress, hidden problems: The dramatic decline of concentrated poverty in the 1990s*. Washington, DC: The Brookings Institution.

Kneebone, Elizabeth, & Berube, Alan. (2013a). *Confronting suburban poverty in America*. Washington, DC: Brookings Institution Press.

Kneebone, Elizabeth, & Berube, Alan. (2013b). Confronting suburban poverty in America. Retrieved from http://confrontingsuburbanpoverty.org/

Lee, Sugie. (2011). Analyzing intra-metropolitan poverty differentiation: Causes and consequences of poverty expansion to suburbs in the metropolitan Atlanta region. *The Annals of Regional Science*, *46*(1), 37–57.

Lee, Sugie, & Leigh, N G. (2007). Intrametropolitan spatial differentiation and decline of inner-ring suburbs: A comparison of four US metropolitan areas. *Journal of Planning Education and Research*, *27*(2), 146–164.

Leigh, Nancey Green, & Lee, Sugie. (2005). Philadelphia's space in between: Inner ring suburb evolution. *Opolis*, *1*(1), 13–32.

Madden, Janice Fanning. (2003). The changing spatial concentration of income and poverty among suburbs of large US metropolitan areas. *Urban Studies*, *40*(3), 481–503.

Marshall, A. (1890). *Principles of economics*. London: MacMillan.

Minnesota Population Center. (2011). *National historical geographic information system: Version 2.0*. Minneapolis: University of Minnesota.

Mumford, Lewis. (1961). *The city in history: Its origins, its transformations, and its prospects*. New York, NY: Harcourt, Brace & World.

Murphy, A. K. (2010). The symbolic dilemmas of suburban poverty: Challenges and opportunities posed by variations in the contours of suburban poverty. *Sociological Forum*, 25(3), 541–569.

Office of Management and Budget. (2010). 2010 standards for delineating metropolitan and micropolitan statistical areas. *Federal Register*, 75, 123.

Orfield, Myron. (2002). *American metropolitics: The new suburban reality*. Washington, DC: The Brookings Institution Press.

Pendall, Rolf, Weir, Margaret, & Narducci, Chris. (2013). *Governance and the geography of poverty: Why does suburbanization matter?* Berkeley: University of California.

Puentes, Robert, & Warren, David. (2006). *One-fifth of the nation: America's first suburbs in transition*. Washington, DC: Brookings Institution.

Reibel, Michael. (2011). Classification approaches in neighborhood research: Introduction and review. *Urban Geography*, 32(3), 305–316.

Royston, P., & Altman, D. G. (1994). Regression using fractional polynomials of continuous covariates: Parsimonious parametric modelling. *Applied Statistics*, 43, 429–467.

Schafran, Alex. (2013). Discourse and dystopia, American style: The rise of 'slumburbia' in a time of crisis. *City*, 17(2), 130–148.

Séguin, A.-M., Apparicio, Philippe, & Riva, Mylène. (2012). Identifying, mapping and modelling trajectories of poverty at the neighbourhood level: The case of Montréal, 1986–2006. *Applied Geography*, 35(1–2), 265–274.

Short, J. R., Hanlon, Bernadette, & Vicino, T. J. (2007). The decline of inner suburbs: The new suburban Gothic in the United States. *Geography Compass*, 1(3), 641–656.

Soja, Edward W. (2011). Regional urbanization and the end of the metropolitan era. In G. Bridge & S. Watson (Eds.), *The new Blackwell companion to the city* (pp. 679–689). London: Wiley-Blackwell.

Swanstrom, Todd, Casey, Colley, Flack, Robert, & Dreier, Peter. (2004). *Pulling apart: Economic segregation among suburbs and central cities in major metropolitan areas*. Washington, DC: The Brookings Institution.

U.S. Census. (2011). Urban area criteria for the 2010 census; notice. *Federal Register*, 76(164), 53030–53043.

Vicino, T. J. (2008a). The spatial transformation of first-tier suburbs, 1970 to 2000: The case of metropolitan Baltimore. *Housing Policy Debate*, 19(3), 479–518.

Vicino, T. J. (2008b). The quest to confront suburban decline: Political realities and lessons. *Urban Affairs Review*, 43(4), 553–581.