Urban Studies, Vol. 43, No. 11, 1971–1989, October 2006

The Changing Intrametropolitan Location of High-poverty Neighbourhoods in the US, 1990–2000

Thomas Cooke and Sarah Marchant

[Paper first received, June 2005; in final form, December 2005]

Summary. The purpose of this research is to explore the changing geographical distribution of high-poverty neighbourhoods both between and within American metropolitan areas between 1990 and 2000. Of particular concern is the relative shift in the number of high-poverty neighbourhoods between central-city, inner-ring and outer-ring suburbs. A classification scheme is developed for identifying these three types of area. The results indicate that there has been an increase in the number of high-poverty neighbourhoods in the urban cores of economically stagnant old industrial cities of the Northeast and an increase in the number of high-poverty inner-ring neighbourhoods in Los Angeles, metropolitan areas in California's Central Valley and a few selected rapidly growing Sunbelt metropolitan areas. The analysis indicates that an increase in the number of urban core high-poverty neighbourhoods is linked to the general health of a metropolitan area's economy and that an increase in the number of inner-ring high-poverty neighbourhoods is linked to rapid population growth.

Introduction

The geographical concentration of the urban poor is viewed as both a cause and a consequence of a range of social and economic issues. Research regarding the extent of high-poverty neighbourhoods has generally focused on the entire metropolitan area and assumed that most high-poverty neighbourhoods were within the central city. More recent research hints that the geographical distribution of high-poverty neighbourhoods may have been very slowly shifting over the past 20 years from central-city to suburban areas. Such a change may have significant policy implications because the inner-ring suburbs that are likely to be experiencing an increase in poverty concentrations do not have the resources to respond to associated social and economic issues.

The purpose of this research is to explore the changing geographical distribution of high-poverty neighbourhoods both between and within American metropolitan areas between 1990 and 2000. Of particular concern is the relative shift of in the number of high-poverty neighbourhoods between central-city, inner-ring and outer-ring suburbs. We develop a classification scheme for identifying these three types of area. This approach allows for the accurate comparison of the distribution of high-poverty neighbourhoods across metropolitan areas. It also addresses several significant limitations of previous research which tries to identify

Thomas Cooke is in the Department of Geography, University of Connecticut, U-4148 Storrs Connecticut, USA. Fax: 860 486 1348. E-mail: thomas.cooke@uconn.edu. Sarah Marchant is in the Planning Department, Town of Milford, Town Hall, 1 Union Square, Milford, NH 03055-4240. E-mail: s.marchant@milford.nh.gov

0042-0980 Print/1360-063X Online/06/111971–19
DOI: 10.1080/00420980600897818

suburbia relying upon political boundaries and census definitions.

Background

While there is a large body of research on neighbourhood poverty, the essential concepts are embodied in the work of Wilson (1987, 1996), Kasarda (1990, 1989), Massey and Denton (1993) and Jargowsky (1996). Wilson (1987, 1996) and Kasarda (1990, 1989) outlined how the combined forces of deindustrialisation, the suburbanisation of job opportunities and occupational bifurcation have economically isolated poorly educated working-class minorities. Compounding the economic problems of poor minorities is an increase in social isolation caused by continuing residential segregation and an increase in class-based residential segregation among minorities. As a result, poorly educated minorities have become economically and socially isolated, causing an increase in the concentration of urban poverty along with a host of interconnected social phenomena. In contrast, Massey and Denton (1993) argued that the increasing concentration of urban poverty is a reflection of the economic and social composition of the residents of high-poverty neighbourhoods because of racial and, to a lesser degree, economic segregation in the presence of a more general increase in poverty and economic inequality (see, for example, Danzinger and Gottschalk, 1995).

Jargowsky (1996) provided a more comprehensive view. In *Poverty and Place*, Jargowsky (1996) recognised that the processes described by Massey and Denton (1993) and Wilson (1987, 1996) are not mutually exclusive and devised a methodology to identify which factors have the greatest explanatory power. In his analysis of all high-poverty urban census tracts in the US, Jargowsky (1996) concluded that both the level of economic inequality within a metropolitan area and the level of class-based residential segregation are most strongly related to the concentration of urban poverty. Yet, Jargowsky (1996) found little evidence linking the concentration of urban poverty to either race-based residential segregation or the decentralisation of employment opportunities. Jargowsky concluded that

> The primary factors behind the increasing concentration of poverty are metropolitan economic growth and the general processes that create and sustain segregation by race and class. Metropolitan-level variables for economic opportunity and segregation can explain about four-fifths of the variation among metropolitan areas and about the same proportion of the changes in neighbourhood poverty over time (Jargowsky, 1996, p. 186).

More recent research, updated with data from the 2000 US Census, indirectly indicates a shift in the location of high-poverty tracts within metropolitan areas. Berube and Frey (2002) examined central-city and suburban poverty rates in the largest 102 US metropolitan areas. They found that the poverty rates of central cities declined in the 1990s but went up slightly in the suburbs: 49 per cent of all poor people resided in suburbs in 2000, up from 46 per cent in 1990. Kingsley and Pettit (2003) found that the suburban share of high-poverty neighbourhoods (greater than 30 per cent poverty) in the 100 largest US metropolitan areas increased from 11 per cent in 1980 to 15 per cent in 2000.

Jargowsky (2003) examined all high-poverty (greater than 40 per cent poverty) census tracts in the US between 1990 and 2000. He found that the number of people living in high-poverty neighbourhoods declined by 24 per cent between 1990 and 2000. The number of high-poverty neighbourhoods declined in rural and central-city areas, but there was no significant change in the number of suburban high-poverty neighbourhoods. Jargowsky conducted a descriptive evaluation of the changing intrametropolitan location of high-poverty neighbourhoods in Detroit, Chicago, Cleveland and Dallas and concluded that the poverty rates of many inner-ring suburban census tracts had increased in the 1990s

> It is clear from the data and maps presented here that there is a reason to be concerned about the prospects of inner-ring suburbs. If poverty in these areas rose during the strongest economy we can reasonably expect to enjoy, then they may well have a bleak future and develop many of the same fiscal and social concerns that plagued central cities in earlier periods (Jargowsky, 2003, p. 12).

The purpose of this research is to explore more thoroughly the changing intrametropolitan location of high-poverty neighbourhoods with a specific focus on the degree to which there is an increase in high-poverty neighbourhoods in inner-ring suburbs. Even though most poor people do not live in poor neighbourhoods, especially in the suburbs (Kingsley and Petit, 2002, 2003), the growth of concentrated poverty into inner-ring suburbs is of significant importance to public policy because inner-ring suburbs face a unique set of circumstances. They must cope with housing, school systems and infrastructures that are outdated and in some cases deteriorating along with highly fragmented government, declining incomes and an overreliance on property taxes. As well, public policy has in large part been developed to aid central cities and outer-ring suburbs and has ignored the problems faced by inner-ring suburbs (Hudnut, 2003; Lee and Leigh, 2005; Puentes and Orfield, 2002). Hudnut (2003) claims that "inner ring suburbs are caught in a policy blind spot" while Puentes and Orfield (2002, p. 10) note that "First suburbs are penalised for not being in severe states of decline, and are unable to receive resources . . . until it is too late".

This research begins by first devising a means for identifying inner-ring suburbs. Definitions of what constitutes an inner-ring suburb are highly localised in that they may include areas just outside census-defined central cities or may be inside census-defined central cities. The approach taken here is to ignore municipal boundaries and census definitions and to rely, instead, on a standardised method based on the age and density of housing for identifying the urban core, inner-ring suburbs and a residual category labelled outer-ring suburbs. The second part of the paper examines changes in the number of high-poverty census tracts in the metropolitan areas of the US across these three types of area. The data used to conduct this study are from the neighbourhood Change Database (NCDB) (Tatian, 2002). The NCDB rectifies 1970, 1980 and 1990 tract-level census data into 2000 census tract boundaries. The analysis includes the 264 consolidated metropolitan statistical areas and metropolitan statistical areas that are identified in the NCDB.

Identifying Suburban and Central-city Areas

In intrametropolitan research, the central city is usually defined with respect to the political boundaries of the census-designated central city (or cities) of a metropolitan area. Suburbs are then defined as a residual category; whatever parts of a metropolitan area are not in the central city are defined as suburban. These definitions mask some important differences in the characteristics of neighbourhoods both within and between metropolitan areas (Mikelbank, 2004). For example, in 2000, the Hartford, CT, metropolitan area had a population of 1 130 000 and the Jacksonville, FL, metropolitan area had a population of 1 100 000. However, the actual municipality of Hartford had a population of only 122 000 in an area of merely 17 square miles, while the municipality of Jacksonville had a population of 736 000 in an area of over 758 square miles.

These are obviously two extremes of 'underbounded' and 'overbounded' cities that demonstrate the difficulty of relying on census statistics to conduct comparative urban research on the characteristics of central cities and suburbs (Rusk, 1995). More specifically, some census-defined central cities may contain elements that are suburban in character and some census-defined suburban areas contain elements that are more urban in character. This is because the functional characteristics of a place are not necessarily directly related to their political jurisdiction. A large, sprawling political jurisdiction like Jacksonville is likely to contain large areas that are suburban in character and a small, underbounded city like Hartford contains no areas that would be considered suburban. As well, many of the suburbs of Hartford are more urban than suburban.

This research addresses these issues by classifying census tracts according to a three-tier system: the urban core; inner-ring suburbs; and, outer-ring suburbs (a residual category). The most important criterion is in differentiating between the original urban core which was established before widespread adoption of the automobile and wholesale suburbanisation (including streetcar suburbs) and inner-ring suburbs that were established during the first wave of post-WWII suburbanisation but before the low-density sprawl associated with the development of the interstate highway system (Hudnut, 2003; Lee and Leigh, 2005; Leigh and Lee, 2005; Lucy and Phillips, 2001; Puentes and Orfield, 2002).

The decision to base this analysis on census tracts and to ignore municipal boundaries is not unproblematic. A primary motivation for the paper is that an expansion in the number of high-poverty neighbourhoods into inner-ring suburban municipalities introduces some troubling policy issues. However, this approach classifies areas as urban core, inner-ring and outer-ring without regard for these municipal boundaries. This decision restricts the utility of these results for public policy but this approach is taken because the other primary motivation for the paper is that relying upon census definitions of central cities provides misleading images of high-poverty neighbourhoods. Therefore, the focus of this paper is on creating a set of definitions for urban core, inner-ring suburbs and outer-ring suburbs that can be compared across the metropolitan areas of the US to get an accurate intermetropolitan and intrametropolitan picture of the shifting locations of high-poverty neighbourhoods.

We started by replicating a method outlined by Leigh and Lee (2005) which uses GIS to construct housing density surfaces according to the age of a census tract's housing stock. Leigh and Lee (2005) sought to identify the central city as a relatively contiguous area of at least 400 housing units per square mile that were built before 1950. Similarly, they identified the inner ring as a relatively contiguous area of at least 400 housing units per square mile that were built between 1949 and 1970. Residual areas were classified as outer-ring suburbs. They successfully applied their method to the Philadelphia metropolitan area and validated their statistical definitions. We sought to apply the method to all of the metropolitan areas in the US. However, we found that the method did not give consistent results (see Marchant, 2005). There were metropolitan areas that had only one census tract identified as being part of the urban core (Ft Lauderdale, FL) and in some instances (such as Honolulu, HI) the urban core was broken into nearly a dozen isolated tracts. Leigh and Lee's (2005) approach deserves further attention but we chose, instead, to rely upon a simpler classification system that reflected their density-based definitions.

We begin by identifying the urban core. Consistent with Leigh and Lee (2005), 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 labelled as part of the urban core; tracts with greater than 400 1950–69 housing units per square mile; plus any continuous 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. The outer-ring suburbs are a residual category; any tract which has not been identified as central city or inner ring according to the method outlined above is labelled outer ring. To be forthright, this outer-ring category could also be labelled 'other', since there are some few cases where this last category contains enclaves within central-city and inner-ring areas. However, a visual inspection of the definitions demonstrates that this residual category is overwhelmingly dominated by outer-ring suburban tracts.

Figures 1 and 2 show the relationship between these areas for the Hartford, CT, and Jacksonville, FL, metropolitan areas. Both maps are drawn to the same scale. First, the maps show that the metropolitan areas are similar in total area but, as previously discussed, the census-defined central cities are quite different in size. Secondly, with respect to Hartford, the urban core extends beyond the underbounded municipality of Hartford into surrounding municipalities. Thirdly, the method also identifies several exclaves defined as being part of an urban core; these are consistent with the presence of the many small industrial mill towns that mark the New England landscape. Fourthly, the municipality of Jacksonville includes not only the entire urban core, but nearly all of the inner-ring suburbs and large numbers of outer-ring. These two examples demonstrate the futility of using census-defined categories for central city and suburban for intermetropolitan analysis. While there may be limitations to the definitions used in this study, the benefits of being able to use constant definitions for urban core, inner-ring and outer-ring suburbs are significant.

In the traditional approach, 58 per cent of the 51 437 tracts in all the metropolitan areas are classified as central-city tracts and the remaining are classified as suburban tracts. However, under the alternative approach, 30 per cent are classified as part of the urban core, 17 per cent as inner ring and 52 per cent as outer ring. This reflects

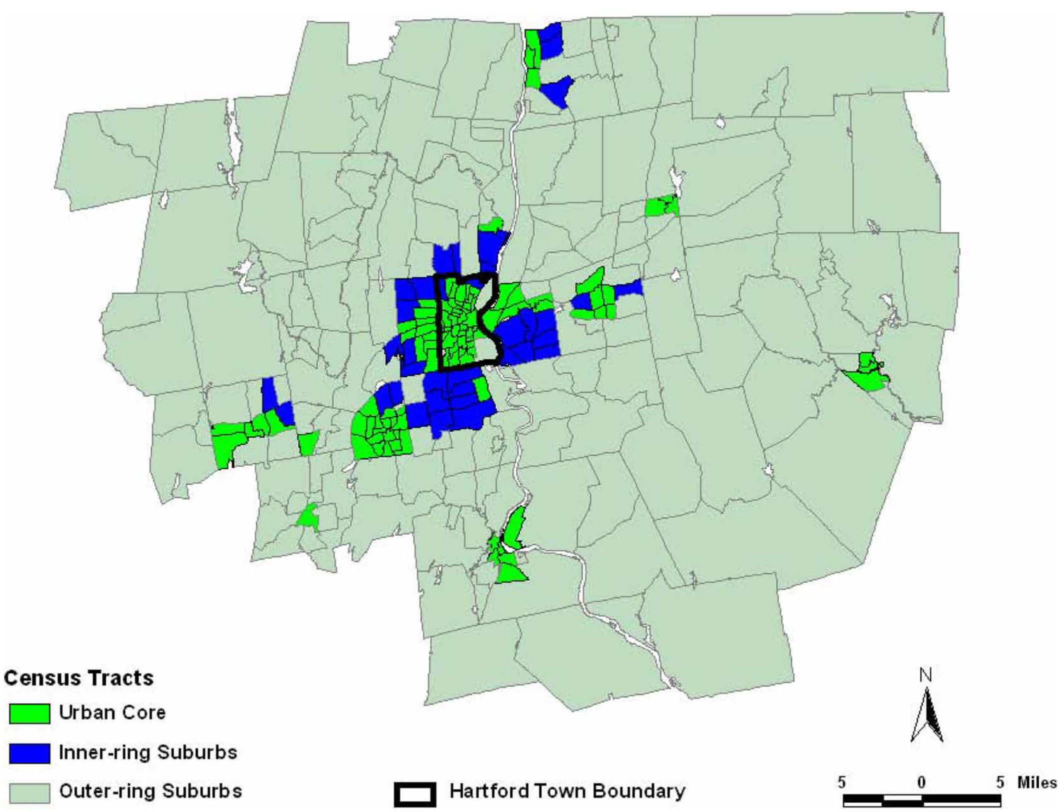

Figure 1. Hartford, CT, metropolitan area.

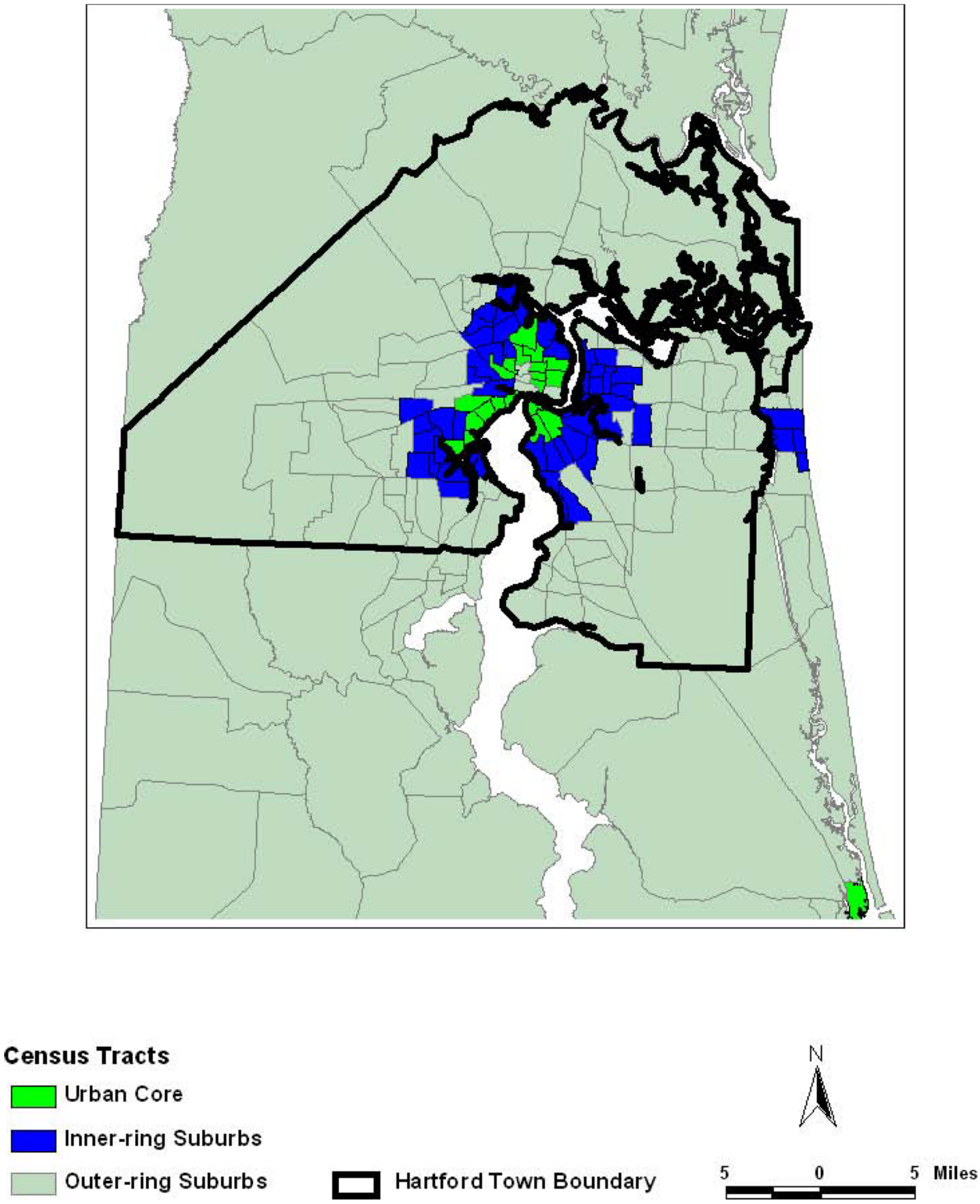

Figure 2. Jackson, FL, metropolitan area.

the fact that in many areas of the US the central city contains areas that were developed after WWII and were brought into the boundaries of the census-defined central city through annexation. Thus, the reclassification takes many areas previously classified as central city and reclassifies them as inner ring and outer ring: 19 per cent of central-city tracts are reclassified as inner-ring tracts and 29 per cent are reclassified as outer-ring tracts.

Analysis of the Changing Geographical Distribution of High-poverty Tracts

There have been a wide range of indicators used to identify urban underclass and high-poverty neighbourhoods (see Jargowsky and

Yang, 2005). While Jargowsky (2003) used a 40 per cent poverty rate threshold for identifying high-poverty tracts, we chose to follow Wilson (1987) and Kingsley and Pettit (2003) who identified high-poverty neighbourhoods as census tracts with at least 30 per cent of their population living in poverty. This ensures a larger sample size which allows for a finer level of analysis but at the same time the 30 per cent threshold includes only neighbourhoods which are experiencing significant distress. Table 1 lists the changing geographical distribution of high-poverty tracts according to census definitions. In 1990, 22 per cent of all central-city tracts had a poverty rate of at least 30 per cent. That number declined to 21 per cent in 2000. Among suburban tracts, there was virtually no change in the prevalence of high-poverty neighbourhoods (2.58 per cent in 1990 and 2.53 per cent in 2000). Table 2 lists the changing geographical distribution of high-poverty tracts according to the housing age and density-based definitions of urban core, inner-ring and outer-ring neighbourhoods. In 1990, 23 per cent of all urban core neighbourhoods were high-poverty, declining to 22 per cent in 2000. The share of inner-ring high-poverty census tracts was nearly constant, at 9.16 per cent in 1990 and 9.36 per cent in 2000. The proportion of outer-ring tracts that were high-poverty declined from 4.30 per cent in 1990 to 3.77 per cent in 2000.

The picture that emerges from Tables 1 and 2 is of very little change in the location of high-poverty neighbourhoods within metropolitan areas. Indeed, the only area that appears to be experiencing change is that outer-ring suburban high-poverty neighbourhoods are declining in number. This analysis would appear to indicate that the concern

Table 1. High-poverty neighbourhoods according to census-based definition (percentages)

Year	City	Suburb
1990	21.92	2.58
2000	20.88	2.53

Table 2. High-poverty neighbourhoods according to age- and density-based definition (percentages)

Year	Urban core	Inner-ring	Outer-ring
1990	22.93	9.16	4.30
2000	22.18	9.36	3.77

with the spread of high-poverty neighbourhoods into inner-ring suburbs is unfounded. Not only are there very few high-poverty inner-ring or outer-ring neighbourhoods, but they are not increasing in number. However, we are also concerned with intermetropolitan differences in the changing location of high-poverty tracts.

The Appendix lists the change in the number of high-poverty tracts between 1990 and 2000 for each of the 264 metropolitan areas. Los Angeles had the largest increase in the number of high-poverty tracts between 1990 and 2000 (153) and Chicago had the largest decline (−53). In all, 147 metropolitan areas experienced a decline in high-poverty tracts, 39 had no change and 78 had an increase. Among metropolitan areas with an increase in the number of high-poverty tracts, the median gain was 2 and among metropolitan areas with a decrease in the number of high-poverty tracts the median loss was 2. Thus, there are some metropolitan areas which experienced large shifts in the number of high-poverty tracts, but most metropolitan areas saw little change.

The Appendix also provides some information regarding the shifting intrametropolitan location of high-poverty tracts. A total of 110 metropolitan areas experienced a decline in high-poverty urban-core neighbourhoods, with Chicago having the largest decline (−51). A total of 59 experienced an increase in high-poverty urban-core neighbourhoods, with Los Angeles having the largest increase (153). Only 57 cities experienced a decline in high-poverty inner-ring neighbourhoods and among those Houston had the largest decrease (−14). As well, only 52 metropolitan areas had an increase in high-poverty inner-ring neighbourhoods and among those Los Angeles had the largest increase (38).

Finally, 104 experienced a decline in high-poverty outer-ring neighbourhoods and among those Austin, TX, and Brownsville, TX, both had the largest decrease in the number of high-poverty inner-ring neighbourhoods (−15). To summarise, most metropolitan areas either saw no change or an actual decline in the number of high-poverty neighbourhoods between 1990 and 2000. However, a smaller number of metropolitan areas witnessed increases in the total number of high-poverty neighbourhoods as well as increases in urban core, inner-ring or outer-ring areas. These patterns are clarified cartographically in Figures 3–6.

Figure 3 maps the total change in the number of high-poverty tracts in the US. Identified on the map are only those metropolitan areas with a total increase or decrease in the number of high-poverty tracts of at least 3. There are two easily identified clusters of increase in the total number of high-poverty tracts: Los Angeles and the metropolitan areas of California's Central Valley and, medium-sized old industrial cities of the Northeast. Jargowsky (2003) finds similar results and hypothesises that many of the Northeastern industrial cities never fully experienced the economic recovery of the 1990s and that the identified Southern California metropolitan areas have seen rapid population growth. This implies that economic health and population growth patterns may be related to increases in the number of high-poverty census tracts. There are several other metropolitan areas that also had an increase in the number of high-poverty neighbourhoods that are outside these two areas. With the exception of Washington, DC, these cities are either declining industrial cities that are similar to the cluster of Northeastern metropolitan areas (Lima, OH; Peoria, IL; Milwaukee, WI; Roanoke, VA; Raleigh, NC; Richmond, VA) or rapidly growing Sunbelt cities (Las Vegas, NV; Miami, FL; Winter Haven, FL; West Palm Beach, FL) that are similar to the California cluster.

Figure 4 maps the changes in the number of high-poverty tracts in urban-core areas. The

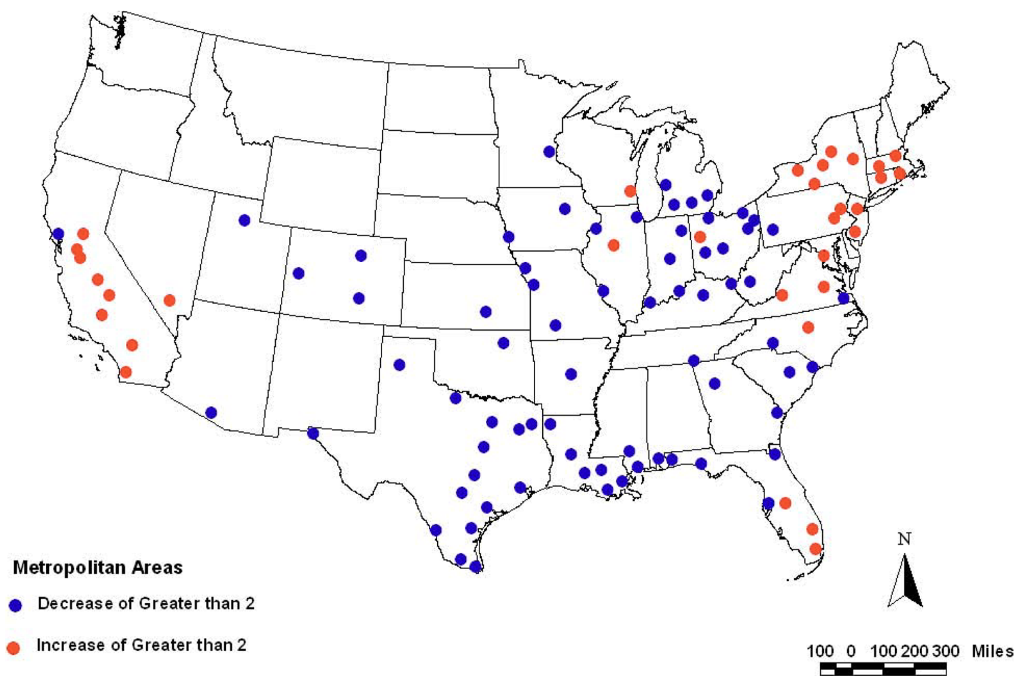

Figure 3. Change in the number of high-poverty census tracts in the US, 1990–2000.

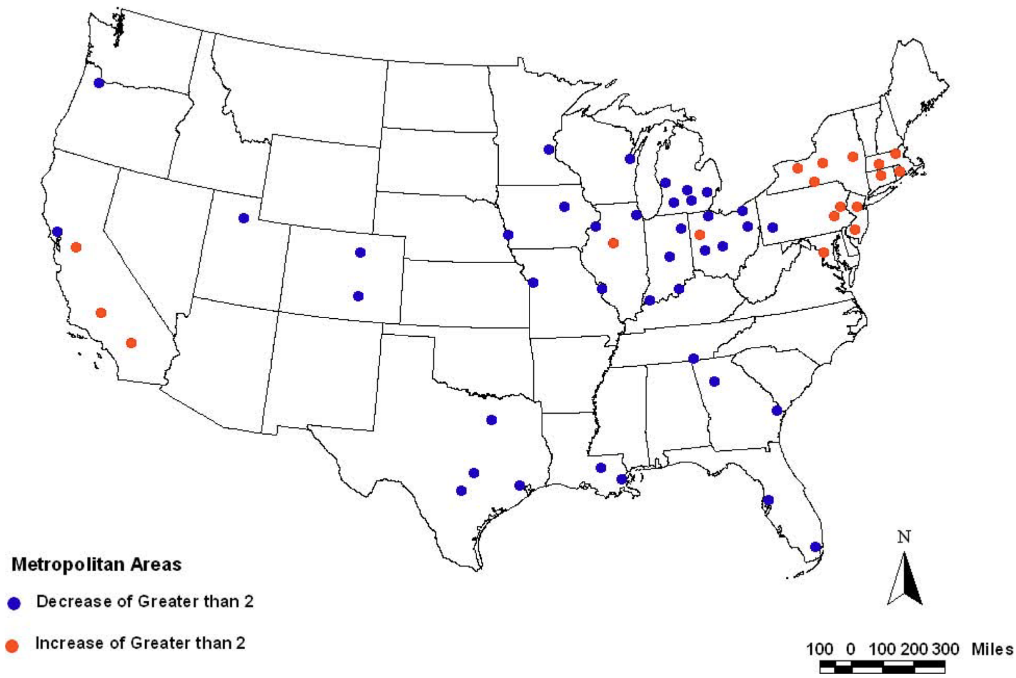

Figure 4. Change in the number of high-poverty census tracts in the US, 1990–2000: urban core.

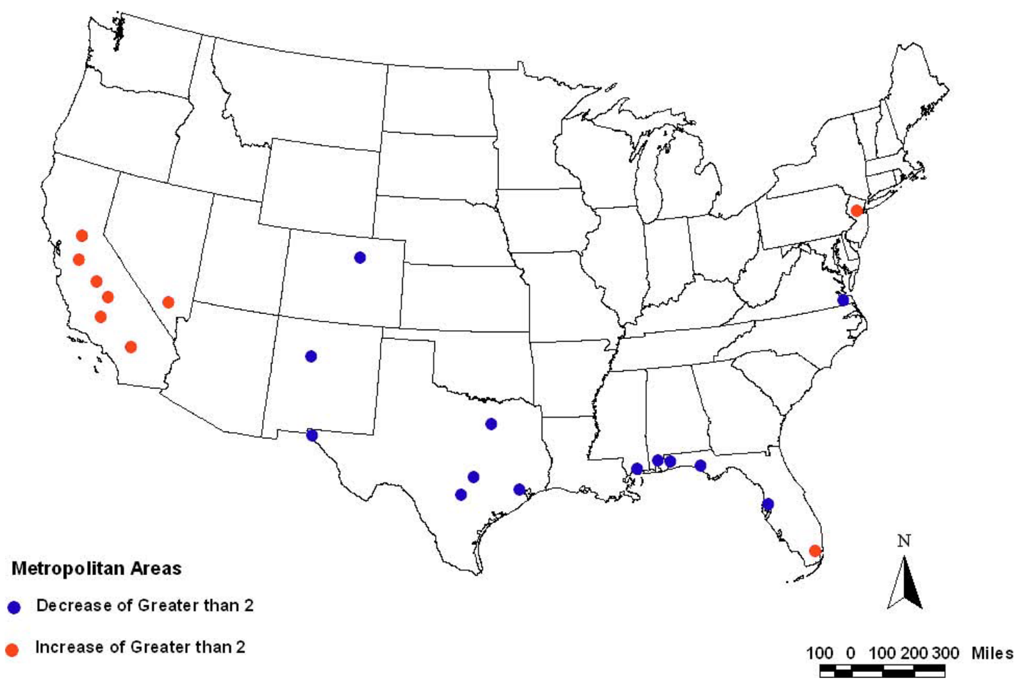

Figure 5. Change in the number of high-poverty census tracts in the US, 1990–2000: inner ring.

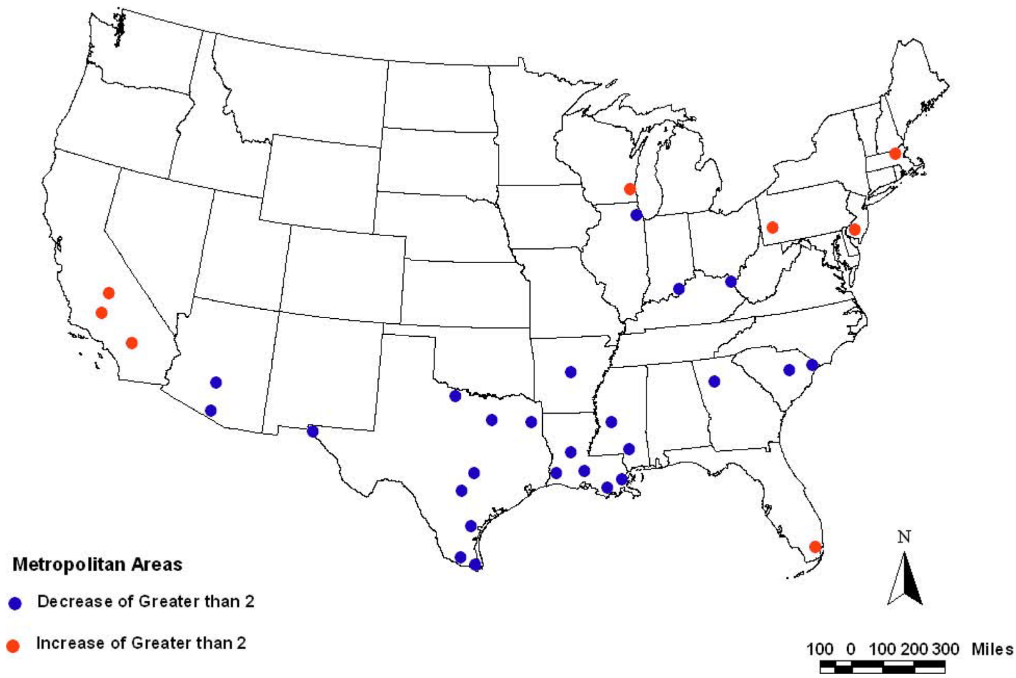

Figure 6. Change in the number of high-poverty census tracts in the US, 1990–2000: outer ring.

older industrial cities of the Northeast experienced significant increases in high-poverty neighbourhoods in urban core areas during the 1990s—as did Lima, OH, and Peoria, IL. These metropolitan areas did not enjoy the full benefits of the economic expansion of the 1990s as their economic decline in the 1980s carried over well into the 1990s. These patterns, especially in comparison with the decline in the number of high-poverty urban core areas of Midwestern industrial cities, reflect the significant economic problems of these cities. In contrast, Figure 5 indicates that Los Angeles and most of the California Central Valley metropolitan areas which had large general increases in the number of high-poverty census tracts also had large increases in the number of poor neighbourhoods in inner-ring suburbs. This is likely to be a reflection of the growth of large Hispanic-immigrant *barrios* in inner-ring areas of these metropolitan areas (Jargowsky, 2003). Finally, Figure 6 indicates that there are only eight metropolitan areas that had significant increases in the number of outer-ring high-poverty neighbourhoods. There is no clear or meaningful pattern, but the growth of high-poverty neighbourhoods in these metropolitan areas is not inconsistent with the patterns that have already been discussed.

To summarise

(1) Most metropolitan areas of the Midwest and Southern US saw marked improvements in the number of high-poverty census tracts as a whole and within the urban core, inner-ring, and outer-ring suburbs.
(2) Older industrial metropolitan areas of the Northeast experienced an increase in the number of high-poverty tracts, especially in the urban cores of those metropolitan areas. And
(3) Los Angeles, rapidly growing metropolitan areas of California's Central Valley and selected sunbelt cities (such as Las Vegas, NV; Winter Haven, FL; and Miami, FL) also had a rapid increase in

the number of high-poverty tracts, especially in inner-ring suburbs.

Thus, there does not appear to be a general increase in either the total number of high-poverty neighbourhoods or the number of suburban high-poverty neighbourhoods between 1990 and 2000. However, there was an increase in the number of high-poverty urban-core neighbourhoods in the Northeast and in the number of high-poverty suburban neighbourhoods in Los Angeles, metropolitan areas in California's Central Valley and a few selected rapidly growing Sunbelt metropolitan areas.

Jargowsky (1996) linked the expansion of high-poverty neighbourhoods to the economic health of metropolitan areas, segregation and income inequality. Additional factors are perhaps at work (Cooke, 1999; Jargowsky, 2003). The cities of the industrial Northeast suffer not only from continued and prolonged economic stagnation—a stagnation that the industrial cities of the Midwest have largely escaped—but also from highly fragmented political jurisdictions. As noted in the introduction, many of these cities, such as Hartford, Connecticut, have very small central cities with little political or economic power within their region. Rusk (1995) has argued that the ability to respond to urban problems such as concentrated urban poverty is directly linked to the political fragmentation of metropolitan areas. With respect to the expansion of poverty in California, there is likely to be a link with rapid population growth. Rapid immigration into a small city means that poorer populations may settle into communities outside the traditional urban core, causing an increase in the number of inner-ring high-poverty neighbourhoods (Jargowsky, 2003). Similar patterns may be at work among the general population moving into rapidly growing cities such as Las Vegas, NV, and Miami, FL, because of the immigration of low income service-sector workers.

These conclusions merit further investigation. To provide some additional verification, a set of simple models of changes in the number of high-poverty tracts in a metropolitan area is estimated as a function of six variables: a control variable for the number of census tracts at risk of becoming high-poverty tracts (total number of 'low'-poverty census tracts in 1990: census tracts with a poverty rate of less than 30 per cent); a control variable for the number of high-poverty tracts at risk of becoming low-poverty census tracts (total number of high-poverty census tracts in 1990); percentage population change since 1990; percentage change in foreign-born population since 1990; change in the health of the metropolitan economy (percentage change in median family income in 1990 and 2000); and, a measure of the degree to which a central city is underbounded or overbounded (the percentage of the metropolitan area's population living in the central city in 1990).

Table 3 presents the results for change in the number of high-poverty tracts for the entire metropolitan area, the urban core, inner-ring suburbs and outer-ring suburbs respectively. In none of the four models is the share of the metropolitan area's total population living in the central city or the percentage change in the foreign-born population significantly related to the change in the number of high-poverty census tracts. For each of the four models, the number of high-poverty and the number of low-poverty census tracts are both statistically significant and their parameter estimates are numerically similar across the four models. As well, the percentage change in median family income is also statistically significant in all four models. Thus, a decrease in median family income causes an increase in the number of high-poverty tracts and vice versa.

Differences in terms of the determinants of the change in the number of high-poverty neighbourhoods between urban core, inner-ring and outer-ring suburbs are observed. First, the parameter estimates for population change between 1990 and 2000 are only significant for inner-ring suburbs (although nearly significant for outer-ring suburbs). This is consistent with the growth of high-poverty inner-ring neighbourhoods in

Table 3. Analysis of change in total number of high poverty tracts

	All tracts		Urban-core tracts		Inner-ring tracts		Outer-ring tracts	
Variable	Parameter	Prob > |t|	Parameter	Prob > |t|	Parameter	Prob > |t|	Parameter	Prob > |t|
Intercept	1.1703	0.5551	2.3093	0.1289	0.3129	0.5288	0.8497	0.0443
Number of high-poverty tracts, 1990	−0.2396	<.0001	−0.1927	<.0001	−0.2006	<.0001	−0.2500	<.0001
Number of low-poverty tracts, 1990	0.0382	<.0001	0.0546	<.0001	0.0251	<.0001	0.0070	<.0001
Percentage population change, 1990–2000	0.0699	0.9904	7.2343	0.1432	3.4439	0.0176	2.3297	0.0652
Percentage change in median family income, 1990–2000	−57.5043	<.0001	−46.5397	<.0001	−11.6553	0.0002	−15.1761	<.0001
Percentage of metropolitan area's population in central city	4.7833	0.1660	2.2157	0.4355	0.2477	0.7623	0.4321	0.5509
Percentage change in foreign-born population, 1990–2000	−0.4167	0.7134	−0.1677	0.8476	0.2225	0.5110	−0.0178	0.9407
R^2	0.3857		0.3848		0.5292		0.4328	
Prob > |F|	<0.0001		<0.0001		<0.0001		<0.0001	

Figure 5. Metropolitan areas with rapid population growth experience an increase in inner-ring poverty. Since a small metropolitan area only has a small urban core region, the growth of high-poverty neighbourhoods can only take place in inner-ring suburbs. Such is the case not only in Southern California but also in rapidly growing Sunbelt metropolitan areas such as Las Vegas, NV. Secondly, the parameter estimate for the effect of changes in median family income on the expansion of high-poverty neighbourhoods is much larger for urban-core tracts than for inner-ring and outer-ring tracts. This is consistent with the growth of high-poverty urban-core neighbourhoods in Figure 4. Metropolitan areas with declining economies witnessed an expansion of high-poverty urban-core neighbourhoods in the 1990s, such as those in the older industrial cities of the Northeast.

Summary and Conclusions

An expansion of high-poverty neighbourhoods into inner-ring suburbs would be troubling because these communities do not have the resources to deal with the problems associated with the geographical concentration of large numbers of poor people. This research clearly indicates that there is no need to be concerned about the widespread increase of high-poverty neighbourhoods into inner-ring suburbs: The number of poor census tracts generally declined in the 1990s, especially in the South and Midwest. However, this research also indicates that the expansion of high-poverty neighbourhoods is a troubling issue in two areas of the country. In Los Angeles, California's Central Valley and other rapidly growing Sunbelt cities, there has been an increase in the number of high-poverty inner-ring suburbs affiliated with rapid population growth. And in declining old industrial cities of the Northeast there has been an expansion in the number of high-poverty tracts in urban core areas associated with stagnating metropolitan economies. These are important exceptions that should not be ignored. As Jargowsky wrote

> If poverty in these areas rose during the strongest economy we can reasonably expect to enjoy, then they may well have a bleak future and develop many of the same fiscal and social concerns that plagued central cities in earlier periods (Jargowsky, 2003, p. 12).

References

Berube, A. and Frey, W. H. (2002) *A Decade of Mixed Blessings: Urban and Suburban Poverty in Census 2000*. Washington, DC: The Brookings Institution.

Cooke, T. J. (1999) Geographic context and concentrated urban poverty in the United States, *Urban Geography*, 20, pp. 552–566.

Danzinger, S. and Gottschalk, P. (1995) *American Unequal*. New York: Russell Sage Foundation.

Hudnut, W. H. (2003) *Halfway to Everywhere: A Portrait of America's First-tier Suburbs*. Washington, DC: Urban Land Institute.

Jargowsky, P. A. (1996) *Poverty and Place: Ghettos, Barrios, and the American City*. New York: Russell Sage Foundation.

Jargowsky, P. A. (2003) *Stunning Progress, Hidden Problems: The Dramatic Decline of Concentrated Poverty in the 1990s*. Washington, DC: The Brookings Institution.

Jargowsky, P. A. and Yang, R. (2005) *The 'Underclass' Revisited: A Social Problem on the Decline*. Washington, DC: The Brookings Institution.

Kasarda, J. D. (1989) Urban industrial transition and the urban underclass, *Annals of the American Association of Political and Social Science*, 501, pp. 26–47.

Kasarda, J. D. (1990) Structural factors affecting the location and timing of urban underclass growth, *Urban Geography*, 11, pp. 234–264.

Kingsley, G. T. and Pettit, K. L. S. (2002) *Population Growth and Decline in City Neighborhoods*. Washington, DC: The Urban Institute.

Kingsley, G. T. and Pettit, K. L. S. (2003) *Concentrated Poverty: A Change in Course*. Washington, DC: The Urban Institute.

Lee, S. and Leigh, N. G. (2005) The role of inner ring suburbs in metropolitan smart growth strategies, *Journal of Planning Literature*, 19, pp. 330–346.

Leigh, N. G. and Lee, S. (2005) Philadelphia's space in between: inner ring suburb evolution, *Opolis*, 1, pp. 13–32.

LUCY, W. and PHILLIPS, D. (2001) *Suburbs and the Census: Patterns of Growth and Decline*. Washington, DC: The Brookings Institution.

MARCHANT, S. H. (2005) *The shifting landscape of concentrated metropolitan poverty, 1980–2000*. Department of Geography, University of Connecticut, Storrs, CT.

MASSEY, D. S. and DENTON, N. A. (1993) *American Apartheid: Segregation and the Making of the Underclass*. Cambridge, MA: Harvard University Press.

MIKELBANK, B. A. (2004) A typology of US suburban places, *Housing Policy Debate*, 15, pp. 935–963.

PUENTES, R. and ORFIELD, M. (2002) *Valuing America's First Suburbs: A Policy Agenda for Older Suburbs in the Midwest*. Washington, DC: The Brookings Institution.

RUSK, D. (1995) *Cities without Suburbs*. Washington, DC: Woodrow Wilson Center Press.

TATIAN, P. A. (2002) *Census CD Neighborhood Change Database (NCDB) Data Users' Guide: Short Form Release*. Washington, DC: The Urban Institute.

WILSON, W. J. (1987) *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy*. Chicago, IL: University of Chicago Press.

WILSON, W. J. (1996) *When Work Disappears: The World of the New Urban Poor*. New York: Alfred A. Knopf.

Appendix

Table A1. Change in number of high-poverty tracts from 1990 to 2000

Metropolitan Area	Total	Core	Inner	Outer
Abilene, TX	−2	−1	−2	1
Albany, GA	0	0	1	−1
Albany–Schenectady–Troy, NY	11	9	0	2
Albuquerque, NM	−2	0	−3	1
Alexandria, LA	−3	0	0	−3
Allentown–Bethlehem–Easton, PA	5	6	0	−1
Altoona, PA	1	1	0	0
Amarillo, TX	−3	−2	0	−1
Anchorage, AK	1	0	1	0
Anniston, AL	−2	−2	0	0
Appleton–Oshkosh–Neenah, WI	0	0	0	0
Asheville, NC	−2	−2	0	0
Athens, GA	1	0	−1	2
Atlanta, GA	−12	−7	0	−5
Auburn–Opelika, AL	0	0	0	0
Augusta–Aiken, GA–SC	−1	−1	1	−1
Austin–San Marcos, TX	−23	−5	−3	−15
Bakersfield, CA	14	3	8	3
Bangor, ME	−1	0	0	−1
Barnstable–Yarmouth, MA	.	.	.	.
Baton Rouge, LA	−4	−3	−1	0
Beaumont–Port Arthur, TX	1	−1	1	1
Bellingham, WA	1	0	0	1
Benton Harbor, MI	−1	−1	0	0
Billings, MT	0	0	0	0
Biloxi–Gulfport–Pascagoula, MS	−6	−1	−3	−2
Binghamton, NY	2	2	0	0
Birmingham, AL	2	1	2	−1
Bismarck, ND	.	.	.	.
Bloomington, IN	0	0	0	0
Bloomington–Normal, IL	−1	−1	0	0
Boise City, ID	0	−1	0	1
Boston–Worcester–Lawrence, MA–NH–ME–CT	11	8	0	3

(*Table continued*)

Table A1. Continued

Metropolitan Area	Total	Core	Inner	Outer
Brownsville–Harlingen–San Benito, TX	−16	1	−2	−15
Bryan–College Station, TX	1	0	0	1
Buffalo–Niagara Falls, NY	−2	−2	1	−1
Burlington, VT	−1	−1	0	0
Canton–Massillon, OH	−3	−3	0	0
Casper, WY	0	0	0	0
Cedar Rapids, IA	−2	−2	0	0
Champaign–Urbana, IL	−1	0	0	−1
Charleston–North Charleston, SC	2	0	0	2
Charleston, WV	−3	−1	0	−2
Charlotte–Gastonia–Rock Hill, NC–SC	−5	−1	−2	−2
Charlottesville, VA	2	0	0	2
Chattanooga, TN–GA	−4	−4	0	0
Cheyenne, WY	.	.	.	.
Chicago–Gary–Kenosha, IL–IN–WI	−58	−51	2	−9
Chico–Paradise, CA	−1	0	0	−1
Cincinnati–Hamilton, OH–KY–IN	−2	−2	0	0
Clarksville–Hopkinsville, TN–KY	−1	−1	0	0
Cleveland–Akron, OH	−24	−22	0	−2
Colorado Springs, CO	−1	−1	0	0
Columbia, MO	0	1	0	−1
Columbia, SC	2	1	2	−1
Columbus, GA–AL	2	1	0	1
Columbus, OH	−13	−9	−2	−2
Corpus Christi, TX	−7	0	−1	−6
Corvallis, OR	0	0	0	0
Cumberland, MD–WV	−2	−2	0	0
Dallas–Fort Worth, TX	−36	−13	−9	−14
Danville, VA	0	1	0	−1
Davenport–Moline–Rock Island, IA–IL	−4	−4	0	0
Dayton–Springfield, OH	−4	−3	−1	0
Daytona Beach, FL	0	0	0	0
Decatur, AL	1	0	0	1
Decatur, IL	−1	−1	0	0
Denver–Boulder–Greeley, CO	−23	−17	−4	−2
Des Moines, IA	−2	−2	0	0
Detroit–Ann Arbor–Flint, MI	−49	−48	−2	1
Dothan, AL	1	0	0	1
Dover, DE	−1	0	0	−1
Dubuque, IA	−1	−1	0	0
Duluth–Superior, MN–WI	−2	−1	0	−1
Eau Claire, WI	0	0	0	0
El Paso, TX	−10	1	−5	−6
Elkhart–Goshen, IN	−2	−2	0	0
Elmira, NY	3	3	0	0
Enid, OK	.	.	.	.
Erie, PA	1	1	0	0
Eugene–Springfield, OR	1	−1	1	1
Evansville–Henderson, IN–KY	−4	−4	0	0
Fargo–Moorhead, ND–MN	−1	0	0	−1
Fayetteville, NC	0	0	0	0
Fayetteville–Springdale–Rogers, AR	1	0	0	1
Flagstaff, AZ–UT	−2	0	0	−2

(*Table continued*)

Table A1. Continued

Metropolitan Area	Total	Core	Inner	Outer
Florence, AL	2	1	0	1
Florence, SC	−2	0	0	−2
Fort Collins–Loveland, CO	−2	−2	0	0
Fort Myers–Cape Coral, FL	0	1	1	−2
Fort Pierce–Port St. Lucie, FL	−1	0	0	−1
Fort Smith, AR–OK	−1	0	0	−1
Fort Walton Beach, FL	1	0	1	0
Fort Wayne, IN	−3	−3	0	0
Fresno, CA	4	−2	6	0
Gadsden, AL	2	1	1	0
Gainesville, FL	1	0	1	0
Glens Falls, NY	.	.	.	.
Goldsboro, NC	0	0	−1	1
Grand Forks, ND–MN	0	0	0	0
Grand Junction, CO	−3	−2	0	−1
Grand Rapids–Muskegon–Holland, MI	−11	−10	0	−1
Great Falls, MT	0	0	0	0
Green Bay, WI	−2	−3	0	1
Greensboro–Winston-Salem–High Point, NC	1	0	2	−1
Greenville, NC	−1	0	0	−1
Greenville–Spartanburg–Anderson, SC	2	1	−1	2
Harrisburg–Lebanon–Carlisle, PA	1	1	−1	1
Hartford, CT	14	11	2	1
Hattiesburg, MS	−3	0	0	−3
Hickory–Morganton–Lenoir, NC	.	.	.	.
Honolulu, HI	3	1	1	1
Houma, LA	−4	0	−1	−3
Houston–Galveston–Brazoria, TX	−23	−8	−14	−1
Huntington–Ashland, WV–KY–OH	−5	1	0	−6
Huntsville, AL	1	0	0	1
Indianapolis, IN	−6	−5	0	−1
Iowa City, IA	−2	0	−1	−1
Jackson, MI	−3	−3	0	0
Jackson, MS	−2	0	1	−3
Jackson, TN	0	0	0	0
Jacksonville, FL	−4	−2	−2	0
Jacksonville, NC	0	0	0	0
Jamestown, NY	1	0	0	1
Janesville–Beloit, WI	−1	−1	0	0
Johnson City–Kingsport–Bristol, TN–VA	0	1	−2	1
Johnstown, PA	0	0	0	0
Jonesboro, AR	−1	0	0	−1
Joplin, MO	.	.	.	.
Kalamazoo–Battle Creek, MI	−7	−5	0	−2
Kansas City, MO–KS	−14	−14	1	−1
Killeen–Temple, TX	−1	0	0	−1
Knoxville, TN	2	1	2	−1
Kokomo, IN	.	.	.	.
La Crosse, WI–MN	−1	0	0	−1
Lafayette, LA	−15	0	−1	−14
Lafayette, IN	−2	−1	0	−1
Lake Charles, LA	−2	−1	2	−3
Lakeland–Winter Haven, FL	3	0	2	1

(*Table continued*)

Table A1. Continued

Metropolitan Area	Total	Core	Inner	Outer
Lancaster, PA	2	2	0	0
Lansing–East Lansing, MI	−2	−3	0	1
Laredo, TX	−4	−1	−2	−1
Las Cruces, NM	0	0	1	−1
Las Vegas, NV–AZ	5	0	3	2
Lawrence, KS	0	0	0	0
Lawton, OK	−1	−1	−1	1
Lewiston–Auburn, ME	1	1	0	0
Lexington, KY	−3	0	−1	−2
Lima, OH	3	3	0	0
Lincoln, NE	−1	−2	0	1
Little Rock–North Little Rock, AR	−3	−1	1	−3
Longview–Marshall, TX	−4	0	0	−4
Los Angeles–Riverside–Orange County, CA	153	94	39	20
Louisville, KY–IN	−8	−4	−1	−3
Lubbock, TX	−2	0	−1	−1
Lynchburg, VA	−2	−1	0	−1
Macon, GA	1	−1	2	0
Madison, WI	−1	0	−1	0
Mansfield, OH	−2	−2	0	0
McAllen–Edinburg–Mission, TX	−8	0	0	−8
Medford–Ashland, OR	2	1	1	0
Melbourne–Titusville–Palm Bay, FL	0	0	−1	1
Memphis, TN–AR–MS	1	1	2	−2
Merced, CA	1	0	0	1
Miami–Fort Lauderdale, FL	6	−6	5	7
Milwaukee–Racine, WI	3	−1	0	4
Minneapolis–St. Paul, MN–WI	−20	−18	0	−2
Missoula, MT	1	2	0	−1
Mobile, AL	−7	0	−5	−2
Modesto, CA	6	1	4	1
Monroe, LA	0	0	1	−1
Montgomery, AL	0	0	1	−1
Muncie, IN	0	−1	0	1
Myrtle Beach, SC	−5	0	0	−5
Naples, FL	0	0	0	0
Nashville, TN	−2	1	−2	−1
New London–Norwich, CT–RI	−1	−1	0	0
New Orleans, LA	−14	−5	−2	−7
New York–Northern New Jersey–Long Island, NY–NJ–CT–PA	65	57	7	1
Norfolk–Virginia Beach–Newport News, VA–NC	−4	−2	−3	1
Ocala, FL	1	0	0	1
Odessa–Midland, TX	−2	0	−1	−1
Oklahoma City, OK	0	−1	1	0
Omaha, NE–IA	−6	−6	0	0
Orlando, FL	−2	−1	−2	1
Owensboro, KY	−2	−1	0	−1
Panama City, FL	−3	0	−3	0
Parkersburg–Marietta, WV–OH	0	0	0	0
Pensacola, FL	−5	−1	−3	−1
Peoria–Pekin, IL	3	3	0	0
Philadelphia–Wilmington–Atlantic City, PA–NJ–DE–MD	36	33	0	3
Phoenix–Mesa, AZ	−1	0	2	−3

(*Table continued*)

Table A1. Continued

Metropolitan Area	Total	Core	Inner	Outer
Pine Bluff, AR	−1	0	1	−2
Pittsburgh, PA	−4	−7	0	3
Pittsfield, MA	−1	0	0	−1
Pocatello, ID	0	0	0	0
Portland, ME	−1	−1	0	0
Portland–Salem, OR–WA	−2	−4	1	1
Providence–Fall River–Warwick, RI–MA	12	12	0	0
Provo–Orem, UT	−1	0	0	−1
Pueblo, CO	−10	−7	−1	−2
Punta Gorda, FL	.	.	.	.
Raleigh–Durham–Chapel Hill, NC	3	1	2	0
Rapid City, SD	1	0	0	1
Reading, PA	4	4	0	0
Redding, CA	1	1	0	0
Reno, NV	.	.	.	.
Richland–Kennewick–Pasco, WA	0	0	1	−1
Richmond–Petersburg, VA	4	1	2	1
Roanoke, VA	4	2	1	1
Rochester, MN	−1	0	0	−1
Rochester, NY	7	8	0	−1
Rockford, IL	−1	1	−1	−1
Rocky Mount, NC	2	0	0	2
Sacramento–Yolo, CA	10	2	7	1
Saginaw–Bay City–Midland, MI	−1	−1	0	0
St. Cloud, MN	−1	−1	0	0
St. Joseph, MO	−3	−2	0	−1
St. Louis, MO–IL	−7	−7	−1	1
Salinas, CA	−1	0	−1	0
Salt Lake City–Ogden, UT	−5	−5	0	0
San Angelo, TX	−2	0	−2	0
San Antonio, TX	−28	−17	−6	−5
San Diego, CA	5	1	2	2
San Francisco–Oakland–San Jose, CA	−10	−8	0	−2
San Luis Obispo–Atascadero–Paso Robles, CA	2	1	0	1
Santa Barbara–Santa Maria–Lompoc, CA	0	1	−1	0
Santa Fe, NM	0	0	0	0
Sarasota–Bradenton, FL	2	0	0	2
Savannah, GA	−4	−3	−1	0
Scranton–Wilkes-Barre–Hazleton, PA	−2	−2	0	0
Seattle–Tacoma–Bremerton, WA	−1	−2	1	0
Sharon, PA	−1	−1	0	0
Sheboygan, WI	−1	−1	0	0
Sherman–Denison, TX	−2	0	−1	−1
Shreveport–Bossier City, LA	−3	0	−1	−2
Sioux City, IA–NE	0	−1	0	1
Sioux Falls, SD	.	.	.	.
South Bend, IN	−1	−1	0	0
Spokane, WA	−2	−1	0	−1
Springfield, IL	−1	−2	1	0
Springfield, MO	−3	−1	0	−2
Springfield, MA	3	3	0	0
State College, PA	0	0	0	0
Steubenville–Weirton, OH–WV	0	1	0	−1

(*Table continued*)

Table A1. Continued

Metropolitan Area	Total	Core	Inner	Outer
Stockton–Lodi, CA	7	7	−1	1
Sumter, SC	−6	0	0	−6
Syracuse, NY	9	9	0	0
Tallahassee, FL	−2	0	0	−2
Tampa–St. Petersburg–Clearwater, FL	−6	−3	−3	0
Terre Haute, IN	−1	−2	0	1
Texarkana, TX–Texarkana, AR	1	0	0	1
Toledo, OH	−6	−4	−1	−1
Topeka, KS	0	1	0	−1
Tucson, AZ	−3	−2	2	−3
Tulsa, OK	−5	−1	−2	−2
Tuscaloosa, AL	1	0	1	0
Tyler, TX	−3	−1	−1	−1
Utica–Rome, NY	4	2	0	2
Victoria, TX	−4	−1	−1	−2
Visalia–Tulare–Porterville, CA	10	1	3	6
Waco, TX	−3	−2	−1	0
Washington–Baltimore, DC–MD–VA–WV	14	12	1	1
Waterloo–Cedar Falls, IA	−3	−3	0	0
Wausau, WI	−1	−1	0	0
West Palm Beach–Boca Raton, FL	3	0	1	2
Wheeling, WV–OH	1	1	0	0
Wichita, KS	−4	−2	−2	0
Wichita Falls, TX	−4	−1	0	−3
Williamsport, PA	0	0	0	0
Wilmington, NC	−2	−1	0	−1
Yakima, WA	−2	0	0	−2
York, PA	2	2	0	0
Youngstown–Warren, OH	−3	−1	0	−2
Yuba City, CA	0	0	0	0
Springfield, MA	.	.	.	.