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Author

Mikelbank, Brian A.

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Local Growth Suburbs: Investigating Change within the Metropolitan Context

Brian A. Mikelbank
Cleveland State University

Abstract

Recent growth in U.S. suburbs has generated much academic research and discussion. While some research has taken the direction of investigating the topics of sprawl, spatial mismatch, and smart growth, other research has focused on the nature of the suburban places themselves. Why do some places grow, while others do not? What is the nature of the complex relationships between a suburb's characteristics and its growth performance?

That growth performance often is measured as a simple growth rate, and although such efforts have led to a better understanding of suburban dynamics, it has left spatial and conceptual gaps in our understanding of suburbs. The research presented here considers a suburb's growth relative to that of its metropolitan area. This approach allows for the identification, for example, of places that are outperforming their home region but have a moderate or even negative growth rate. Analyses based on this local growth perspective shed additional light on, and raise additional questions about, what one might traditionally consider a successful suburb.

Keywords: Suburban Growth and Decline, Relative Growth, Location Quotient

Introduction

It is hard to tell which is occurring more rapidly: Sunbelt-style suburban change, or the body of research in which such change takes center stage. Certainly, the rapid growth that has befallen these locations gathers much attention – what brings about such change in some locations while others are stagnant or declining?

When research into suburban dynamics is national in scope, the focus often is on

the top *national* performers – the suburbs whose growth characteristics stand out when compared with all other suburbs in the country. Examining successful suburbs from this perspective has yielded valuable insight, but leaves *conceptual* gaps in our understanding of the suburban landscape because focusing on what growing locations have in common may neglect aspects of what their regions have in common. Similarly, this line of research also leaves

regional gaps in our understanding since these “top” places often are unequally distributed across regions of the country.

The research discussed here takes two steps toward addressing these gaps. First, population growth is calculated at the suburban level, but evaluated at the metropolitan level. This permits each suburb’s performance to be judged against a relevant comparison group – suburbs of its own metropolitan area. This will highlight suburbs that have been successful within their own local context, but whose growth may be lackluster compared with other metropolitan areas or national standards. Second, the research is based on suburbs in the metropolitan counties of East North Central and Middle Atlantic states. The metropolitan areas of these states, shown with the study area suburbs in Figure 1, have garnered little attention in recent suburban research. By considering population growth relative to each suburb’s local context and focusing on a less-studied portion of the country’s suburban landscape, the research presented here identifies, analyzes, and compares an under-studied group of suburbs, in terms of both their growth definition and location.

Background and related research

The research most directly relevant to that reported here can be separated conveniently into two broad types: threshold and descriptive. Central to threshold research is the definition of single- or multiple-threshold levels of characteristics that must be attained in order for a suburban locality to be included in some defined subgroup of suburbs considered in the analysis. These levels generally are defined globally, in that there is a single threshold level that applies to the entire study region. These subgroups are then studied to provide better understanding of their nature – differences between subgroups can yield insight into

each subgroup’s performance. While a theoretical grounding for particular levels of a given threshold may be lacking, these composite, and globally defined threshold approaches, have produced interesting insights into select groups of suburban places.

The classic example of this approach is Garreau’s (1991) well-known concept of edge cities. Edge cities are locations that over approximately 30 years have transformed from rural or residential locations to bustling mixed-use destinations having at least 5 million square feet of leasable office space, at least 600,000 square feet of leasable retail space, and a larger daytime population than nighttime population. Focusing exclusively on the economic activity of the area necessitated the incorporation of various data sources, and a side effect of this is a loose geography. Thus, while the areas are recognizable as known destinations, in many cases they do not coincide with political or administrative boundaries. Garreau notes that the definition leaves room for opinion and judgment, and thus our idea of edge cities likely excludes some relevant areas while including others that meet only some of the criteria. The definition, presentation, and analysis of edge cities sparked much debate and discussion among urban analysts. It also initiated similar research efforts aimed at defining particular subgroups of suburban locations for the purpose of further investigation, analysis, and understanding.

For example, Lang and Simmons (2001) identified a group of suburban locations that they label “Boomburbs.” To be a Boomburb, a city must meet the following threshold conditions: (1) they have a population of at least 100,000, (2) they are not the largest city in their metropolitan area, and (3) they have experienced at least 10 percent growth between each decennial census since 1950.

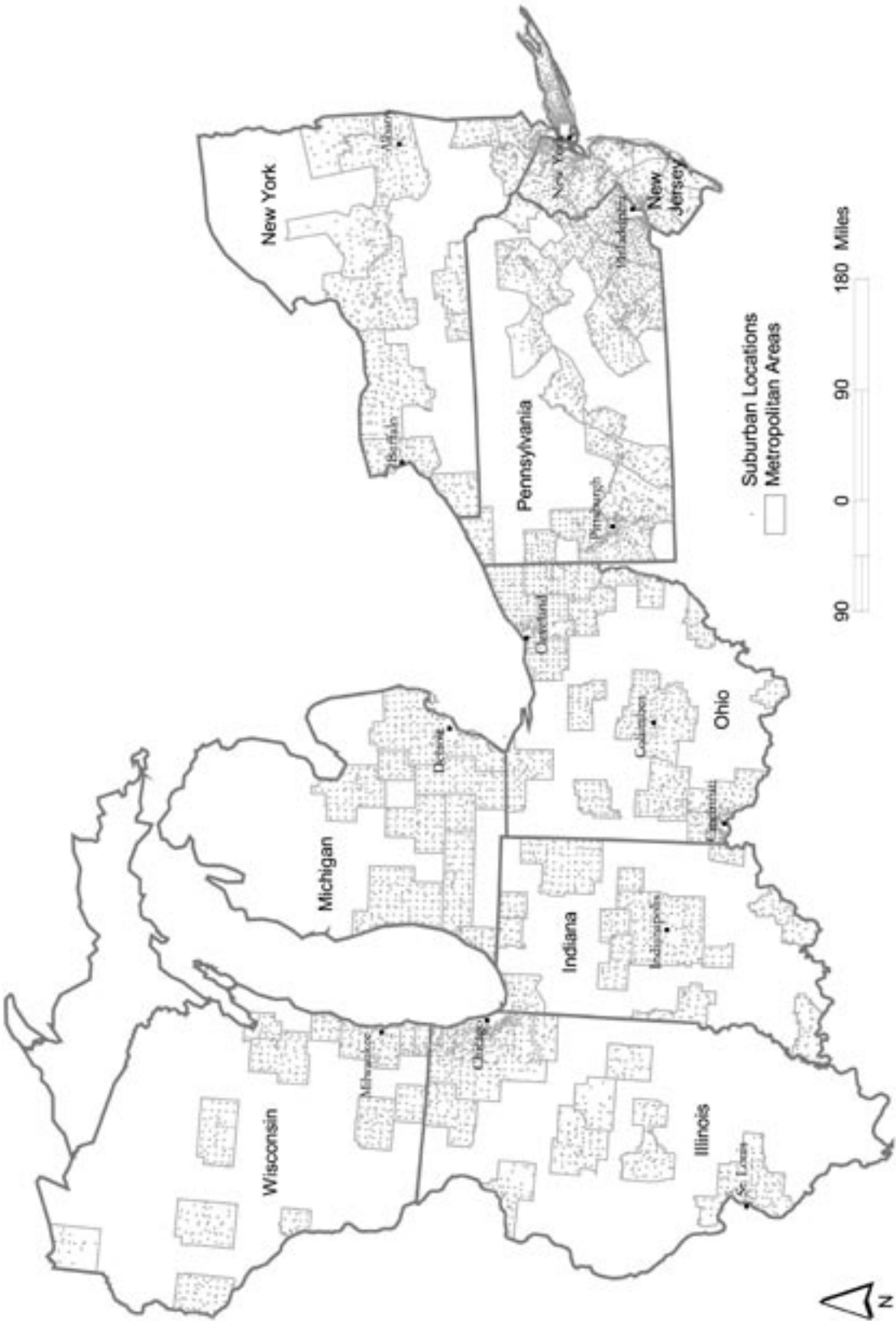


Figure 1. Study Area and Suburban Locations

This work has been mirrored and expanded at the county level (Lang 2002; Lang and Gough 2005), where “growth counties” are identified from the 50 largest metropolitan areas using the threshold decennial growth rate of 10 percent. These consistently fast-growing counties are further divided based on their total population, and then their economic and demographic characteristics are analyzed. Similarly, Lang, Blakely, and Gough (2005) identify New Metropolitan Counties as those that managed to double their population from 1970 to 2000 while not containing a large (or the region’s largest) city.

Threshold conditions also can be defined analytically, whereby a clustering procedure allocates suburbs to statistically meaningful subgroups. Orfield (2002) takes this approach in analyzing more than 4,700 suburban places in the United States’s 25 largest metropolitan areas. He uses seven variables in the clustering procedure, focusing primarily on community tax capacity and cost characteristics, one of which is population change. Orfield even considers these measures in a local context – measures are entered into the procedure as percentages of their metropolitan average. He identifies six types of suburbs, ranging from “At-risk, segregated” to “Very affluent job center.”

Mikelbank (2004) takes a similar approach, analyzing a smaller group of suburbs (3,567), but using a wider variety of input variables in the clustering procedure. Ten distinct types of suburbs are identified based on more than 40 input variables covering the population, place, economy, and government characteristics of the included suburbs.

Defining subgroups of suburban areas based on these globally defined threshold measures, chosen either by the analyst or via some analysis algorithm, has resulted

in distinct spatial patterns – akin to a kind of spatial bias in their selection. That is, not all suburbs have an equal chance of being selected into these threshold suburban groups, especially where the focus is exclusively on growth characteristics. These global thresholds make it increasingly unlikely that a smaller suburb or a suburb from a slowly or moderately growing region would be included in the fast-growth groups. For example, smaller metropolitan areas would be less likely to have suburbs able to attain all of the edge city thresholds. The timing requirement, 30 years from rural/residential location to edge city, further eliminates the places that are *just* large in favor of those that are large now and have grown rapidly in the recent past.

The selection pattern evident in Boomburbs is more spatial in nature. All 53 Boomburbs were located in only 11 states (with 39 located in California, Texas, or Arizona). Boomburbs were located in just 14 metropolitan areas, with approximately 60 percent located in only three of them (Los Angeles, Dallas, and Phoenix). Further, while more than one-quarter of the country’s 1999 population resided in the region covered in the research presented here, this same area contains only one Boomburb and less than 15 percent of the growth counties. Certainly, the net result of studies implementing threshold definitions has been an enhanced understanding of the pattern and process in the fastest growing places, but this knowledge has not been uniformly distributed.

The second group of research efforts can be labeled “descriptive.” A prime example in this category is the work of Lucy and Phillips (2001). They examine suburban growth and decline in 35 large metropolitan areas and report suburban performance by metropolitan area. Thus, these efforts are not threshold based, but are all-inclusive within the study area, summarizing and

detailing the data trends within the chosen metropolitan regions. As one might expect, Sunbelt suburban population growth lead all others reported in the study. For example, between 1990 and 2000, the suburban population of Las Vegas grew by 81.7 percent, Phoenix-Mesa suburbs grew by 56.5 percent, and Dallas suburbs grew by 40.4 percent. However, there are suburban growth locations beyond the Sunbelt. Eight suburbs outside of Buffalo, NY grew in population over the same time period (although 20 declined); 20 Pittsburgh suburbs grew (while 108 declined); 35 of Cleveland's suburban populations grew (and 41 declined). However, because rapid growth isn't the norm in these areas, and because the growth, when it does occur, is often moderate, growing suburbs in these regions receive much less attention in discussions of suburban growth.

This is unfortunate, as it neglects a distinct type of suburban success. It is one thing for a suburb to increase its population in a rapidly growing region; it is quite another for a suburb to maintain some level of growth in the face of widespread regional population stagnation or decline. Such suburbs, those that are successful when viewed in their regional context, are overlooked when the research focus is on rapid national suburban growth as measured by a globally defined threshold indicator, such as the raw growth rate.

An additional consequence of the focus on nationally successful suburbs is that we have not yet had the opportunity to systematically search for policy solutions in suburbs that are locally successful. For example, a Cleveland suburb whose population grew 4.4 percent between 1990 and 2000 likely would not be in the same analysis subgroup as an Indianapolis suburb whose population grew 15 percent over the same period. We would more likely see the former in a "moderate growth"

category and the latter in an "aggressive growth" category. A common approach would be to analyze these subsets and draw conclusions regarding the nature of the suburbs with these different growth characteristics. However, when we consider that the Cleveland suburb grew at a rate two times its metropolitan average, while its Indianapolis counterpart's growth rate was only one-half of its metropolitan average, the research gap addressed here comes to light. Perhaps judging every suburb's growth by the same yardstick has limited our understanding in this area. Viewed within the context of each suburb's local/regional conditions, the Cleveland suburb has been more successful, although traditional methods of looking at suburban growth would have resulted in the opposite conclusion. Thus, when global threshold measures are used to define suburban subgroups, the result could well be groups of heterogeneous suburbs in terms of their local success characteristics. We see, read, and hear much more about suburbs that are nationally successful, but the characteristics and dynamics of suburbs that are locally successful have yet to be investigated in a systematic and regional framework.

It is this gap in understanding that is addressed here. There is a conceptual gap, wherein traditional investigations of the characteristics of growing suburbs have neglected the impact of the local metropolitan context in assessing a suburb's growth. There is a regional gap in that traditional investigations of the characteristics of growing suburbs have been centered on certain regions of the country. Certainly the problems coincident with and born from suburban growth are not confined to a select few metropolitan areas or predominantly the southern and western states. Defining growth criteria relative to a suburb's metropolitan area will bring a new and distinct class of suburbs into the

discussion: those whose performance has been locally significant, but potentially under the national radar. Lessons can be learned not only from those locations experiencing rapid growth, but also from the suburbs that have been locally successful, even and often despite local conditions.

The regional focus of this paper is on two census divisions – East North Central (comprising the states of Indiana, Illinois, Michigan, Ohio, and Wisconsin), and the Middle Atlantic (comprising the states of New Jersey, New York, and Pennsylvania). There are substantive reasons for this choice. It is the East North Central states that often are associated with deindustrialization-initiated regional decline (for example, Cleveland, Detroit, and Gary). The Middle Atlantic region also includes several cities often in that same conversation – Buffalo, Rochester, and Pittsburgh, for example. In addition, there is a growing interest in the suburbs of these areas, partly because of the issues discussed here – their plight falls between the cracks of current metropolitan policy aimed either at revitalizing central cities or preserving the fringe from the impacts of rapid population growth and development. Puentes and Orfield (2002) in fact lay out a distinct policy agenda for these so-called “First Suburbs.” It isn’t the case, however, that the types of locations investigated here have always been understudied. When “first suburbs” were just “suburbs” (consider, for example, Levittown, NY) they gathered their fair share of attention. The relative lack of research interest over the past few decades has been primarily because the high-growth times have, for the most part, long passed by these suburbs, both figuratively and literally.

Data and classification

The goal was to measure 1990–2000 suburban population change in the metropolitan counties in these census divisions. Restricting the study to the incorporated place-level geography would have missed, for example, the growth occurring in more remote metropolitan townships. Conversely, exclusively using the Census Bureau’s county subdivision level excludes, for example, various census-designated places and villages.

Therefore, a combination of these geographies was used, whereby data are reported at the place level (as they are in the Census Bureau’s summary level 160), and also for the surrounding county subdivisions (as appear in summary level 060). However, the latter of these are adjusted to account for the place-level geography. This is the Census Bureau’s summary level 070. The practical significance of this is that we are able to determine the population change that occurs in small suburban places, as well is in its surrounding unincorporated areas.

This combined suburban geography forms the basis for data collection and comparison in this analysis. Within these boundaries, census block-level population data for 1990 were gathered and aggregated to the 2000 boundaries. Aggregating the 1990 data in this fashion avoids issues related to boundary changes between the two census years. The focus is on the 1990–2000 change in population within the 2000 boundaries.

From the 2000 census, data were collected pertaining to population, housing, income,¹ and employment. The complete

¹ I thank a referee for pointing out the potential for different results had a different measure of income been analyzed. For example, suburbs with small household sizes might fare more favorably using per capita income. Median family income likewise would shed different light on the issue, but is not measured for the entire population. To the degree that these differ by geography and location quotient category, different patterns and relationships among the income indicators would emerge. The measure used here is median household income.

Table 1. Variables

Population

Total Population (1990)
 Total Population (2000)
 Percentage White Alone
 Percentage White non-Hispanic
 Percentage Black or African American alone
 Percentage Hispanic or Latino
 Percentage of population Foreign Born
 Percentage of population in Family Households
 Percentage Born in Other State, MW
 Percentage Born in Other State, NE
 Percentage Born in Other State, South
 Percentage Born in Other State, West
 Percentage Born in State of Residence

Housing

Housing Units
 Single-Family Detached Units
 Median House Value
 Median Year Built
 Percentage Owner-Occupied
 Median House Value Ratio (3rd quartile/1st quartile)

Income and Employment

Median Household Income
 Household Income Ratio (3rd quartile/1st quartile)
 Percent of employed civilian population 16 years and over in:
 Management, professional, and related occupations:
 Management, business, and financial operations occupations:
 Management occupations, except farmers and farm managers
 Farmers and farm managers
 Business and financial operations occupations:
 Business operations specialists
 Financial specialists
 Professional and related occupations:
 Computer and mathematical occupations
 Architecture and engineering occupations:
 Architects, surveyors, cartographers, and engineers
 Drafters, engineering, and mapping technicians
 Life, physical, and social science occupations
 Community and social services occupations
 Legal occupations
 Education, training, and library occupations

Arts, design, entertainment, sports, and media occupations
 Healthcare practitioners and technical occupations:
 Health diagnosing and treating practitioners and technical occupations
 Health technologists and technicians
 Service occupations:
 Healthcare support occupations
 Protective service occupations:
 Firefighting, prevention, and law enforcement workers, including supervisors
 Other protective service workers, including supervisors
 Food preparation and serving related occupations
 Building and grounds cleaning and maintenance occupations
 Personal care and service occupations
 Sales and office occupations:
 Sales and related occupations
 Office and administrative support occupations
 Farming, fishing, and forestry occupations
 Construction, extraction, and maintenance occupations:
 Construction and extraction occupations:
 Supervisors, construction, and extraction workers
 Construction trades workers
 Extraction workers
 Installation, maintenance, and repair occupations
 Production, transportation, and material moving occupations:
 Production occupations
 Transportation and material moving occupations:
 Supervisors, transportation, and material moving workers
 Aircraft and traffic control occupations
 Motor vehicle operators
 Rail, water, and other transportation occupations
 Material moving workers

list of variables is presented in Table 1. Additionally, relative location was calculated in contiguous rings surrounding the study area's central cities. Contiguous locations were marked Ring 1, the second ring, Ring 2, and so on. The final ring, Ring 5+, indicates that the suburb is in or beyond the fifth contiguous ring.

With 1990 and 2000 population data collected for a consistent geography, the task was to investigate population change over the time period. The calculation of a simple percentage change would be an obvious choice. However, the use of a location quotient has two distinct advantages. First, the construction of the location quotient makes use of a reference region, which in this case is the metropolitan area in which the individual suburb is located. It is this locally based comparison, inherent in the location quotient, that makes it especially relevant in the analysis context of this article. Secondly, the location quotient also contains the idea of competition by considering a location's *share* of the metropolitan population.

The location quotient (LQ) for suburb *i* is calculated as:

$$LQ_i = \frac{\frac{\text{Population}_{i,2000}}{\text{Population}_{Met,2000}}}{\frac{\text{Population}_{i,1990}}{\text{Population}_{Met,1990}}}$$

The numerator (denominator) represents suburb *i*'s proportion share of the non-central city metropolitan population in 2000 (1990). Thus, any suburb with an LQ greater than 1 increased its suburban population share over the time period. Conversely, an LQ less than 1 would indicate a decline in that suburb's metropolitan population share – it contains a smaller portion of

the metropolitan population in 2000 than it did in 1990. A minimum population of 500 in each census year was required for an observation to remain in the sample.² The final data set has 7,156 observations.

The LQ contains more information than a simple growth rate calculation. For example, if two suburbs from different metropolitan areas had similar growth rates, the common assumption would be that these places fared similarly over the time period. This, however, would neglect the overall growth of the metropolitan area. If one metropolitan area had gained population over the time period while the other had lost population, then the relative performance of the two suburbs would be viewed in a different light – one grew while the region grew; the other grew despite regional population decline. The LQ distinguishes between these situations. A suburb's LQ can be greater than, less than, or equal to 1 regardless of the metropolitan population growth or decline. A location that lost population could have a LQ greater than 1 if its regional share increased over the time period, just as a place that gained population could have a LQ less than 1 if its population increased at a slower rate than the reference region.

To learn about the characteristics of suburbs with similar LQs, some type of classification scheme is necessary. While more complex schemes were explored, the symmetric, bell-shaped distribution of the LQs made a quintile classification a reasonable choice. Thus, locations are placed into quintiles based on their population change LQ. LQ1 through LQ5 are used to refer to each quintile. LQ1 thus contains the lowest 20 percent of all suburbs, LQ5 contains the top 20 percent, etc.³

² With smaller places included in the analysis, LQs often were misleadingly large, and not likely representative of the larger analysis sample. The same consideration often comes into play when using a simple percentage change calculation.

³ Results were explored using a k-means clustering procedure, but without meaningful breaks in the data, the clustering procedure, although possible, was not justified. The data are divided into approximate quintiles, due to ties in LQ values.

The final analysis task is to investigate the degree to which suburbs exhibit differences and similarities across quintiles. This is accomplished by analysis of variance. The question is whether or not significant differences in suburban attributes exist across the suburb LQ quintiles. Significance is judged at a p-value of 0.05 using the Bonferroni option, which adjusts the significance levels to take into account the multiple comparison nature of the tests. For example, each quintile is tested to see if it is significantly different from each other quintile for each variable. The t-tests thus identify which quintile distinctions, if any, were driving the aggregate ANOVA result. This would allow us to find, for example, between which groups the significant variable differences are most prominent.

Results

Table 2 shows the break points of the LQ quintiles, along with growth rate information for each quintile. The growth rate information shows the utility of a LQ-based analysis. The quintiles are not based on raw percentage change, but rather on suburban population change relative to its home region. While the minimum and maximum growth rates and LQ quintiles seem to agree in a rank-order sense (e.g., LQ5 has the highest maximum growth rate and LQ1 has the lowest), there is significant overlap between categories. For example,

the maximum growth rate of LQ3 locations was 28.58 percent, while the minimum growth rate of LQ4 locations was -4.71 percent. The difference between a growth rate and location quotient classification is substantial. If the quintiles were based on growth rates alone, nearly half of all observations (48 percent) would have been classified in a different quintile.

Further, the location quotient results are not purely a function of the population size of the suburb. For example, it is not the case that the LQ5 suburbs are uniformly smaller places that could more easily double their population, or better their regional population share, between census years. The only significant differences in 1990 population are LQ1 suburbs being smaller than LQ2 and LQ3 suburbs. However, the maximum difference between any of the group means is less than 1,600 persons.

The descriptions that follow detail the variables that set each group of suburbs apart from the others – what are the defining characteristics? For the sake of brevity, significant differences will be mentioned only once. For example, if group LQ1 is significantly different from the other four groups in terms of a given variable, it is mentioned in the context of the LQ1 discussion, but not in the context of the remaining four groups.⁴

Table 2. LQ Quintile Descriptions

Quintile	Number of Suburbs	Minimum LQ	Maximum LQ	Minimum Growth Rate	Maximum Growth Rate
LQ1	1407	0.18	0.89	-80.54	16.80
LQ2	1318	0.90	0.94	-15.10	23.42
LQ3	1329	0.95	0.99	-9.28	28.58
LQ4	1670	1.00	1.08	-4.71	41.14
LQ5	1432	1.09	4.18	6.45	379.34

⁴ In addition, differences mentioned are *significant* differences at $p = 0.05$ unless otherwise noted.

LQ1 locations

LQ1 locations have location quotients ranging from 0.18 to 0.89. A location quotient of 0.18 indicates that a location's 2000 population share is only 18 percent of its 1990 share. They comprise the group of suburbs whose population position worsened most severely. On average, LQ1 suburbs were located in faster growing metropolitan areas. In other words, places whose regional position worsened most significantly (LQ1 locations) are most likely to be located in the fastest growing metropolitan areas. Their share of regional population is declining while the metropolitan area's population is growing faster than average. These locations are claiming a smaller portion of an increasing regional population. This is perhaps counter to the perception of a rising tide raising all ships. Some suburbs are surely growing at the expense of others, at least in a relative sense.

LQ1 locations have distinct race and ethnicity characteristics. LQ1 has a higher proportion of African-American population and a lower proportion of foreign-born population than all other locations in the analysis. Compared with LQ3 and LQ4, a smaller proportion of its residents were born in-state. This is a curious result, implying that LQ1 locations, while struggling, and failing, to maintain their regional population share, have at some point attracted higher proportions of out-of-state residents than LQ3 and LQ4 places that have fared much better.

LQ1 locations share a few characteristics with LQ2 locations. The housing stock is significantly older, and there are significantly fewer owner-occupiers, on a proportional

basis. Both groups have a significantly lower proportion of their households as families. These characteristics distinguish LQ1 and LQ2 locations from the three remaining LQ groups.

Although median household income of LQ1 locations is not significantly different than LQ2, it is significantly less than that of the remaining groups. LQ1 locations also differ from LQ3, LQ4, and LQ5 locations in terms of employment.⁵ LQ1 has higher proportions of employees in service employment and in office and administrative support. LQ1 has more employees than all other places in production and transportation, but less in management and professional positions than all other places.

LQ1 locations are overrepresented in Illinois, and Wisconsin, where they comprise more than 25 percent of each state's suburbs included in the analysis, and in Indiana, where more than one-third of included suburbs are LQ1 suburbs. It appears that LQ1 locations also are overrepresented in central-city contiguous locations. Over 25 percent of all central-city contiguous suburbs are in the LQ1 quintile.

LQ2 locations

LQ2 locations have location quotients ranging from 0.90 to 0.94. In addition to the characteristics shared with LQ1 locations, LQ2 has a higher proportion of African-American population than does LQ4, representing the only other significant difference in African-American population among the sample locations.

LQ2 has more food preparation and service employees than LQ4 and LQ5. Although sales and office employment

⁵ The decennial census reports employment by place of residence. That is, data represent where the employees live, rather than where they work. The results presented here therefore refer to the employment make-up of a suburb's residents, not to the employment structure of a suburb's economy. Additionally, all employment calculations were done on a basis proportional to the suburb's total employed civilian population ages 16 and older.

is greater in LQ2 locations than in LQ4 and LQ5, investigation of the employment subcategories reveals this to be driven by the office and administrative support category. Sales and related employment is not significantly different from LQ4 or LQ5, but it is more strongly represented in LQ2 than in LQ1.

LQ2 comprises the smallest proportion of Michigan suburbs (13.8 percent) and the highest proportion of New Jersey suburbs (22.6 percent). They are fairly evenly distributed throughout the metropolitan areas of which they are a part.

LQ3 locations

LQ3 locations have location quotients ranging from 0.95 to 0.99. This quintile contains the middle 20 percent of all observations, and also falls in the middle ranges of many of the place characteristics measured here. The LQ3 locations grew faster than LQ1 and LQ2, but not as fast as LQ4 and LQ5. LQ3 housing is newer than LQ1 and LQ2 housing, but older than LQ4 and LQ5 housing. This pattern of greater than LQ1 and/or LQ2 but less than LQ4 and/or LQ5 holds for a variety of other variables: percentage family households, median household income, production/transportation employment, service industry employment, sales and office employment, and management/professional employment.

LQ3 and LQ4 share two traits. The average metropolitan growth rate of LQ3 (7.7 percent) and LQ4 (7.1 percent) places is significantly less than that of the remaining three groups (12.9 percent, 9.1 percent, and 9.5 percent for LQ1, LQ2, and LQ5 locations, respectively). Thus, these are places facing a less than optimal regional population situation. LQ3 locations failed to keep up, even within their slower growth metropolitan areas. Additionally, LQ3 and

LQ4 locations had higher rates of born-in-state residents compared with LQ1 and LQ5 locations.

LQ3 locations are relatively evenly spread throughout the metropolitan area, representing a low of 18.4 percent of Ring 4 locations and a high of 19.9 percent in Ring 5+. They are over-represented in New York (24.4 percent of New York suburbs), but comprise only 12.2 percent of Indiana suburbs and 14.5 percent of those in Illinois.

LQ4 locations

LQ4 is the first quintile comprised of suburbs that maintained or bettered their regional population position. Their location quotients range from 1.0 to 1.08. In contrast to LQ3, LQ4 locations bettered their regional positions despite their slower metropolitan growth conditions.

LQ4 locations distinguish themselves mainly from the extremes of the LQ1 and LQ5 locations. For example, in terms of house value, median household income, and the proportion of employees in the production/transportation, service, and management and professional occupations, LQ4 is higher than LQ1, but lower than LQ5. Compared with LQ1, LQ2, and LQ3, there is less employment in office and administrative support. Employment in agriculture is higher than in LQ2, LQ3, and LQ5 locations, although agricultural employment is less than 1 percent of the total in each LQ group.

While LQ4 places comprise 23.3 percent of all observations, they are underrepresented in Wisconsin and Indiana, where they were only 16.7 percent and 17.6 percent of observations. In New York, however, these moderately improving suburbs were 31.6 percent of all suburbs. Additionally, LQ4 places were underrepresented in central-

city contiguous locations, with only 18.3 percent. They were relatively evenly spread among remaining metropolitan locations, ranging from 23.1 percent in Ring 2 to a high of 25.3 percent in the fourth ring.

LQ5 locations

LQ5 location quotients range from 1.09 to 4.18. As the group of locations that did the best by this location quotient measure, some of the group's characteristics are perhaps not surprising. They had the highest population growth rate, the highest house value, the newest housing stock, the highest owner occupancy rates, and the highest income. They also had the highest proportion of family households. They have the lowest proportion of residents born in-state, and the highest born in the West (higher than all other LQ groups) and the South (higher than LQ groups 2, 3, and 4).

For median household income and median house value, the ratio of their first and third quartile values was calculated. This interquartile ratio gives an indication of the range of the middle 50 percent of values (either house value or income) in the LQ group. LQ5 locations have higher ratios than all other locations for both the income and house value variables. This large spread among variables indicates that although the median values are the highest among groups, the values are not uniformly high within suburbs. Rather, the large spread between the first and third quartiles might indicate an in-migration of higher-income households into higher-value houses, mixing with more moderate circumstances existing in those areas. This may be supported by the relative location of LQ5 places – only 17.2 percent are in Ring 1.

In terms of their state-level distribution, while LQ5 locations comprise 20 percent of the observations, they comprise only 15.7 percent and 17.6 percent of New York and

New Jersey suburbs, respectively. They seem relatively abundant in Illinois (23 percent) and Michigan (25.1 percent).

Discussion

At first glance, the LQ profiles may seem merely to conform to the current understanding of suburban places. For example, the group whose population position worsened the most (LQ1) had household income significantly lower than places whose position improved; places that bettered their population position most (LQ5) had higher rates of owner-occupied housing. However, there are two points to be made. First, the fact that these descriptions seem familiar is reassuring. There are commonalities to places performing well.

Second, although the characteristics of the suburban groups seem familiar, the groups themselves are not. They are not based on a growth rate, but rather on the change in a suburb's regional population share. Thus, each LQ quintile contains a wide range of growth rates, which overlap places in higher and lower LQ groups. For example, within LQ1, the quintile of places whose relative population position universally worsened, 319 suburbs (more than 22 percent of LQ1 locations) actually increased their population over the time period. In fact, nearly 1,300 LQ1 locations either grew more quickly, or declined more slowly, than the slowest-growing LQ2 location (which declined by 15.1 percent).

LQ1 and LQ2 had the lower-income, older, and renter-occupied housing footprint of typically struggling areas, but 1,884 of them, nearly 70 percent, grew their population over the time period. Why might places that mostly grew have these less than ideal characteristics? Their struggle, as revealed by their LQs of less than 1, was in keeping pace with the other suburbs in their

metropolitan region. Thus, the finding of a growing population isn't synonymous with suburban good fortune. Surely, population growth is a part of that picture, but so too should be the ability of a suburb to maintain its regional share of population.

As a group, LQ3, LQ4, and LQ5 all fared significantly better in terms of the income and housing variables, but LQ3 also failed to maintain its share of regional population. Thus, even though a group of variables may seem to reveal suburban good fortune, this isn't synonymous with population growth, either in a relative or absolute sense.

In LQ4, the first quintile maintaining or bettering its regional position, more than 50 suburbs lost population, and approximately 300 more grew by less than 5 percent over the decade – hardly the traditional picture of suburban health. However, LQ4 locations had income higher than most, and house values higher than most, but in some cases were simply absent the rapid population growth often associated with successful suburbs.

LQ5 locations, on the other hand, seem similar to the rapid growth locations referenced in other research – they had the highest LQs, and none had a population decrease over the time period. Growth, in addition, was impressive – only 30 LQ5 suburbs grew by less than 10 percent.

An investigation of relative growth should in no way be thought of as a substitute for an analysis of absolute growth rates, but rather, these efforts should be complementary. The two approaches yield different information. Certainly, no one will be trumpeting the success of their city for increasing their relative population share while population is stagnant or even decreasing. Because it is distinct from absolute growth, strong relative performance does not, in and of itself, mean prosperity. It might indicate

a favorable competitive position locally, or that the suburb is doing better than the average local suburb, but in this study area, that might not provide much solace. It is the absolute population numbers that are watched closely, and rightly so. It is the actual population who votes with their feet, bringing (or taking) with them their tax dollars, disposable income, and demand for local goods and services.

Even locations awash in absolute growth, however, could gain valuable information from their relative growth position. Strong absolute *and* relative growth might be indicative of a location being “ahead of the curve.” The location is growing itself, but is also gaining a larger share of regional population. Growth that is strong in an absolute sense but weak in a relative sense might be reason for concern – why is growth not keeping pace with the region? If regional growth were to falter, it could well be the suburbs lagging in their relative growth that first fall victim to absolute decline. A similar story can be told for locations losing population. The grimmest prospect would be absolute and relative decline, as a location loses population *and* worsens its local competitive position. Population loss with a positive relative change, however, might serve as a silver lining for a location. Total population has declined, but the regional share of population has increased. Perhaps these locations would be first to emerge from regional decline?

Relative growth thus could be thought of as a “second derivative” of population change, which could be positive or negative regardless of population growth or decline. Relative growth might serve as a kind of leading indicator for suburban locations, thus allowing them to take preemptive action to either reverse or strengthen their competitive positions. Rather than using absolute growth alone, the interaction between absolute and relative growth could

provide additional insight for locations plotting their future.

Growing locations may choose to stay the course if their relative growth is also leading. Locations losing population but growing in a relative sense likewise might not opt to drastically change their ways – although absolute numbers are in decline, they are outperforming the region. A suburb gaining population but losing ground regionally would likely make adjustments to their path. Paying attention to regional growth might allow these adjustments to be made in advance of a complete reversal of a location's growth trajectory. A disadvantageous competitive situation could be addressed before any absolute decline appears. Finally, the most drastic change might be called for in locations that are experiencing the worst of both scenarios – they are losing population while their regional population share also is in decline.

Conclusions

This research raises several questions that warrant further investigation. The geography of the analysis, chosen to cover metropolitan areas exhaustively (subject to population constraints), means that some included locations are not government units and thus cannot make policy. Focusing only on incorporated places would have left larger gaps in the geography of the study – this is an unavoidable trade-off.

Certainly, while relative and absolute population changes are important factors in regional change, they aren't the only ones. Changes in housing, employment, and tax base, for example, were not the focus of this study, although looking at these measures in regional terms likely would offer additional insights.

When conducting a regional study, the question necessarily arises about generalizing to other locations. While this analysis

would certainly be replicable for other locations, this region was chosen specifically because of its relative lack of coverage in other metropolitan research.

Last, and perhaps most fundamental, is this a worthwhile way of looking at what is happening in U.S. suburbs? Each analysis is in some way an attempt to understand the process better, and certainly the process is elusive. If the recent surge in research, as evidenced by the presence of this journal, has had any overarching message, it is that we're not all searching for a single process. If it was universally a housing-related process, perhaps we could all have moved on by now. Similarly, if it were only jobs, we'd be writing and studying some other process.

The message here is that it isn't exclusively a population growth process either. *Relative* population growth plays a part. Thinking that places that are growing have one set of characteristics, and places that are losing population have another set wasn't universally the case in the suburbs presented here. We should therefore be thinking more broadly than just population growth as our go-to indicator of suburban fate.

Author

Brian A. Mikelbank is an Assistant Professor of Urban Studies in the Maxine Goodman Levin College of Urban Affairs at Cleveland State University. He is an urban geographer interested in quantitative and spatial analysis approaches leading to greater understanding of metropolitan dynamics. He teaches courses in urban geography, quantitative methods, and urban geographic information systems. This research was partially funded by Cleveland State University's Full-Time Faculty Research Development Program. Hoje Kang and Timothy Kobie provided excellent research assistance.

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