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Is Smart Growth Fair Growth: Do Urban Growth Boundaries Keep out Racial Minorities?

Elizabeth P. Ruddiman

IS SMART GROWTH FAIR GROWTH:

DO URBAN GROWTH BOUNDARIES KEEP OUT

RACIAL MINORITIES?

by

ELIZABETH P. RUDDIMAN

Under the Direction of Charles Jaret

ABSTRACT

As many American metropolitan areas spread outward, urban sociologists are interested in the effects of sprawl and in efforts to limit suburban expansion. To rein in urban sprawl, land use measures known as "smart growth initiatives" are gaining popularity. Urban growth boundaries are the particular type of initiative examined in this research. An urban growth boundary delineates where development is encouraged and where it is discouraged or prohibited. My first research question is whether urban growth boundaries contribute to the exclusion of racial minorities. I also explore whether urban growth boundaries affect residential segregation.

I study 86 places throughout the U.S.: 43 matched pairs of places (with each pair comprised of a place with an urban growth boundary and a place without a boundary but otherwise similar to its partner). I also consider Atlanta, with no constraints on growth, and Portland, Oregon, a smart growth leader. Census data and residential segregation indexes from 1990 and 2000 for whites, blacks, and Hispanics are analyzed.

The analysis consists of comparing change in the number of blacks and Hispanics due to in-migration and population growth in places with and without urban growth boundaries, and examining levels of segregation in them. I find that urban growth boundaries do not reduce blacks' or Hispanics' in-migration or population size. Also, the preponderance of the results supports the view that urban growth boundaries are not a cause of racial residential segregation.

INDEX WORDS: African Americans, blacks, Hispanics, housing, integration, land use, race, segregation, smart growth, race, urban growth boundaries, urban sociology

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To my family -

my mother Nancy Y. Ruddiman,

my late father Rodney J. Ruddiman,

my sister and brother-in-law Judith R. and Dennis J. McManus,

and my niece and nephew Erin E. and Matthew J. McManus -

who have encouraged me in all of my endeavors

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INTRODUCTION

As many American metropolitan areas are continually spreading outward, urban planners, elected officials, environmentalists, and sociologists increasingly are interested in the effects sprawl is having on our built environment, our natural environment, and our society. With 80 percent of the U.S. population living in metropolitan areas, urban sprawl is most definitely a national issue (U.S. Bureau of the Census 2001). The rate, extent, and effects of sprawl are well documented (Rusk 2003; Bullard 2000; Phillips and LeGates 1981) and are experienced first-hand by most Americans.

To rein in urban sprawl, a relatively new set of land use measures is gaining popularity. Collectively they are known as "smart growth initiatives." This term encompasses a wide variety of techniques for controlling, directing, and/or improving development. Smart growth goals include reducing reliance on automobiles, creating communities with a good quality of life, and protecting natural resources.

Beyond these admirable objectives, planners and others must also consider some of the possible unintended, negative consequences of smart growth. For example, those interested in the sociological aspects of smart growth must ask, "Is smart growth *fair* growth?" That is, do smart growth initiatives influence who can live in areas where such mechanisms are in place? Do such practices protect or even create affordable housing, for example? Or, do they limit housing opportunities for some?

This study addresses the question: "Is there a relationship between smart growth initiatives and racial housing patterns?" Since race and class are related, this study also explores indirectly the impact of smart growth on socioeconomic housing patterns. While areas using smart growth techniques may offer many assets and amenities to their residents, the characteristics of those who can take advantage of them may not mirror the population that would be living there absent the smart growth practices. Proponents of smart growth may actually be promoting a land use policy that inadvertently alters the nature of the residential populations in smart growth jurisdictions. This research explores this issue.

The urban growth boundary is the particular type of smart growth technique that is studied. An urban growth boundary delineates the area in which development is encouraged and outside which development is discouraged or prohibited. This type of constraint on urban development is a somewhat recent smart growth method that is being increasingly employed (Porter 1997). As Pendall et al. note, however, "Little work has examined the interrelationship of urban containment policies and race and class issues in metropolitan areas" (2002: 39). This study identifies trends over time and draws comparisons between places with and without urban growth boundaries. The main issue is whether urban growth boundaries seem to contribute to the exclusion of racial minorities.

This research addresses several key topics in urban sociology: urban sprawl, smart growth, housing affordability, and racial housing patterns. It provides insight into the complex and continual interaction between American society and America's built environment.

The Concept of Smart Growth

What is "smart growth"? The phrase "smart growth" has no one definition. However, the following are frequently cited as the goals of smart growth planning:

(1) limiting outward expansion,

(2) enhancing the sense of community and place,

(3) protecting investments in existing neighborhoods,

(4) creating a range of housing options,

(5) providing environmental quality and conserving open space,

(6) making predictable, fair, and cost-effective development decisions,

(7) mixing land uses,

(8) creating dense development,

(9) decreasing traffic congestion by providing a variety of transportation options and creating walkable neighborhoods, and

(10) making efficient use of public money.

The term "smart growth" is an umbrella phrase encompassing a number of policies that seek to manage urban growth. These include:

(1) transit-focused development that promotes residential and commercial development along public transit routes,

(2) special zoning techniques such as mixed-use zoning that calls for a blend of housing types, along with commercial development, in the same area,

(3) development impact fees that are either waived or reduced from what is usually charged of developers to help offset infrastructure improvement costs associated with new development, and

(4) adequate public facilities ordinances that require a specific level of services (e.g., roads, parks, schools, and water supply and waste water management) before new development is approved.

Smart growth policies can be implemented at the municipal, county, state, and regional levels. The issues of urban sprawl and smart growth are gaining attention in all of these arenas. For example, at the state level, recent governors such as New Jersey's James McGreevey, Massachusetts' Mitt Romney, and Maryland's Parris Glendening all took steps to address sprawl and implement smart growth ideas (Frankston 2003b).

A smart growth tool: The urban growth boundary. The focus of this study, the urban growth boundary, is "a line around an urban area within which development is encouraged — often with density bonuses or minimum density requirements—to accommodate projected growth over a specified future time period, typically ten to 20 years" (Nelson 2000: 45). Land outside the boundary is restricted to low density uses, such as low density housing, agriculture, and/or greenspace. The two purposes of urban growth boundaries are: (1) to promote compact and accessible development with efficient public services, and (2) to preserve open space and agricultural and environmentally sensitive areas.

The degree to which an original urban growth boundary remains in place depends on a variety of factors. These include: development pressure in the metropolitan area, the boundary's original purpose, local officials' level of commitment to maintaining the boundary, and public attitudes. Since many growth boundaries are relatively new, how each will fare in the coming decades is uncertain.

Smart growth and housing. Just as the concept of smart growth can be applied generally to urban areas, it also can be related specifically to housing. Danielsen, Lang, and Fulton (1999) suggest the following ways in which smart growth principles can be implemented in residential development:

(1) promoting dense subdivisions in suburbia,

(2) creating urban infill housing,

(3) establishing higher density housing near commercial centers and transit lines,

(4) phasing in convenience shopping and recreational opportunities to keep pace with housing,

(5) transforming subdivisions into neighborhoods with well-defined centers and edges,

(6) maintaining housing affordability through mixed-income and mixed-tenure development, and

(7) offering diverse options, including "lifecycle" housing (i.e., homes that can suit residents throughout their life).

Smart growth advocates encourage dense housing, such as apartments. Multi-family dwellings can allow workers to locate near jobs. This is particularly true of planned mixed-use development (Frankston 2003a).

Some researchers question whether smart growth housing, specifically urban infill housing, can absorb the demand for new homes. Farris (2001) suggests that building substantial amounts of urban infill housing is not feasible and dismisses infilling as a mechanism for achieving smart growth. Nelson (2000) notes that the assumption that infill housing can sustain development is untested.

Since housing that incorporates smart growth guidelines is relatively new, financing such development can be challenging. It is difficult to find suitable comparables when conducting appraisals, there is a lack of good market research, and the financial risks of such projects are unknown. Thus, developers often have difficulty finding banks or other financial backers willing to make loans for smart growth projects.

Contributions of this Study

This study contributes to the understanding of the two-way relationship between American society and American land use policies. More specifically, it looks at whether a particular type of smart growth initiative, the urban growth boundary, influences racial housing patterns. This inquiry is important because these boundaries are a relatively new land use technique and are being increasingly employed (Porter 1997). (Pendall [1995] identifies almost 200 jurisdictions with such boundaries.) As a result, the debate over the effects of urban growth boundaries on the housing costs and, ultimately, on who can afford to buy within them merits attention from both urban planners and urban sociologists.

This study is unique in several ways. First, it looks at a number of metropolitan areas with urban growth boundaries while many previous studies simply look at one or a few areas.

Second, this study examines areas other than Portland, Oregon, which has been the main focus of research. Third, the study draws comparisons between areas with urban growth boundaries and those without, a methodology not previously used. Finally, a number of variables are examined. These include population growth, racial makeup, racial segregation, and housing affordability. Many existing studies consider only a few variables, ignoring other factors that would provide a more thorough investigation.

CHAPTER 2

LITERATURE REVIEW

The possible relationship between smart growth and racial housing patterns has received very little attention to date. However, a number of studies have looked at the relationship between smart growth and housing affordability. Since housing affordability influences racial housing patterns, the smart growth/housing affordability literature is reviewed below. Following this is a discussion of the research on racial housing patterns. Finally, four studies that actually link smart growth or growth control with racial housing patterns are presented.

Smart Growth and Housing Affordability

The effect of smart growth policies on housing costs and affordability is a matter of debate. There are three main perspectives: (1) smart growth practices contribute to reduced housing affordability, (2) smart growth practices contribute to increased housing affordability, and (3) smart growth practices have little or no effect on housing affordability.

Smart growth and reduced housing affordability. The most prevalent of the three perspectives is that smart growth reduces housing affordability. Examples of areas where researchers feel smart growth has contributed to rising housing costs include Portland, Oregon (*USA Today* 2001; Lorentz and Shaw 2000; Phillips and Goodstein 2000; Danielsen, Lang, and Fulton 1999; Powell 1999; Rusk 1999), Salem, Oregon (Nelson 1986), Seaside, Florida (Peltz 2001; Gordon and Richardson 1997), Laguna West, California (Gordon and Richardson 1997), San Francisco, California (Katz and Rosen 1987), and Kentlands, Maryland (Gordon and Richardson 1997).

The combination of a restricted supply of land along with other factors, such as a strong demand for housing, can yield increased housing prices. On the question of land supply, Nelson (2000) and Dowall (1979) argue that urban growth boundaries raise housing prices because they result in limiting the amount of available land. After studying Sacramento, San Jose, and Fresno, California, Landis (1986) states that a ten percent reduction in the supply of developable land may increase new housing prices by up to 30 percent.

Similar outcomes have been found in Oregon as well. Ehrenhalt (1997) reports that Oregonian homebuilders argue that the Portland boundary caused land prices to triple in just two years (1994 and 1995). Knapp (1985) also finds Portland's urban growth boundary has caused land prices to increase. Nelson's (1986) study of Salem's land costs in 1977-1979, several years after its urban growth boundary was implemented, states that an acre inside the boundary was worth $3,900 more than an acre outside the boundary.

However, demand for housing is the main cause for rising housing prices in Portland, according to Abbott (2002). Portland's thriving economy during the 1990s and the resulting job growth and in-migration contributed to increased pressure on and speculation in the housing market. He asserts these factors were greater influences than the urban growth boundary's effect on the quantity of developable land.

Smart growth and increased housing affordability. The second perspective on the relationship between smart growth and housing affordability is that smart growth practices can contribute to the stock of affordable homes. Bullard, Johnson, and Torres (2003) suggest that infill housing in central city neighborhoods can be affordable. They argue that infill homes can be built economically because the necessary infrastructure (e.g., streets, sewer lines, and electric service) are already present. Developers can then pass the savings on to potential buyers. Smart growth housing units also may be smaller than traditional suburban homes, which could help keep costs low. In addition, smart growth residences may be convenient to downtown jobs and public transportation. Such homes would benefit those of modest means because their location would eliminate the need for residents to own and maintain a car to get to work. This viewpoint that smart growth can lead to increased housing affordability is echoed by Pendall et al. (2005).

The Portland, Oregon, comprehensive land use plan includes providing affordable housing as a goal. It mandates that every planning area must zone at least half of its vacant residential land for single-family, attached housing (e.g., townhouses) or apartments. However, in 1999, the state legislature prohibited programs that might require subsidized housing in new residential projects. Therefore, although Portland's smart growth plan requires modest home sizes in the hope of promoting affordable housing, it is not required to have programs that guarantee the availability of affordable homes (Abbott 2002).

No relationship between smart growth and housing affordability. The third perspective on the issue of whether implementing smart growth principles affects housing affordability is uncertainty about whether there is a relationship between the two. Nelson et al. (2002), Downs (2002), Marshall (2000), and Porter (1992) contend that there are so many factors (e.g., demand for housing, location, size, and the economy) that affect housing costs, it is difficult to determine whether a particular one (e.g., a smart growth policy) has a significant effect. Only certain types of land use regulation influence the cost of housing, according to Pendall (1995, 2000), who finds no specific relationship between urban growth boundaries and housing affordability.

Promoting both smart growth and affordable housing. Some initiatives can promote both smart growth and affordable housing. One example is density bonuses. These encourage residential developers to offer lower rents and home prices in exchange for being allowed to build at higher densities than zoning would routinely allow (*The Atlanta Journal-Constitution* 2003). Such bonuses have been successful in Maryland, Virginia, and elsewhere. Montgomery County, Maryland, for instance, mandates that between 12.5 and 15 percent of the total number of new housing units be moderately priced. In return, the developer receives up to a 22 percent density increase over that allowed by normal zoning (Montgomery County, Maryland 2003). In

Loudoun County, Virginia, developers can receive a ten percent density bonus for building affordable housing. “Affordable” is defined as prices equal to 30 percent of income for renters earning 30 to 50 percent of the county’s median income or for home buyers earning 50 to 70 percent of the median (Loudoun County, Virginia 2003).

A second initiative that supports both smart growth and affordable housing is the Federal National Mortgage Association’s demonstration project of a new type of mortgage. The "location-efficient mortgage" takes into account that households living in convenient, high-density communities save on transportation expenses by owning fewer vehicles and driving fewer miles than residents in distant suburbs. For mortgage applicants in such high-density areas, a household's projected savings are added to its income when determining the mortgage amount for which it qualifies. This pilot project is underway in a number of areas, including Atlanta, Georgia; Baltimore, Maryland; Chicago, Illinois; Minneapolis, Minnesota; Pittsburgh, Pennsylvania; Salt Lake City, Utah; Seattle, Washington; and in California, in Los Angeles County and the San Francisco Bay area (Frankston 2004; *The Baltimore Sun* 2003; Sierra Club 2003). If default rates for location-efficient mortgages are comparable to those for traditional mortgages, “Fannie Mae” might consider offering the new type of mortgage in more areas (Nelson 2000).

Racial Housing Patterns

Race has always played a role in Americans’ housing patterns. Resistance to racially integrated neighborhoods is one of a number of factors that fueled the suburbanization and urban sprawl with which we are now contending. As Massey and Denton state, “Although whites were still highly resistant to racial integration in housing [after World War II], withdrawal to the suburbs provided a more attractive alternative to the defense of threatened neighborhoods and led to a prevalence of flight over fight among whites in racially changing areas” (1993:45).

Some researchers are pessimistic about the future of racial residential integration. Clark's work (1991; 1992) reveals that, in general, individuals prefer to live among others of their own race. This desire is strongest among non-Hispanic whites (i.e., "Anglos"), but also is found to a lesser degree among blacks, Hispanics, and Asians. Similarly, Wilson (2006) does not see much movement toward greater integration. Based on his study of four Chicago neighborhoods, Wilson predicts that urban neighborhoods will continue to be racially and culturally divided. In addition, although Charles (2005) finds a greater willingness among all races to live in integrated neighborhoods than was true in the past, she also finds that whites still prefer to live in predominantly white neighborhoods and that non-whites (i.e., blacks, Hispanics, and Asians) prefer to live among more non-whites than whites will tolerate. She concludes, "Without . . . efforts [to promote integration], and given the disheartening state of race relations more generally, it seems unlikely that Americans will learn to live together more extensively and constructively in the near future" (2005:76).

However, other social scientists are optimistic about American neighborhoods becoming increasingly integrated. They choose to focus on the finding that today whites are more amenable to living in integrated neighborhoods. Farley and Frey (1994) note that in a 1990 National Opinion Research Center survey, only 20 percent of respondents agreed with the statement that whites should be able to keep blacks out of their neighborhood, compared to 60 percent who agreed with this statement in 1960 and 84 percent who agreed with a similar statement in 1942. Bobo (2000) states that whites are comfortable with a proportion of up to five percent blacks and feels this is encouraging when compared to the prevailing attitude of the 1940s and 1950s of opposition to any level of integration. In a survey of Los Angeles residents, Bobo and Zubrinsky (1996) find that just 34 percent of whites were opposed to living in a neighborhood where as many as half of their neighbors would be black.

Of course, the perspectives and actions of minorities also affect level of integration, as mentioned above. Krysan and Farley (2002) find blacks are willing to move into predominantly white neighborhoods as long as there are some black households already there. They find, too, that blacks' preference for all or majority black areas is due to the fear of whites' hostility, not to ethnocentrism as other authors report (e.g., Patterson 1997; Thernstrom and Thernstrom 1997).

Research also indicates, however, that segregation is the result of more than just racial preferences. As Clark concludes from his review of published studies and surveys, "The fairest reading of social science evidence is that a multitude of causes underlies contemporary patterns of racial residential separation in the U.S. metropolitan areas" (1986:122). He states, for example, that 30 percent to 70 percent of racial separation is attributable to economic factors. Ellen (2000) demonstrates that class issues rather than race issues may underlie whites' apparent unwillingness to live among blacks. In other words, some whites equate the characteristics of low-income neighborhoods (e.g., low property values, high crime rates, and poor schools) with black neighborhoods in general. They fear all neighborhoods with black residents will exhibit these undesirable qualities. Ellen coins the phrase "race-based neighborhood stereotyping" to reflect the view whites have of certain neighborhoods due to the racial composition of their residents. She contends that this stereotyping of neighborhoods, rather than individually-based racial hatred, discourages integration.

The nature of the metropolitan areas being considered seems to affect researchers' findings about integration. Massey and Denton, whose book title *American Apartheid* (1993) succinctly reflects their findings about the prevailing significance of prejudice, discrimination, and segregation in the United States, concede that their work in older, northeastern cities with high proportions of minorities may yield more anti-integration findings than studies that use a more varied sample. In fact, Farley and Frey (1994) do find increased integration between 1980 and 1990 in young southern and western cities, with new housing construction, the presence of minorities other than blacks, and a growing black middle class also positively correlated with integration. Logan, Stults, and Farley (2004) suggest that black-white segregation generally declined from 1990 to 2000, but Hispanic-white segregation increased slightly.

The most widely used indicator of a city's level of integration is the index of dissimilarity. It is the percentage of a minority population that would need to move for every neighborhood to replicate the racial composition of the city as a whole. Generally an index of 30 or below indicates a low level of segregation (i.e., the city is well integrated), an index between 30 and 60 reflects a moderate level of segregation, and an index above 60 indicates a high level of segregation (Massey and Denton 1993). To use Portland, Oregon, as an example, from 1980 to 2000, its black-white index of dissimilarity decreased from 69.7 to 51.8, indicating greater integration and paralleling the national trend. However, Portland's Hispanic-white index rose from 22.3 to 29.2, reflecting an increasing level of this type of segregation (Lewis Mumford Center 2004). Since Portland's urban growth boundary was established in 1979, this 1980 to 2000 comparison captures most of the city's time with a boundary. Based on Portland's experience and that of a few other cities, Nelson (2004) argued that implementing an urban growth boundary could help reduce racial residential segregation.

Smart Growth and Racial Housing Patterns

The question of whether there is a relationship between smart growth practices and racial housing patterns has received little attention. Three studies that do address this specific issue are Pendall (1995; 2000), Pozdena (2002), and Nelson et al. (2004). In addition, a related study on slow growth by Logan and Crowder (2002) is worth noting.

Pendall (1995) looks at five forms of land use regulation to determine whether they promote exclusion of racial minorities. The land use controls he examines are: (1) instituting zoning that allows low density development only, (2) limiting the number of building permits issued, (3) establishing urban growth boundaries, (4) making approval of development conditional on the availability of adequate public facilities, and (5) imposing a moratorium on building permits. Pendall mailed surveys to the planning director, planning commission chair, or municipal executive of more than 1,500 jurisdictions (i.e., counties, cities, towns, townships, villages, and boroughs) with a population of at least 10,000 and in one of the 25 largest U.S. metropolitan areas. The survey asked if the jurisdiction used any of the five land use controls and some follow-up questions. The responses indicated that 1,169 areas had at least one control. Of these, 197 jurisdictions (17 percent of the places with at least one control measure) reported having an urban growth boundary.

For all jurisdictions with at least one growth control, Pendall obtained data on the size of the black and Hispanic populations from the 1980 and 1990 U.S. Census and used them in an ordinary least squares regression. The regression model designates the 1990 concentration of Hispanics or blacks as the dependent variable. The independent variables are socioeconomic characteristics (e.g., household income, education, occupation, and racial composition), population and household characteristics (e.g., population density and household size), housing stock characteristics (e.g., vacancy rate and rental housing affordability), average commute time, and changes in these variables between 1980 and 1990.

This analysis found that two of the land use controls—low-density zoning and building permit caps—resulted in lower numbers of African-American and Hispanic renters. The other three types of control—urban growth boundaries, adequate public facilities ordinances, and moratoria on building permits—had no effect on racial composition.

In addition, Pendall (1995) also examined two municipalities (Union City, California, and Franklin Township, New Jersey) in closer detail. Both of these municipalities enforce growth controls and maintain a racial balance. For each location, he reviewed its planning program, interviewed planning staff, studied its history, and reviewed other relevant materials. Pendall found two major elements common to both places: a long record of racial diversity (primarily due to location) and a full range of housing stock that includes affordable homes. In Union City, he also found a political climate that promotes varied housing (i.e., elected officials' support and effective advocacy groups). Franklin Township's mandated affordable housing and focus on growth in the areas served by existing sewer lines contribute to both racial diversity and smart growth.

Another researcher, Pozdena (2002), reaches a very different conclusion about the effect of smart growth on the presence of racial and ethnic minorities in a city or town. He contends that if the restricted growth (i.e., smart growth) policies implemented in Portland, Oregon, had been carried out in the nation's 77 largest metropolitan areas between 1987 and 1997, one million urban families who currently own homes could not have afforded them due to increased housing prices. Pozdena estimates that approximately one-fourth of these families would have been racial minorities.

Pozdena's reasoning is that the pressure of population growth on developable land causes housing prices to rise, which in turn results in lower homeownership rates among racial minorities. He first calculates a "site scarcity index" (i.e., the ratio of population growth between 1990 and 2000 to the increase in developed land between 1990 and 2000) for each of the Census Bureau's metropolitan statistical areas (MSAs). To determine the impact of what he calls "Portlandization" on minority homeownership, Pozdena converts each MSA's site scarcity index to that of Portland, applies this change to the 1990 aggregate home prices, and determines how many fewer white and non-white households could afford homes.

These calculations result in a 45 billion to 52 billion dollar aggregate housing cost increase with the projected outcome that over one million households, including 260,000 minority families, would be unable to buy a home. Pozdena concludes that, "Restricted growth policies, therefore, can fairly be dubbed 'the new segregation,' as they deter African Americans and other minorities from the housing market at disproportionate rates" (2002: v).

It is important to note that Pozdena's work has met with much criticism. Concerns include the use of vague terms, the presentation of incomplete and confusing tables, and the failure to account for (i.e., control for) an area's overall white/non-white ratio when looking at its white/non-white owner occupancy rate. The study was issued by The National Center for Public Policy Research, which describes itself as "a communications and research foundation dedicated to providing free market solutions to today's public policy problems" (The National Center for Public Policy Research 2003). Thus, one could predict that the study would reach an anti-smart growth (i.e., anti-land use control) conclusion. Also, apparently the study has not received formal peer review, although it has been derided by academics and others.

Despite these weaknesses, however, Pozdena's study has been covered by the popular media, bringing it into the public debate over the merits of smart growth. It was discussed on a number of websites, including those of the American Dream Coalition (American Dream Coalition 2004), the American Enterprise Institute for Public Policy Research (Hayward 2004), the North Carolina Smart Growth Alliance (Crisler 2004), and Smart Growth America (Goldberg 2004). Pozdena's work also has been covered by the print media. For example, Joseph Perkins, a *San Diego Union-Tribune* op-ed columnist, presents Pozdena's findings as authoritative, stating that "when metropolitan communities adopt smart growth policies, they shut blacks and Hispanics out of their housing markets at disproportionate rates" (Perkins 2002: A17). Perkins' column was carried by *The Atlanta Journal-Constitution* and perhaps other newspapers around the country. The column was also a topic on some websites, including those of the Greenbelt Alliance (Greenbelt Alliance 2004) and the California Futures Network (California Futures Network 2004).

Nelson et al. (2004) studied factors that might affect level of segregation. They looked at the change in segregation from 1990 to 2000 in 101 metropolitan areas with an urban growth boundary. Three types of segregation were considered: African American/non-Hispanic white, Hispanic/non-Hispanic white, and Asian/non-Hispanic white. Other characteristics they considered were population growth, income, crime level, number of manufacturing jobs, and policies requiring housing for low- and moderate-income households. An interesting finding is that a strong containment boundary (i.e., a boundary with severe restrictions on development outside it) decreases the level of segregation between African Americans and whites, and has no effect on the segregation of Hispanics or Asians from whites.

Finally, while the work of Logan and Crowder (2002) does not address urban growth boundaries specifically, it does examine the effects of growth control on racial (i.e., black/white) housing patterns. The study's sample is 295 incorporated suburban municipalities with populations of at least 2,500 that are in metropolitan San Francisco, Dallas, Chicago, or Philadelphia (chosen to represent each of the four major U.S. Census regions). A survey sent to a planner or official in each jurisdiction asked about its land development policies. The questions covered whether commercial, industrial, and residential zoning were discouraged, limited to some areas, or encouraged. In addition, for each area, the authors calculated the change in racial composition from 1980 to 1990 using Census data. They found no relationship between a jurisdiction's zoning policies and its racial makeup.

My study helps to clarify whether there is a relationship between urban growth boundaries and racial segregation because it expands on Pendall (1995), Pozdena (2002), Nelson et al. (2004), and Logan and Crowder (2002). First of all, it differs from Pendall, Pozdena, and Nelson et al. in that the proposed design compares jurisdictions that have an urban growth boundary with similar jurisdictions without such a boundary. The three studies mentioned looked at only urban areas with a boundary. Second, this study considers more variables than Pozdena and Nelson et al. Third, my study uses the municipality as the level of analysis whereas the others use the metropolitan area. Finally, Logan and Crowder look at the nature of three types of traditional zoning. This study focuses specifically on urban growth boundaries, an innovative and increasingly popular form of land use control.

CHAPTER 3
METHODOLOGY

The study has three main foci. First, the change in the number of black and Hispanic residents in a municipality, due to both in-migration and population growth, in areas with urban growth boundaries versus areas without urban growth boundaries is considered. Next, changes in the indexes of dissimilarity (a common measure of racial residential segregation) in the two types of jurisdictions are compared. Finally, multivariate regression is used to reveal urban growth boundaries' effect, if any, on racial housing patterns (specifically, black-white and Hispanic-white residential segregation) in relation to other relevant factors.

Sample

The total sample size is 86 cases. The sample consists of 43 pairs of municipalities with and without urban growth boundaries. (See the appendix for the list of places in the sample.) Portland, Oregon, and Atlanta, Georgia, are also discussed. Portland is considered a national leader in implementing smart growth measures, while Atlanta is an example of a sprawling metropolitan area.

Pendall's (1995) work is the starting point for developing a list of places with an urban growth boundary. He reports 197 jurisdictions with urban growth boundaries as identified by his 1994 survey of the U.S.'s 25 largest metropolitan areas. From Pendall's list, 46 jurisdictions met the following criteria for being included in the sample: (1) being listed as a city or town (i.e., not a village, township, or other type of jurisdiction) by the Census Bureau in both 1990 and 2000, (2) having an urban growth boundary that was established between 1980 and 1990, (3) having its index of dissimilarity listed on the Lewis Mumford Center's website (www.s4.brown.edu/

s4/acproject.htm), and (4) not being located in Oregon or Washington (since both states require all urban areas to establish urban growth boundaries and, as a result, there are no nearby jurisdictions without such boundaries with which to compare them).

Next, a comparable place was sought for each of the 46 places with an urban growth boundary. Two factors were considered first: location and 1990 total population. Using a United States road atlas (Rand McNally 2004), each city or town with a boundary was marked with a map flag. Then, for each, the general area was carefully studied for possible places to serve as the comparable, looking for places whose names were in the same type font size (since this indicates relative size). To the extent possible, places were identified based on location in the same metropolitan area, comparable distance from the area's central city, and similar relationships to geographic features that are natural (e.g., rivers and lakes) or manmade (e.g., highways).[1]

After location was considered, the 1990 total population of each possible place was obtained from the Census Bureau website. The place that met the location criteria and that had the 1990 population size closest to the 1990 population of the place with a boundary was selected. Also, during the selection process, all of the places' 1990 populations were roughly balanced, with about half having populations that were slightly larger than the places with an urban growth boundary and half having a slightly smaller population. A suitable match could not be found for three places with a boundary and these were dropped from the list. This brought the final sample to 43 pairs.

The selected places without a boundary were then checked against three final criteria: being listed by the Census Bureau as a city or town, being listed on the Lewis Mumford Center's website, and not having an urban growth boundary. To determine whether each place met the third criterion, Pendall's list was checked. If the proposed place was not on this list, the

[1] In the case of San Diego, which has a boundary, a suitable match without a boundary could not be found in California. So, Dallas, Texas, was chosen to pair with it. Both San Diego and Dallas are growing Sunbelt cities. Also, they had similar 1990 total populations; San Diego's 1990 population was 1,110549 and Dallas' was 1,006,877 (U.S. Bureau of the Census 1993).

municipality was contacted by phone and/or e-mail to verify the absence of an urban growth boundary. When the place did not meet all three of the criteria, it was replaced with the second best comparable in terms of location and population.

To give a general picture of the sample, the means for eight characteristics of the places with an urban growth boundary versus the places without an urban growth boundary are presented in Table 1. The most notable difference between the two groups is that the places with a boundary had slightly larger 1990 and 2000 total populations, as well as more in-movers, than places without a boundary. This might reflect that the land use planners and officials in places that experience the pressures of large population growth and many in-movers have felt the need to institute an urban growth boundary. The relatively low percentages of black residents in both types of places is due to the fact that most places with urban growth boundaries (and the municipalities they are matched with) are located in the West or Midwest, and blacks are less numerous in these two regions.

Table 1. Comparison of Places with an Urban Growth Boundary versus Without an Urban Growth Boundary. (N = 43 for each group)

	Means for places with an urban growth boundary	Means for places without an urban growth boundary
Total population, 1990	67,779.30	62,994.02
Total population, 2000	82,921.37	76,076.65
Total in-movers, 1995-2000	26,585.79	24,358.07
Percent black, 2000	4.80	6.93
Percent Hispanic, 2000	13.75	11.51
Percent white, 2000	73.69	73.15
Percent paying 35% or more for rent, 2000	28.19	29.06
Housing units built in 1990s as % of 2000 housing units	24.86	22.83

Terminology

Since the Census Bureau is the main source of data for this study, this research conforms to the Census Bureau's terminology for the three racial/ethnic groups under consideration. These are: (1) non-Hispanic, black alone, (2) Hispanic, and (3) non-Hispanic, white alone. However, for convenience, these will be referred to as "black," "Hispanic," and "white," respectively.

Data sources

The data for this study were obtained from four sources: the U.S. Census Bureau website (http://www.census.gov), the 1990 Census of Population - Social and Economic Characteristics (U.S. Census 1993), the Lewis Mumford Center for Comparative Urban and Regional Research website (http://mumford.cas.albany.edu), and Pendall (1995).

Independent variables

A variety of independent variables that could relate to a place's number of racial/ethnic minorities and its level of residential segregation are included in the study. Descriptions of each of these variables follow, as well as the rationale for including them. The variables are:

(1) Urban growth boundary. This captures whether or not the place has an urban growth boundary. It is a simple dummy variable in which 0 indicates the place does not have an urban growth boundary and 1 indicates the place does have an urban growth boundary. This is the primary independent variable of interest. To review, there are three perspectives on the question of whether urban growth boundaries are indirectly related to racial housing patterns:
(a) boundaries reduce housing affordability, reducing the number of minorities in cities and towns and increasing segregation, (b) boundaries increase housing affordability, encouraging minorities to live in places that have them and reducing segregation, and (c) boundaries have no effect on racial housing patterns.

(2) Size of racial/ethnic minority populations relative to the total population in 1990. Again, the minorities under study are blacks and Hispanics. The relative size of a place's

minority population at a given point in time can indicate its hospitability or lack of hospitability towards minorities. Also, minority residents can affect the size of a place's future minority population by, for example, attracting others of the same race or ethnicity through family, social, and business ties.

(3) Rental housing affordability in 2000. This variable is operationalized by defining unaffordable housing as that which costs 35 percent or more of a household's gross income, in keeping with the Census Bureau definition. Since minorities are generally less affluent than whites, a place's high rental housing costs would make it less affordable – perhaps even prohibitively expensive – for minorities.

(4) New housing built during the 1990s. The number of housing units built between 1990 and 2000 was calculated from Census Bureau data, as was the percentage this represents of the total number of units in 2000. New residential construction is another factor that can affect a place's housing availability, housing costs, and, indirectly, minorities' ability to afford to live in certain places.

(5) Region of the U.S. This variable was operationalized to conform to the Census Bureau's four regions. Region is included to capture historical and geographic differences in minority populations. Midwest is the reference variable, and South and West were assigned dummy numbers. (There are no places in the sample located in the Northeast.)

Analysis

The data were analyzed in a number of ways. First, in-migration was analyzed for each of the three racial/ethnic groups. For each group (blacks, Hispanics, and whites), the 1995-2000 in-movers are calculated as an actual number and expressed as a percentage of the respective group's size in 2000. The mean for both the number and percentage was calculated, first for the places with urban growth boundaries, then for those places without boundaries.

Second, in-movers to each place by racial/ethnic group are expressed as a percentage of each place's total in-movers between 1995 and 2000.

Third, each group's population change between 1990 and 2000 is calculated as a percentage of the group's 1990 population. The population figure reflects both net migration (i.e., the difference between in-migration and out-migration) and net natural change (i.e., the difference between the numbers of births and deaths). The data are analyzed further, by comparing the mean percentages across the three racial/ethnic groups and between places with and without urban growth boundaries.

Fourth, the change between each place's 1990 and 2000 level of residential racial/ethnic segregation is examined. Whether the presence of an urban growth boundary is related to a place's level of segregation is examined. Differences in changes in level of segregation over time while a growth boundary is (or is not) in force is determined by comparing the mean change in the 1990 and 2000 indexes of dissimilarity between the two types of places.

Finally, multivariate analysis is used to determine how much, if any, of the variation in places' level of residential segregation (i.e., index of dissimilarity) is explained by the presence of an urban growth boundary, controlling for other factors. The analysis is conducted twice using the same equation, once for blacks and again for Hispanics.

The multivariate regression equation used is $Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5$, where:

Y = Index of dissimilarity for blacks and whites or Hispanics and whites in 2000,

a = The Y-axis intercept,

X_1 = Urban growth boundary,

X_2 = 1990 black or Hispanic population as percentage of total 1990 population,

X_3 = Percentage of renters paying 35% or more of household income for gross rent in 2000,

X_4 = New housing units built between 1990 and 2000 as a percentage of 2000 total units, and

X_5 = Region.

The following possible independent variables also were considered but not included in the final models due to their weak correlation with the dependent variables and/or due to data missing for a large proportion of cases: (1) the number of households paying 35 percent or more of their income toward a mortgage in 2000, (2) the 1990 to 2000 change in the percentage of owner-occupied units, and (3) the 1990 to 2000 change in black-white median household income ratio. Also, percentage change in total population between 1990 and 2000 was eliminated from the model due to its extremely high correlation ($r = .93$) with the "new housing" variable.

CHAPTER 4

FINDINGS ON IN-MIGRATION AND POPULATION CHANGE

This chapter focuses on two areas: (1) in-migration by blacks and Hispanics to the sample places that either have or do not have an urban growth boundary, and (2) the population changes of blacks and Hispanics in these places. The research goal is to determine whether or not the presence of urban growth boundaries affects the in-migration or population changes of these two racial/ethnic groups.

It is important to note that while there are 86 total places in the sample, data on a few of the variables of interest in this study are not available for all 86 places. The U.S. Census Bureau does not publish data that do not meet its reporting thresholds (i.e., when the size of a racial group or other category is very small, the Census Bureau does not report data on it). Thus, in the tables below, the case counts (i.e., Ns) vary.

As noted previously, this analysis looks at non-Hispanic blacks, Hispanics, and non-Hispanic whites. For convenience, instead of using the full Census Bureau labels, I use the simpler terms of blacks, Hispanics, and whites.

In-Migration by Blacks and Hispanics

This section addresses in-migration by the two minority groups under study: blacks and Hispanics. The purpose of this analysis is to determine whether urban growth boundaries seem to encourage, discourage, or have no effect on minorities' movement into places with them. The in-migration data are examined in relation to: (1) each subpopulation's size in 2000, and

(2) total in-migration. These will be discussed in separate sub-sections. Since some researchers and commentators have highlighted certain differences between Portland, Oregon (probably the most well known place with an urban growth boundary) and Atlanta, Georgia (well known for its sprawl and absence of any growth boundary), I begin these analyses by showing the patterns of Portland and Atlanta, and then present the findings from the more systematic analysis of my sample of places with and without urban growth boundaries.

Each subpopulation's in-migration in relation to its 2000 size. When comparing migration into the city of Portland (with its urban growth boundary) and the city of Atlanta (without an urban growth boundary), it is evident that the place without a boundary attracted a higher percentage of blacks and Hispanics. A larger proportion of blacks and Hispanics moved into Atlanta, relative to each group's 2000 size, than into Portland. This is particularly true of Hispanics. The Hispanic 1995-2000 in-movers to Atlanta numbered 10,054 and represent 53.7 percent of their 2000 population, while in Portland this figure of 13,707 is 38.0 percent. The contrast for blacks between those moving into Atlanta and into Portland is not as great. The Census Bureau counted 48,236 black 1995-2000 in-movers to Atlanta, who represent 19.0 percent of the group's 2000 population, while the 5,653 black in-movers to Portland represent 16.4 percent of its 2000 black population. Atlanta's long history of attracting large numbers of blacks is most likely due to cultural and political factors, not its lack of an urban growth boundary. However, its lack of growth controls and the resulting robust construction industry might be factors in Atlanta's recent attractiveness to many new Hispanic residents, since many Hispanics are employed in the building trades.

The key question, however, is whether a more comprehensive and systematic comparison of places with and without urban growth boundaries will reflect the same pattern as Atlanta and Portland. Actually, the results of analyzing this sample of places indicate that places without boundaries do not attract more (i.e., higher percentages of) blacks and Hispanics than do places with boundaries. As Table 2 shows, the means for the subpopulations separated into places with and without urban growth boundaries are close. The means are the arithmetic averages for each group of places. For blacks, the mean percentage of in-movers to places with boundaries is 44.8 percent, while the mean for places without urban growth boundaries is 41.3 percent. In other words, in both types of places, black newcomers between 1995 and 2000 comprise a substantial portion of the black population living there.

Table 2. Comparisons of Places With and Without Urban Growth Boundaries: Mean Black, Hispanic, and White 1995-2000 In-Migration to Sample Places as a Percentage of Each Group's 2000 Population in that Place. (Independent Samples T-Test)

	N	Mean	Std. Deviation	Mean Difference	Sig. (2-tailed)
Black in-movers to places as % of places' 2000 total black population	30 places with UGB	44.78	15.90	3.43	.354
	32 places without UGB	41.34	13.01		
Hispanic in-movers to places as % of places' 2000 total Hispanic population	39 places with UGB	40.84	11.23	-1.64	.538
	38 places without UGB	42.48	12.00		
White in-movers to places as % of places' 2000 total white population	43 places with UGB	33.34	7.39	-.48	.774
	43 places without UGB	33.82	8.01		

Among Hispanics, the mean percentage of in-movers to places with boundaries is 40.8 percent and for places without boundaries, 42.5 percent. Thus, average black and Hispanic in-migration relative to each group's 2000 size is almost the same, regardless of whether or not the place has an urban growth boundary.

For both subpopulations, the independent samples t-test (shown in Table 2) reveals that there are no statistically significant differences between the means of the places with boundaries and the places without boundaries ($p > .05$). So, in contrast to the impression created by the Atlanta-Portland comparison, urban growth boundaries do not affect blacks' or Hispanics' in-migration to cities and towns.

My second analysis is a more refined comparison of the data on black and Hispanic movement to places with and without growth boundaries. It examines the data on the sample places as matched pairs. To review, each pair consists of places that are similar, to the extent possible, based on their 1990 population, location in the same metropolitan area, distance from the area's central city, and location relative to geographic features that are natural (e.g., rivers and lakes) and manmade (e.g., highways). Two example pairs are Chandler (with a boundary) and Peoria (without a boundary), in metropolitan Phoenix, Arizona, and Plymouth (with a boundary) and Brooklyn Park (without a boundary), in the Minneapolis, Minnesota, area.

Even when the sample places are compared as matched pairs, a contrast similar to that between Atlanta and Portland is not found (see Table 3). The mean differences within each racial/ethnic group are small: 3.1 percent among blacks and -0.9 percent among Hispanics. The paired samples t-test shows that these differences are not statistically significant at the .05 level. This implies that new black and Hispanic residents are being drawn equally to places with and without urban growth boundaries and that these boundaries do not appear to be a barrier to their entry.

Table 3. Comparisons of Pairs of Places With and Without Urban Growth Boundaries: Mean Black, Hispanic, and White 1995-2000 In-Migration to Sample Places as a Percentage of Each Group's 2000 Population in that Place. (Paired Samples T-Test)

	N	Mean	Std. Deviation	Paired differences Mean	Paired differences Sig. (2-tailed)
Black in-movers to places with UGB as % of places' 2000 total black population	28 pairs	43.16	3.34	3.11	.308
Black in-movers to places without UGB as % of places' 2000 total black population		40.05	13.15		
Hispanic in-movers to places with UGB as % of places' 2000 total Hispanic population	37 pairs	40.79	11.52	-.94	.610
Hispanic in-movers to places without UGB as % of places' 2000 total Hispanic population		41.73	11.36		
White in-movers to places with UGB as % of places' 2000 total white population	43 pairs	33.34	7.39	-.48	.673
White in-movers to places without UGB as % of places' 2000 total white population		33.82	8.01		

A frequency analysis reveals a close balance between the number of pairs where the place with a growth boundary has the higher percentage of black and Hispanic in-movers and the number of pairs where the place without a boundary has the higher percentage. To be more specific, for blacks, a frequency table of the 28 pairs with complete data (not presented in this dissertation) shows that the pairs are evenly split in terms of which type of place had more black in-movers. In 14 pairs, the place with the boundary had more black in-movers in relation to the group's 2000 population than did the place without a boundary. For example, Camarillo, California, which has a boundary, received proportionally more black in-movers than did its match, Mission Viejo, California, which does not have a boundary (47.4 percent and 39.9

percent, respectively). In the other 14 pairs, the reverse was true. The place without a boundary had more black in-movers than the place with a boundary. Such a pair is St. Charles, Missouri, which does not have a boundary and where black in-movers represent 35.7 percent of their 2000 population, compared with St. Peters, Missouri, which does have a boundary and where black in-movers were 26.9 percent of the group's 2000 size.

The frequency analysis of the Hispanic data yields similar results. There were 37 pairs of places for which complete data on Hispanic in-movers were available. Of these, 17 pairs exhibited a greater percentage of Hispanic in-movers to places with boundaries than without boundaries. Safety Harbor and Oldsmar, both in Florida, are an example. In Safety Harbor, with a growth boundary, Hispanic in-movers represent 67.8 percent of their 2000 population whereas in Oldsmar, they represent 59.4 percent. In 20 pairs, however, the places without a boundary had a greater percentage of Hispanic in-movers than the places with a boundary. In Cedar Hill, Texas, which does not have a boundary, Hispanic in-movers were 37.4 percent of their 2000 size, while in Lancaster, Texas, with a boundary, the percentage was 32.0 percent.

Thus, analysis of the data grouped by the places' urban growth boundary status and in matched pairs of places suggests that boundaries had no effect on the subpopulations' 1995-2000 in-migration when considered in relation to their 2000 size. On this measure, I find no evidence that urban growth boundaries tend to make places less accessible to blacks or Hispanics.

Each subpopulation's in-migration in relation to total in-migration. Atlanta and Portland also exhibit a striking difference in the in-migration of blacks when expressed as a percentage of the total in-migration from 1995 to 2000. Specifically, in Atlanta blacks comprise 41.0 percent of all in-movers, whereas only 4.1 percent of Portland's in-movers were black.

However, for Hispanics, there is little difference between Atlanta and Portland. In Atlanta, 8.5 percent of the in-movers were Hispanic, while 10.0 percent of Portland's in-movers were Hispanic. Is this pattern, particularly the tenfold difference in the relative number of black in-movers to Atlanta versus Portland, typical of the places in the sample?

Analysis of the sample places when grouped by urban growth boundary status reveals that a boundary does not seem to affect the racial makeup of in-movers. As Table 4 shows, the means of places with and without boundaries are very similar. In places with a boundary, blacks were on average 7.8 percent of all in-movers, while in places without a boundary, blacks on average comprised 9.5 percent of total in-movers in the years 1995 to 2000. Among Hispanics, the mean for places with a growth boundary is 15.3 percent and the mean for places without a boundary is 13.8 percent. The t-test indicates the mean differences for blacks and Hispanics are not statistically significant at the .05 level. This suggests that blacks and Hispanics do not find it easier to move into places without urban growth boundaries than into places with them.

Table 4. Comparisons of Places With and Without Urban Growth Boundaries: Mean Black, Hispanic, and White 1995-2000 In-Migration to Sample Places as a Percentage of 1995-2000 Total In-Migration to that Place. (Independent Samples T-Test)

	N	Mean	Std. Deviation	Mean Difference	Sig. (2-tailed)
Black in-migration to places as % of places' 1995-2000 total in-migration	30 places with UGB	7.76	11.82	-1.76	.527
	32 places without UGB	9.51	9.91		
Hispanic in-migration to places as % of places' 1995-2000 total in-migration	39 places with UGB	15.26	14.63	1.50	.609
	38 places without UGB	13.76	10.70		
White in-migration to places as % of places' 1995-2000 total in-migration	43 places with UGB	71.05	20.28	.50	.908
	43 places without UGB	70.54	20.28		

As with the grouped data, the matched pair data reveal no substantial differences between the places with and without a growth boundary. (See Table 5.) The mean differences are small: -2.5 percent for blacks and 1.8 percent for Hispanics. These differences are not statistically significant at the .05 level.

Table 5. Comparisons of Pairs of Places With and Without Urban Growth Boundaries: Mean Black, Hispanic, and White 1995-2000 In-Migration to Sample Places as a Percentage of 1995-2000 Total In-Migration. (Paired Samples T-Test)

				Paired differences	
	N	Mean	Std. Deviation	Mean	Sig. (2-tailed)
Black in-movers to places with UGB as % of places' 1995-2000 total in-movers	28 pairs	7.70	12.18	-2.53	.180
Black in-movers to places without UGB as % of places' 1995-2000 total in-movers		10.24	10.24		
Hispanic in-movers to places with UGB as % of places' 1995-2000 total in-movers	37 pairs	15.91	14.74	1.85	.402
Hispanic in-movers to places without UGB as % of places' 1995-2000 total in-movers		14.05	10.69		
White in-movers to places with UGB as % of places' 1995-2000 total in-movers	43 pairs	71.05	20.28	.50	.853
White in-movers to places without UGB as % of places' 1995-2000 total in-movers		70.54	20.28		

The frequency analysis (table not presented) reveals the breakdown of pairs between those in which the place with an urban growth boundary has a higher percentage of black and Hispanic in-movers relative to all in-movers and those pairs where the place without a boundary has the higher percentage. Of the 28 pairs with complete data on blacks, in 18 pairs the place with a boundary has the higher percentage. An example is two cities near Tampa, Florida. In Clearwater, which has an urban growth boundary, black in-movers made up 6.1 percent of all in-movers, while in Largo, without an urban growth boundary, they made up 2.2 percent of all in-movers. The other 10 pairs exhibit the reverse relationship (i.e., the place without a growth boundary had a higher percentage of black in-movers than the place with a boundary). Pittsburg and Martinez, both near San Francisco, California, are such a pair. In Pittsburg, without a growth boundary, black in-movers made up 17.9 percent of all in-movers. However, 5.2 percent of all of Martinez's in-movers were black; Martinez has a growth boundary.

The pairs are more evenly split when considering Hispanic in-movers as a percentage of all in-movers. Of the 37 pairs with complete data on Hispanics, in 18 cases did the place with a growth boundary have a higher percentage than the place without one. Both Chaska and Chanhassen are in the Minneapolis, Minnesota, metropolitan area. Hispanic in-movers to Chaska, with a growth boundary, made up 10.0 percent of all in-movers, while they made up only 3.5 percent of in-movers to Chanhassen, without a growth boundary. In contrast, 19 pairs demonstrate the opposite relationship. Two cities south of Milwaukee, Wisconsin, illustrate this. In Greenfield, without a growth boundary, 5.2 percent of its in-movers were Hispanic. But, in Franklin, which has a growth boundary, only 3.2 percent of in-movers were Hispanic.

So, when considering black and Hispanic in-movers in relation to the total number of in-movers between 1995 and 2000, the data — whether places are grouped by growth boundary status or in matched pairs — reveal no differences that might be attributable to the urban growth boundary. Thus, the presence of boundaries does not appear to reduce the ability of blacks and Hispanics to move into cities and towns.

Conclusions about in-migration. The first part of this chapter's analysis demonstrates that the presence or absence of an urban growth boundary does not affect the racial/ethnic makeup of in-movers. This is true whether the subpopulations of in-movers are related to each group's 2000 size or to the total number of in-movers. Although between 1995 and 2000 Atlanta (with no urban growth boundary) experienced proportionally larger influxes of blacks and Hispanics than did Portland (with an urban growth boundary), this was not the typical pattern for places relative to their boundary status. My analysis, based on a thorough study of the data, shows no difference in either blacks' or Hispanics' tendency to move to places with or without urban growth boundaries.

Population Changes of Blacks and Hispanics

The second part of this chapter addresses the population changes of blacks and Hispanics. The goal is to determine whether urban growth boundaries seem to affect the changes in the minorities' population size. The analysis involves, for blacks and Hispanics separately, the change in each group's population size between 1990 and 2000 relative to its 1990 size.

It is important to note that net population change involves a number of contributing factors. In addition to in-migration, population change captures out-migration, births, and deaths. Thus, looking at population change offers a broader view of the possible impact of urban growth boundaries than does in-migration alone. For example, if an urban growth boundary was causing a severe rise in housing costs, then many non-affluent blacks and Hispanics might find that rent or property tax increases make it difficult to remain in the community, so they move out. This would cause slower population increase (or, in a severe case, a decrease) in the black and Hispanic populations in places with urban growth boundaries compared to places without them.

The Census Bureau has published population data for blacks, Hispanics, and whites for all of the sample places in both 1990 and 2000. So, the analysis shown in the tables below include complete data on all 86 places.

Each subpopulation's change in relation to its 1990 size. To examine population change, I again begin by looking at Atlanta and Portland. Both cities experienced a large growth of their Hispanic populations between 1990 and 2000, reflecting the national trend. However, what is most striking about Atlanta and Portland is the similarity of the population changes in the two places. The two cities' black populations changed by less than five percent between 1990 and 2000. Atlanta's black population declined slightly, by 3.4 percent (mainly due to black movement from the city to suburban areas), and Portland's increased slightly, by 4.7 percent. Also, the cities experienced comparable changes in their Hispanic populations. Atlanta's Hispanic population increased by 148.8 percent between 1990 and 2000, while Portland's Hispanic population increased by 159.9 percent. So, the similarities between Atlanta and Portland might imply that growth boundaries have no effect on population changes. Is this actually the case for the 86 places in the sample? Or, will further analysis reveal that, as with the Atlanta and Portland in-migration data, the pattern found in these two cities is not typical?

In fact, the analysis of the data for the sample places indicates that, like Atlanta and Portland, the places' population changes do not seem to be affected by the presence or absence of an urban growth boundary. As shown in Table 6, the mean population changes, expressed as percentages, for the groups of places with and places without urban growth boundaries are close. When considering blacks, the mean population change for places with a growth boundary is 96.7 percent, while the mean population change for places without a growth boundary is 110.8

percent, yielding a mean difference of -14.1 percent. The independent samples t-test indicates that this difference is not statistically significant at the .05 level. Even though it is not significant, this 14 percentage point difference can be accounted for.

Table 6. Comparisons of Places With and Without Urban Growth Boundaries: Mean Black, Hispanic, and White 1990-2000 Population Change in Sample Places as a Percentage of Each Group's 1990 Population. (Independent Samples T-Test)

	N	Mean	Std. Deviation	Mean Difference	Sig. (2-tailed)
Blacks' 1990-2000 population change as % of group's 1990 population	43 places with UGB	96.66	123.47	-14.14	.588
	43 places without UGB	110.79	117.51		
Hispanics' 1990-2000 population change as % of group's 1990 population	43 places with UGB	125.06	177.88	-10.61	.767
	43 places without UGB	135.66	151.54		
Whites' 1990-2000 population change as % of group's 1990 population	43 places with UGB	19.26	41.06	4.76	.563
	43 places without UGB	14.50	34.86		

Closer examination of the distribution of sample places shows that six of the nine places that experienced a decline in their black population size have an urban growth boundary. This explains the observed difference in the computed means between places with and without urban growth boundaries in the sample. However, the rest of the distribution shows a random pattern. Thus, as noted above, the difference in mean percentage change in black population size is not statistically significant.

Similarly, the data on Hispanics show comparable population changes in places with and places without growth boundaries. Among places with a growth boundary, the mean Hispanic population change is 125.1 percent. Among the places without a growth boundary, the mean

Hispanic change is 135.7 percent. The mean difference of -10.6 percent is not statistically significant. Thus, when looking at the places' black and Hispanic population changes between 1990 and 2000 relative to their 1990 population size, the data on Atlanta, Portland, and the rest of sample places suggest that growth boundaries do not have an impact.

The analysis of matched pairs yields the same finding (see Table 7). Again, note that the means of the differences within the matched pairs are close. For blacks, the mean difference is -14.1 percent, while for Hispanics it is -10.6 percent. Neither of these mean differences is statistically significant, according to the paired samples t-test.

Table 7. Comparisons of Pairs of Places With and Without Urban Growth Boundaries: Mean Black, Hispanic, and White 1990-2000 Population Change in Sample Places as a Percentage of Each Group's 1990 Population. (Paired Samples T-Test)

	N	Mean	Std. Deviation	Paired differences: Mean	Paired differences: Sig. (2-tailed)
Blacks' 1990-2000 population change as % of group's 1990 population in places with UGB	43 pairs	96.66	123.47	-14.14	.470
Blacks' 1990-2000 population change as % of group's 1990 population in places without UGB		110.79	117.51		
Hispanics' 1990-2000 population change as % of group's 1990 population in places with UGB	43 pairs	125.06	177.88	-10.61	.704
Hispanics' 1990-2000 population change as % of group's 1990 population in places without UGB		135.66	151.54		
Whites' 1990-2000 population change as % of group's 1990 population in places with UGB	43 pairs	19.26	41.06	4.76	.399
Whites' 1990-2000 population change as % of group's 1990 population in places without UGB		14.50	34.86		

The independent samples t-test (see Table 6) differs from the paired samples t-test (see Table 7) in the number of degrees of freedom because the number of cases (i.e., N) differs.[2] This accounts for the difference in significance levels between Tables 6 and 7. Thus, the comparison of the sample places in matched pairs is consistent with the comparison of places grouped by urban growth boundary status in that it too suggests that a boundary does not influence the minorities' population changes.

For both blacks and Hispanics, the frequency analysis (table not shown) reveals a fairly close split between the pairs where the place with the urban growth boundary has the larger 1990-2000 population change and the pairs where the place without the growth boundary exhibits the larger change. The data on blacks show that for 24 pairs, the change in the place with the growth boundary is larger. Peachtree City and Newnan, both south of Atlanta, are an example. In Peachtree City, which has a boundary, the black population change was 154.2 percent. However, the black population change in Newnan, which does not have a growth boundary, was only 14.4 percent. In the remaining 19 pairs of the sample, the reverse relationship is true. The place without a growth boundary experienced a larger change in its black population. For instance, Lockport (near Chicago, Illinois) does not have a growth boundary and its black population's size increased by 446.7 percent.[3] By contrast, West Chicago, with a growth boundary, experienced only a 35.8 percent increase of its black population.

[2] The degrees of freedom for the independent samples t-test is 84 [(43-1) + (43-1)], while the degrees of freedom for the paired samples analysis is 42 [(43 - 1)]. Since the independent samples t-test--which involves more degrees of freedom than the paired samples t-test--reveals that the mean differences are not statistically significant, the mean differences for the paired samples also are not statistically significant at the .05 level.

[3] This large increase actually represents a very small black population of 30 people in 1990 and 164 people in 2000.

Analysis of the 1990-2000 population change of Hispanics also results in a somewhat balanced split between the number of pairs where the place with the boundary had the greater population change and the number of pairs where the opposite is true. Chandler and Peoria, both in metropolitan Phoenix, Arizona, are one of the 23 pairs in which the place with the boundary experienced the larger growth of its Hispanic population. In Chandler, which has a boundary, the Hispanic population grew by 136.9 percent. In Peoria, which does not have a boundary, the Hispanic population growth was 112.6 percent. The reverse situation occurred in the other 20 pairs of the sample. Two cities in metropolitan Denver, Colorado, illustrate this. Lafayette, without a boundary, had a 76.0 percent increase in its Hispanic population. However, Louisville, with a boundary, experienced only a 43.6 percent increase in its Hispanic population.

Conclusions about population change. This second part of the analysis reveals that the presence or absence of an urban growth boundary did not influence blacks' or Hispanics' population changes between 1990 and 2000 in relation to each of these group's 1990 size. This is true of Portland and Atlanta, examples of places with and without a growth boundary. However, it is also true of the 86 places in the sample. So, as a result of thoroughly analyzing the data, I find that there is no difference in population change between 1990 and 2000 for either blacks or Hispanics based on the places' boundary status.

Conclusion

This chapter considers whether urban growth boundaries around cities and towns influence the movement of minorities in and out of the municipalities. This movement is captured by data on in-migration and, to some extent, population change. Both sets of data reveal that the urban growth boundaries do not affect blacks' or Hispanics' migration. So, the analysis thus far does not support the notion that urban growth boundaries discourage racial or ethnic minorities from living in places with them.

The next analysis examines two more facets of the relationship between urban growth boundaries and minorities. In Chapter 5, the level of residential integration in the sample places is examined to determine if boundaries seem to affect how racially and ethnically integrated the places are. That is, are places with urban growth boundaries more or less integrated than places without them? Also in Chapter 5, multivariate analysis is used to assess whether urban growth boundaries have an influence on the sample places' level of integration when the effects of other factors that might influence integration are controlled.

CHAPTER 5

FINDINGS ON URBAN GROWTH BOUNDARIES AND RACIAL RESIDENTIAL SEGREGATION

This chapter addresses two additional aspects of urban growth boundaries: (1) their effect, if any, on the level of racial residential segregation, and (2) the extent of the effect, if any, of boundaries relative to other factors that might influence level of residential segregation. First, I seek to determine whether places with urban growth boundaries are more segregated (in terms of black-white and Hispanic-white residential segregation) than places without them. I also will see if changes in the level of segregation between 1990 and 2000 were greater in places with or without urban growth boundaries. Second, using multiple regression analysis, I will determine how much, if any, influence the presence of an urban growth boundary has on residential segregation (i.e., as measured by the index of dissimilarity), controlling for other relevant factors.

For the first analyses discussed in this chapter, not all places in the sample are included. This is because the 1990 index of dissimilarity is not available for three places (Oldsmar, Florida; Lockport, Illinois; and Savage, Minnesota). None of these places has an urban growth boundary. However, for the second set of analyses all places in the sample are included, since these are based on 2000 data that are available for the full sample.

As mentioned earlier, there are conflicting findings about the effect of an urban growth boundary on a place's level of racial residential segregation. Pozdena (2002) asserts that boundaries cause housing costs to rise, making the purchase price of homes less affordable to minorities. In fact, he calls restricted growth policies "the new segregation" (Pozdena 2000: v). On the other hand, Nelson (2004) finds that urban growth boundaries are related to less segregation. He compares two places with urban growth boundaries (Portland, Oregon, and Sacramento, California) with two places without boundaries (Charlotte, North Carolina, and Bakersfield, California). The places with boundaries experienced, on average, a greater decline in their level of black-white segregation (i.e., 14.8 percent) between 1990 and 2000, while the places without boundaries had a smaller (i.e., 6.1 percent) average decrease in their level of segregation. Therefore, since Pozdena and Nelson disagree over the direction of the effect of urban growth boundaries on racial residential segregation, in the analyses I use a two-tailed, rather than a one-tailed, significance test. Also, the two-tailed test is more conservative than the one-tailed test.

Level of Racial Residential Segregation

The first analysis explores whether there is a relationship between a place's urban growth boundary status and its levels of black-white and Hispanic-white residential segregation. The level of segregation is quantified by the index of dissimilarity, which is calculated by the Lewis Mumford Center for Comparative Urban and Regional Research at the State University of New York at Albany (http://www.albany.edu/mumford/). The index reflects the distribution of races across all census tracts in a given place.[4] For example, an index of dissimilarity score of 100 means that every census tract in the municipality has residents belonging to only one racial group (i.e., total segregation), while a score of zero means that every tract has the same racial makeup as the municipality as a whole. Researchers generally regard a score of 60 or more as a high level of residential segregation, indexes between 30 and 60 are considered moderate, and dissimilarity indexes below 30 are considered low (Massey and Denton 1993).

[4] Index of dissimilarity (D) = $0.5 \sum_i [(b_{ig} / b_g) - (w_{ih}-w_h)]$, where b_{ig} = number of members of a given minority in census tract i, b_g = total number of members of that minority in the municipality, w_{ih} = number of white residents in census tract i, and w_h = total number of white residents in the municipality.

Level of racial residential segregation in 2000. There are a couple of interesting aspects of the 2000 levels of racial residential segregation. First, the sample places generally reflect a low level of segregation compared to many places in the U.S. The mean 2000 black-white index of dissimilarity for the sample places is 24.9 (with the range being from 0.7 to 66.1). The mean 2000 Hispanic-white index of dissimilarity of the sample places is 22.0 (with the range being from 2.4 to 60.8). These mean indexes are lower than those found in other studies. For example, Logan et al. (2004) calculate a mean 2000 black-white index of dissimilarity of 65.2 and a mean 2000 Hispanic-white index of 51.6 for a sample of 255 metropolitan areas. Also, Frey and Myers (2005) arrive at a mean 2000 black-white index of 58.7 (for 287 metropolitan areas) and a mean 2000 Hispanic-white index of 44.2 (for 281 areas). The places in my sample have much lower indexes of dissimilarity because many are small and have relatively small minority populations, the type of places which typically have low levels of residential segregation.

The second aspect of interest concerning the 2000 levels of segregation is that the indexes of dissimilarity for Portland and Atlanta suggest that places with urban growth boundaries are less segregated than places without boundaries, since Portland's black-white and Hispanic-white indexes of dissimilarity are much lower than those of Atlanta. The city of Portland's black-white 2000 index is 51.8, while the city of Atlanta's is 81.6. Portland's Hispanic-white index is 29.2 and Atlanta's is 57.8. However, when the mean 2000 indexes for the full sample are compared, this pattern is not the case. Places with urban growth boundaries have a mean black-white index of 27.3, while those without urban growth boundaries have a mean black-white index of 22.6. The difference in the levels of Hispanic-white residential segregation in 2000 is even smaller. The mean Hispanic-white index is 22.9 in places with urban growth boundaries and 21.1 in places without boundaries. Thus, in this sample, places with urban growth boundaries seem to have slightly higher mean black-white and Hispanic-white indexes than do the places without boundaries, but as will be shown below, in both cases these differences in 2000 segregation levels are not statistically significant. It appears, therefore, that the sharp contrasts between Portland's lower and Atlanta's higher indexes of dissimilarity are not typical of other places that have and do not have urban growth boundaries.

Changes in level of racial residential segregation: 1990 – 2000. I continue the analysis by examining the changes in the sample places' indexes of dissimilarity between 1990 and 2000. The purpose is to determine whether the presence or absence of urban growth boundaries is related to changes in the places' level of racial residential segregation.

Looking again at Atlanta versus Portland, several differences are notable. First, the city of Atlanta's black-white index of dissimilarity increased very slightly between 1990 and 2000, from 81.3 to 81.6, a gain of .3 points. At the same time, the city of Portland's black-white index decreased quite a bit, from 63.6 to 51.8, a decline of 11.8 points. This means that Atlanta's level of segregation was essentially unchanged during the decade in question, while Portland's blacks and whites became substantially less segregated between 1990 and 2000. The comparison of Hispanic-white changes is quite different. Atlanta's index for Hispanic-white residential segregation increased by 9.9 points (from 47.9 to 57.8) while Portland's index increased by 7.2 points (from 22.0 to 29.2). Thus, both places experienced an increase in the residential segregation of their Hispanic populations, a pattern found in many major U.S. urban areas (Logan, Stults, and Farley 2004).

Overall, then, the data on Atlanta and Portland might imply that places with urban growth boundaries experience much greater declines in black-white residential segregation than places without boundaries. Also, the Atlanta and Portland data suggest that boundaries may have more of an effect on black-white than on Hispanic-white residential patterns since Portland's black-white index change is greater than its Hispanic-white index change.

However, based on an analysis of the sample places grouped by urban growth boundary status, boundaries do not seem to affect the change in the level of racial residential segregation from 1990 to 2000. As Table 8 shows, among the 43 places with urban growth boundaries the mean index of dissimilarity between blacks and whites declined by only .94, while among the 40 places without urban growth boundaries the mean black-white index of dissimilarity rose slightly, by 1.40. A test of significance, however, indicates that this small difference in direction and magnitude is not significant.

Table 8. Comparison of Places With and Without Urban Growth Boundaries: Mean Change in Black-White and Hispanic-White Indexes of Dissimilarity, 1990 to 2000. (Independent Samples T-Test)

	N	Mean Index Change	Std. Deviation	Mean Difference	Sig. (2-tailed)
Black-white 1990 to 2000 change in index of dissimilarity	43 places <u>with</u> UGB	-0.94	9.86	2.34	0.221
	40 places <u>without</u> UGB	1.40	7.08		
Hispanic-white 1990 to 2000 change in index of dissimilarity	43 places <u>with</u> UGB	5.17	7.87	0.21	0.903
	40 places <u>without</u> UGB	5.38	7.69		

The Hispanic-white segregation indexes increased between 1990 and 2000 by an average of 5.17 in places with boundaries and by an average of 5.38 in places without boundaries (see Table 8). Again, the changes in the Hispanic-white dissimilarity indexes are not divergent enough to create a statistically significant difference between places with and without urban growth boundaries.

On the other hand, analyzing the 1990 and 2000 black-white indexes of dissimilarity separately (i.e., by year) reveals a somewhat different picture (see Table 9). In 1990, the difference between the mean dissimilarity index for blacks and whites in places with urban growth boundaries and places without boundaries was statistically significant. Specifically, Table 9 shows that the mean index of dissimilarity in 1990 for places with a boundary was 28.22, while the mean index for places without a boundary was 20.99. This difference of 7.23 is statistically significant (p = .042).

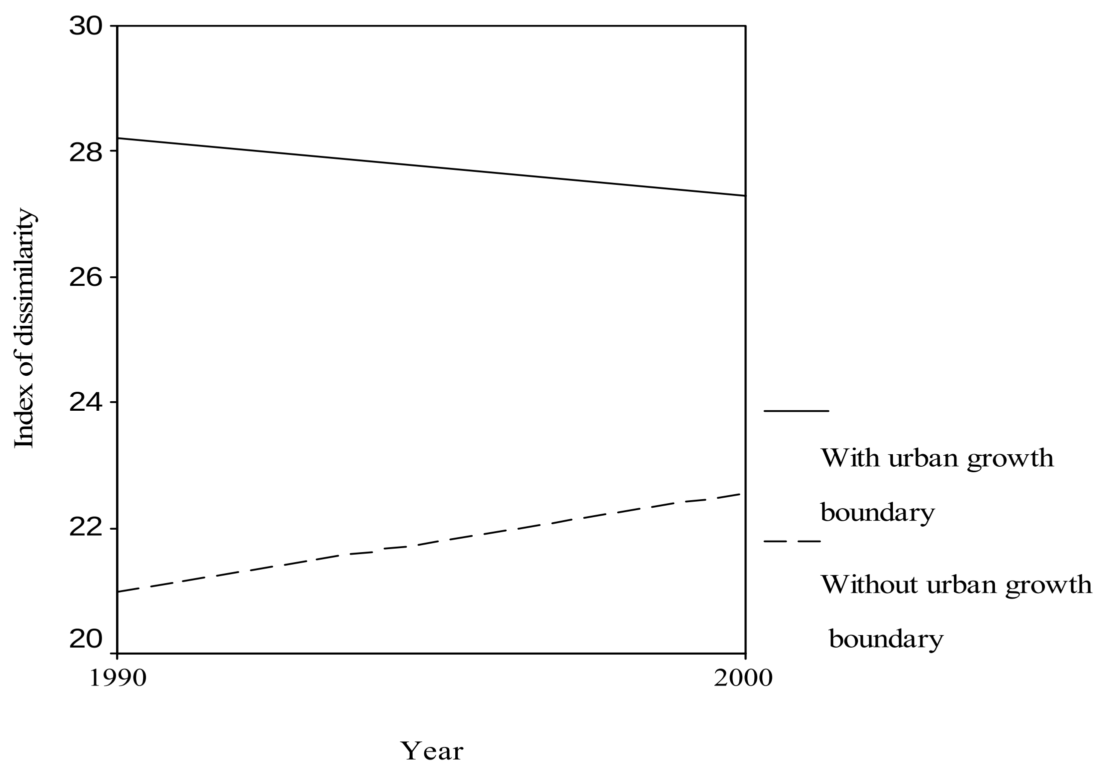
Table 9. Comparison of Places With and Without Urban Growth Boundaries: Mean Black-White Index of Dissimilarity in 1990 and in 2000. (Independent Samples T-Test)

	N	Mean Index	Std. Deviation	Mean Difference	Sig. (2-tailed)
Black-white 1990 index of dissimilarity	43 places with UGB	28.22	17.03	7.23	0.042
	40 places without UGB	20.99	14.73		
Black-white 2000 index of dissimilarity	43 places with UGB	27.28	13.10	4.71	0.096
	43 places without UGB	22.56	12.89		

By 2000, though, the difference between the mean black-white indexes loses statistical significance (p = .096). As mentioned above, in 2000, the mean black-white index of dissimilarity for places with a boundary is 27.28 and the mean index of places without a boundary is 22.56, but this difference of 4.71 is not significant at the .05 significance level. Overall, then, during the 1990s places with boundaries experienced slightly declining residential segregation, while places without boundaries experienced slightly increasing segregation, thereby narrowing the difference in residential segregation between them. Thus, by 2000, the places without urban growth boundaries no longer had significantly less black-white segregation than places with urban growth boundaries.

The 1990 to 2000 changes in the mean black-white indexes of dissimilarity in places with and without urban growth boundaries are also shown in Figure 1. The difference (distance on the y-axis) between the two 1990 mean indexes is significant (i.e., higher residential segregation in places with urban growth boundaries), but the distance between the two 2000 mean indexes is not significant.

Figure 1. Mean Black-White Index of Dissimilarity for Places With an Urban Growth Boundary and Places Without an Urban Growth Boundary, 1990 and 2000.



This finding suggests that boundaries might indeed have influenced the level of black-white residential segregation in the past, but by 2000 they no longer made a significant difference, though we must wait to see results from the multivariate analysis before accepting this conclusion. No similar results, however, are found when examining the 1990 and 2000 Hispanic-white indexes of dissimilarity (figure not shown), and it appears unlikely that the presence or absence of urban growth boundaries affects their segregation level.

Figure 1 also raises the question of whether the black-white 1990 to 2000 segregation changes by type of place are statistically significant (i.e., whether the changes indicted by the slopes of the lines are significant). The t-test to examine this question reveals that neither the change in segregation in places with urban growth boundaries (Figure 1 solid line: $t = .625$, sig. = .535) nor the change in places without boundaries (Figure 1 broken line: $t = -1.249$, sig. = .219) is significant.

Table 10 shows the matched pairs analysis of the changes in the indexes of dissimilarity (using only the 40 pairs of places for which I have segregation data in both 1990 and 2000). These results lean towards suggesting a slight pro-integrative effect of urban growth boundaries for blacks and whites, but this effect is not large enough to be statistically significant ($p = .113$). The data in Table 10 suggest that places with urban growth boundaries, on the whole, experienced more declines or smaller increases in black-white segregation between 1990 and 2000 than places without boundaries, but this difference is too small to be statistically significant. However, no similar finding is true of Hispanic-white segregation. The mean of the paired differences for the changes in the Hispanic-white indexes is not even close to being significant at either the .05 or .10 percent confidence level.

Table 10. Comparison of Pairs of Places With and Without Urban Growth Boundaries: Mean Black-White and Hispanic-White 1990 to 2000 Changes in Index of Dissimilarity. (Paired Samples T-Test)

	N	Mean Index Change	Std. Deviation	Paired differences	
				Mean	Sig. (2-tailed)
Black-white 1990 to 2000 change in index of dissimilarity in places with UGB	40 pairs	-1.33	9.05	2.73	0.113
Black-white 1990 to 2000 change in index of dissimilarity in places without UGB		1.40	7.08		
Hispanic-white 1990 to 2000 change in index of dissimilarity in places with UGB	40 pairs	5.62	7.64	0.24	0.880
Hispanic-white 1990 to 2000 change in index of dissimilarity in places without UGB		5.38	7.69		

Consistent with the pattern suggested in Table 10, the frequency analysis of the matched pairs (table not shown) reveals a difference between the 1990 to 2000 changes in the black-white indexes of dissimilarity and the 1990 to 2000 changes in the Hispanic-white indexes. Looking at the black-white indexes, in 28 of the 40 pairs, the place without the boundary had a larger increase in its index, indicating a greater rise in residential segregation, than the place with a boundary. For example, among these pairs (in which the place without a boundary experienced the greater change) are Santa Clarita and Santa Paula, both in California. Santa Clarita, without a boundary, had a black-white index increase of 8.8, while the increase in Santa Paula, with a boundary, was 5.3. In the remaining 12 pairs, the place with a boundary had the larger change in its black-white index. An example pair is Stillwater, Minnesota, with a boundary, which experienced an index increase of 13.7 and White Bear Lake, Minnesota, without a boundary, which had an index decrease of 1.1.

However, in contrast to the uneven split in the black-white index changes, the Hispanic-white changes within pairs are more evenly divided. There are 19 pairs where the place without the boundary had the greater change in its index and 21 pairs where the place with the boundary had the larger change. Bridgeton and O'Fallon, both in Missouri, are an example of the first group. Bridgeton, without a boundary, experienced an increase of 21.9 in its Hispanic-white index, while O'Fallon, which has a boundary, had a decrease of 1.4. McKinney and Allen, both in Texas, belong to the latter group. McKinney, with a boundary, had an increase of 14.6 points in its Hispanic-white index, while Allen, without a boundary, experienced an increase of 2.6.

Conclusions about changes in level of racial residential segregation. In summary, this analysis suggests that urban growth boundaries might have a small but real effect on places' changes in level of residential segregation, at least for blacks and whites. This statement is based on the narrowing, between 1990 and 2000, of the difference between the places with and without boundaries in their mean black-white index of dissimilarity (as shown in Table 9 and Figure 1). During the 1990s, in places with boundaries, blacks and whites became slightly less segregated while in places without boundaries, they became slightly more segregated.

Multivariate Regression Analysis of Urban Growth Boundaries' Effect on Level of Racial Residential Segregation

The second part of this chapter deals with the effect, if any, of urban growth boundaries compared to other variables that might influence a place's level of racial residential segregation. The multivariate regression analysis of the black-white data will be discussed, followed by a discussion of the analysis of the Hispanic-white data. First, however, I will present and consider the bivariate correlation matrix for the variables included in the analyses.

Each model involves a dependent variable and five independent variables. The dependent variable is the 2000 black-white or Hispanic-white index of dissimilarity. The independent variables are included based on each variable's theoretical relevance to, and correlation with, the dependent variable. The independent variables are:

(a) UGB: Whether or not the place has an urban growth boundary, the independent variable of interest (coded as a dummy variable, where 0 signifies no urban growth boundary and 1 indicates an urban growth boundary);

(b) BLACK/HISPANIC: The 1990 black/Hispanic population as a percentage of the total 1990 population, to capture the size of the minority population at the start of the study period;

(c) HIRENT: The percentage of households paying 35 percent or more of their income in rent in 2000, to address the affordability of rental units (which would be more likely to house low-income and minority residents than owner-occupied units);

(d) NEWHOUSING: The number of housing units built in the 1990s as a percentage of all 2000 housing units, to address the changes in the local housing market (which affect housing availability and thus affordability); and

(e) WEST and SOUTH: Regional dummy variables capture any geographic differences in racial housing patterns. These dummy variables are used to code each place's region according to the U.S. Census Bureau's scheme. The reference region is the Midwest (no places in the sample are located in the Northeast).

Bivariate correlations of variables. The bivariate correlation matrix of the dependent and independent variables is shown in Table 11. Several of the correlations are statistically significant.

Table 11. Pearson Correlation Coefficients and their Levels of Statistical Significance for Dependent and Independent Variables used in Multivariate Analysis.

	Black/white dissimilarity index, 2000	Hispanic/white dissimilarity index, 2000	Does place have UGB?	Percent black population, 1990	Percent Hispanic population, 1990	Percent 35% or more for rent, 2000	1990s housing units as % of 2000 housing units	Place is in West	Place is in South
Black/white dissimilarity index, 2000	1.000	.485** .000	.181 .096	.345** .001	.077 .482	.047 .666	-.137 .210	-.150 .167	.198 .067
Hispanic/white dissimilarity index, 2000	.485** .000	1.000	.069 .529	.219* .042	.447** .000	.341** .001	-.115 .291	.225* .038	.011 .917
Does place have UGB?	.181 .096	.069 .529	1.000	-.117 .282	.104 .343	-.088 .423	.070 .521	.023 .831	-.031 .779
Percent black population, 1990	.345** .001	.219* .042	-.117 .282	1.000	.119 .276	.151 .165	-.146 .180	-.094 .391	.505** .000
Percent Hispanic population, 1990	.077 .482	.447** .000	.104 .343	.119 .276	1.000	.462** .000	-.207 .056	.549** .000	-.141 .194
Percent 35% or more for rent, 2000	.047 .666	.341** .001	-.088 .423	.151 .165	.462** .000	1.000	-.267* .013	.559** .000	-.038 .727
Housing units built in 1990s as % of 2000 housing units	-.137 .210	-.115 .291	.070 .521	-.146 .180	-.207 .056	-.267* .013	1.000	-.254* .018	.053 .628
Place is in West	-.150 .167	.225* .038	.023 .831	-.094 .391	.549** .000	.559** .000	-.254* .018	1.000	-.419** .000
Place is in South	.198 .067	.011 .917	-.031 .779	.505** .000	-.141 .194	-.038 .727	.053 .628	-.419** .000	1.000

* $p \leq .05$. ** $p \leq .01$. Two-tailed test.

For example, consistent with other research, the 2000 black-white dissimilarity index has a positive, but somewhat weak, correlation ($r = .345$, $p = .001$) with the percentage of the total population that was black in 1990. Thus, places with larger black populations in 1990 were more residentially segregated in 2000 than were places with smaller black populations.

Considering Hispanic-white segregation, the percentage of the population that was Hispanic in 1990 has a positive, moderate correlation ($r = .447$, $p = .000$) with the 2000 Hispanic-white index of dissimilarity. In addition, three of the independent variables have positive, but weak, correlations with the 2000 Hispanic-white index. They are: the percentage of the total population that was black in 1990 ($r = .219$, $p = .042$), the percentage of households that paid 35 percent or more of their income for rent in 2000 ($r = .341$, $p = .001$), and the place being located in the West, compared to being located in the Midwest ($r = .225$, $p = .038$). Thus, places with relatively larger black and Hispanic populations in 1990, places with a larger proportion of residents paying high rents, and places located in the West generally have higher 2000 Hispanic-white indexes of dissimilarity (i.e., greater segregation between the two groups).

The correlation matrix also reveals interesting findings about places with urban growth boundaries. Contrary to the claims of some critics of urban growth boundaries, the presence of these boundaries does not appear to increase the housing affordability problem. In other words, places with urban growth boundaries do not have higher percentages of households paying more than 35% of their income for rent ($r = -.088$, $p > .05$). In addition, contrary to those who claim that urban growth boundaries effectively slow down new housing construction, the insignificant correlation between urban growth boundaries and percentage of 2000 housing units that were built in the 1990s ($r = .070$, $p > .05$) indicates that places with and without urban growth boundaries do not differ in new housing construction. On the other hand, there is a statistically significant weak negative correlation (r = -.267, p = .013) between the "new housing" and "high rent" variables. This suggests that the addition of new housing helps to reduce the cost of rental units.

Factors affecting black-white segregation. Next, multivariate regression analysis is used to identify and evaluate variables that influence black-white segregation. The results are shown in Table 12. All 86 places in the sample are included in the analysis.

Table 12. Multiple Regression (OLS) Analysis of Black-White Residential Segregation (Index of Dissimilarity Index), 2000.

Variables	Black-White Segregation
	B (standard error) Beta
Constant	16.193[†] (9.538)
Urban growth boundary	6.381* (2.647) .244
Percent black in 1990	.578** (.202) .343
Percent paying 35% or more for rent in 2000	.31 (.334) .118
Housing units built in 1990s as % of 2000 units	-.12 (.096) -.132
Region: West [a]	-6.518[†] (3.645) -.249
Region: South [a]	-2.06 (4.486) -.060
Adjusted R^2	.152

Notes: [†] p < .10 [*]p < .05 [**] p < .01 [***] p < .001
[a] Midwest is reference category for regions

The analysis reveals several interesting findings. The adjusted R^2 indicates that the independent variables in the model explain 15.2 percent of the linear variation in the 2000 black-white index of dissimilarity. Of greater substantive interest, the analysis demonstrates that the presence of an urban growth boundary is a statistically significant predictor of the 2000 black-white index of dissimilarity (b = 6.381, Beta = .244, p = .018), controlling for the other variables in the model. This finding contradicts the t-test result for 2000 shown in the previous section (Table 9, where no significant difference is found between places with and without boundaries in 2000). The regression analysis results indicate that controlling other variables allows detection of the urban growth boundary's positive effect on the 2000 index of dissimilarity. In other words, places having an urban growth boundary tend to have higher indexes of dissimilarity (by 6.381 points), thus greater black-white segregation, than places that lack an urban growth boundary.

The effects of two other variables are also noteworthy. The strongest predictor of the 2000 black-white dissimilarity index is the percentage of the 1990 population that was black (b = .578, Beta =.343, p = .005). Again, the effect is positive, that is, the places in the sample with a higher percentage of blacks in 1990 have a higher index of dissimilarity. Also, a marginally significant variable, being located in the West, has a negative effect on the 2000 black-white index (b = -6.518, Beta = -.249, p = .078). On average and net of other variables in the model, places in the West have indexes of dissimilarity that are 6.518 points lower than places in the Midwest.

The lower level of black-white segregation in Western cities compared to other parts of the U.S. parallels the findings of other studies whose authors suggest why this is true. For example, Glaeser and Vigdor (2001) and Farley and Frey (1994) hypothesize that Western cities have lower black-white segregation because they are generally newer than cities elsewhere and were settled later, when (1) racial animosity had lessened, (2) there were more middle-class blacks, and (3) the black populations were too small to cause “white flight.” Logan, Stults, and Farley (2004) suggest that cities in the West and South have lower levels of black-white segregation because cities in the Midwest and Northeast are more likely to have independent suburbs that can keep out blacks, forcing them to concentrate in the central city.

The 2000 black-white index of dissimilarity is not significantly affected by the percentage of households paying 35 percent or more of their income in rent in 2000, the number of housing units built in the 1990s expressed as a percentage of the number of housing units in 2000, or being located in the South compared to being in the Midwest.

The multivariate regression analysis conveys the fact that urban growth boundaries have an impact on black-white residential segregation. Specifically, the analysis shows that a place’s having a boundary is related to a somewhat higher 2000 black-white index of dissimilarity (i.e., greater segregation) rather than a lower index (i.e., less segregation). It is important to note here that these results do not coincide with my previous findings about the 1990 to 2000 changes in the level of segregation, which suggested that the presence of urban growth boundaries is related to less segregation in 2000 (as shown in Table 9 and Figure 1).

Factors affecting Hispanic-white segregation. I conducted a second multivariate regression analysis using the Hispanic-white data (see Table 13). The dependent variable is the 2000 Hispanic-white index of dissimilarity. Four of the independent variables from the black-white regression are used again (i.e., UGB, HIRENT, NEWHOUSING, and WEST / SOUTH).

The 1990 Hispanic population as a percentage of the total 1990 population replaces the comparable variable for the black population. Data for all 86 places in the sample are included.

The Hispanic-white multiple regression analysis yields several findings. First, the adjusted R^2 for the Hispanic-white regression is very close to that of the black-white regression. The independent variables in the Hispanic-white regression explain 17.7 percent of the linear variation in 2000 Hispanic-white index of dissimilarity. By comparison, the independent variables explain 15.2 percent of the linear variation in the 2000 black-white index of dissimilarity.

Table 13. Multiple Regression (OLS) Analysis of Hispanic-White Residential Segregation (Index of Dissimilarity), 2000.

Variables	Hispanic-White Segregation
	B (standard error) Beta
Constant	1.522 (9.623)
Urban growth boundary	1.326 (2.655) .050
Percent Hispanic in 1990	.495*** (.150) .404
Percent paying 35% or more for rent in 2000	.580† (.339) .218
Housing units built in 1990s as % of 2000 units	-.01 (.094) -.006
Region: West [a]	-2.86 (3.901) -.108
Region: South [a]	1.17 3.919 .034
Adjusted R^2	.177

Notes: † $p < .10$ * $p < .05$ ** $p < .01$ *** $p < .001$
[a] Midwest is reference category for regions

Upon closer inspection, however, the Hispanic-white regression results yield one valuable finding that differs from those of the black-white regression. Most importantly for this study, the presence of an urban growth boundary is not a statistically significant factor affecting the 2000 Hispanic-white index of dissimilarity. Thus, there is not a relationship between whether or not a place has an urban growth boundary and its level of Hispanic-white segregation in 2000.

Only two independent variables are found to be statistically significant in influencing the 2000 Hispanic-white index of dissimilarity. The first is the percentage of the 1990 population that was Hispanic (b = .495, Beta = .404, p = .001). This is the strongest predictor of the 2000 Hispanic-white index. The effect is positive, that is, the larger the proportion of the Hispanic population relative to the total population in 1990, the higher the 2000 index (i.e., the greater the segregation). A second marginally significant variable is the percentage of households paying 35 percent or more of their income in rent in 2000 (b = .580, Beta =.218, p = .092). This effect also is positive. The larger the proportion of households paying high rents in 2000, the higher the 2000 index of dissimilarity. None of the remaining variables (i.e., NEWHOUSING, WEST, or SOUTH) has a statistically significant effect on 2000 Hispanic-white index of dissimilarity.

Comparison of Bivariate and Multivariate Analyses

When considering the factors that affect places' level of segregation, it is useful to compare the results of the bivariate correlation analyses with the results of the multivariate regression analyses. The results of a bivariate correlation analysis indicate the strength and direction of an association (if any) between two variables. The results of a multivariate regression analysis indicate any co-variation between each independent variable and the dependent variable, while the effects of the remaining independent variables are controlled.

The black-white analyses will be compared first. The bivariate analysis (see Table 11) indicates that two independent variables are weakly and positively associated with the dependent variable, the 2000 black-white segregation index. They are the 2000 Hispanic-white index ($r = .485$, $p = .000$) and the percentage of the 1990 population that was black ($r = .345$, $p = .001$). However, when all of the independent variables are entered into a multivariate regression analysis (see Table 12), three are found to be statistically significant: the presence of an urban growth boundary, the percentage of the 1990 population that was black, and being located in the West. Thus, when the other independent variables are controlled for, these three factors are found to affect the level of black-white segregation, as discussed earlier. The multivariate regression analysis, then, provides more useful information than that generated by the bivariate correlation analysis.

On the other hand, the multivariate regression analysis of Hispanic-white segregation yields fewer significant independent variables than does the bivariate correlation analysis. The bivariate analysis indicates that the dependent variable of the 2000 Hispanic-white dissimilarity index has a weak and positive association with four independent variables. These are the percentage of the 1990 population that was black, the percentage of the 1990 population that was Hispanic, the percentage of households paying high rents in 2000, and being located in the West. However, the multivariate regression analysis (see Table 13) indicates that only the percentage of the 1990 population that was Hispanic is statistically related to 2000 Hispanic-white segregation. In the case of Hispanic-white segregation, the multivariate regression analysis was useful in eliminating each of three independent variables that do co-vary with the dependent variable when the effects of the other variables were controlled.

There are numerous factors that might affect a place's level of racial/ethnic segregation. In addition to those studied in this research, the factors include: preferences among both whites and racial/ethnic minorities, housing stock and availability, housing costs, public school quality, level of public safety, family and social ties, real estate practices (including discrimination), employment opportunities, availability of public transportation, and the presence or absence of cultural institutions (e.g., churches, community centers, etc.). These are all aspects that could influence where people live. No one study can include all of the possible relevant variables. First, many of the variables are better suited to qualitative analysis, rather than quantitative analysis as undertaken here. Also, data for the variables that can be quantified might be unavailable or difficult to obtain.

Conclusion

While, ideally, my results would unambiguously support one of the sides in the debate about urban growth boundaries' effect on racial residential segregation—as voiced by Pozdena or Nelson—the analyses in this chapter do not allow this. Instead, it seems that each side can use at least some of my results to support its view.

Two findings support Pozdena's position that urban growth boundaries increase racial residential segregation. First, in 1990 the black-white index of dissimilarity was significantly higher in places with urban growth boundaries than in places without them (see Table 9). Second, the black-white multiple regression analysis of the 2000 data does reveal that, with other variables controlled, having an urban growth boundary increases a place's black-white index of dissimilarity (as shown in Table 12). Thus, places with urban growth boundaries have higher levels of black-white residential segregation than places without them.

On the other hand, those who contend that urban growth boundaries do *not* promote racial segregation can point to the following findings that support their position:

(1) The difference between the mean change in index of dissimilarity between 1990 and 2000 index for places with boundaries versus places without boundaries is not statistically significant for either black-white or Hispanic-white segregation (as shown in Table 8).

(2) The difference in black-white residential segregation between places with and without urban growth boundaries diminished between 1990 and 2000 and their mean index of dissimilarity scores seem to be converging (as reflected in Table 9 and Figure 1). If this trend continues, a difference might no longer exist in the future

(3) Urban growth boundaries do not raise or lower places' level of Hispanic-white residential segregation (refer to Table 11 and most other tables in this chapter). Boundaries do not exhibit any ill effects on Hispanic-white segregation.

The findings from the analyses discussed in this chapter, then, are not conclusive in settling the debate about whether urban growth boundaries affect racial residential segregation. However, the preponderance of the results (coupled with the previously noted fact that overall levels of racial segregation in the places studied here are relatively low) supports the view that urban growth boundaries are not a strong cause of racial residential segregation. They may contribute to somewhat higher levels of black-white segregation (but not to Hispanic-white segregation), though the size of this effect seems to be declining.

My findings do not give any support to the argument that having urban growth boundaries causes a decline in black-white segregation (as Nelson [2004] contends). In fact, my research implies that analyses of residential segregation patterns that rest largely on comparisons of Portland, Oregon (a "poster child" for controlled growth) versus Atlanta, Georgia (a "poster child" for uncontrolled growth) can be quite misleading in that they over-state the pro-integrative effect of urban growth boundaries.

CHAPTER 6

DISCUSSION AND CONCLUSION

Urban Growth Boundaries and the Presence of Minority Residents

The majority of the findings support the position that urban growth boundaries do not affect either the racial makeup of cities' and towns' in-movers or their population changes. Boundaries also generally do not strongly affect places' levels of black-white or Hispanic-white segregation.

First, the presence or absence of an urban growth boundary did not affect the racial/ethnic makeup of the in-movers to the cities and towns in the sample. This is the case whether the number of black or Hispanic in-movers is analyzed in relation to each group's 2000 size or in relation to the total number of in-movers. Thus, a place's having an urban growth boundary did not discourage either of the minority groups from moving into those places.

Second, the presence or absence of a boundary around each of the places in the sample did not influence blacks' or Hispanics' population changes between 1990 and 2000 in relation to each subpopulation's 1990 size. Since the Census Bureau does not capture out-movement data, population change is used to suggest, in part, the balance in the number of people who are moving into and out of each place. The fact that no differences were found between places with and without urban boundaries indicates that the boundaries' effects are not encouraging or forcing minorities to leave. This finding contrasts with Harden's (2006) observation that minorities are being forced out of two prominent cities with urban growth boundaries — Portland, Oregon, and Seattle, Washington — due to increasing housing costs.

A third finding is that there is not a significant difference between the mean 1990 to 2000 change in the index of dissimilarity for places with boundaries versus places without boundaries, for either black-white or Hispanic-white segregation. This suggests that a place's having an urban growth boundary has no effect on its change in level of segregation; in other words, it does not seem to make the place become more or less segregated.

However, it is important to note that the findings of this research do not all point entirely in the same direction. While the findings cited above suggest that there is not a relationship between urban growth boundaries and racial residential segregation, two other findings indicate that there might be a very specific relationship between urban growth boundaries and blacks' level of segregation from whites. First, in 1990 the black-white index of dissimilarity was significantly higher in places with urban growth boundaries than in places without them (but still within the low to moderate level of residential segregation). Second, the black-white multiple regression analysis of the 2000 data reveals that, with other variables controlled, having an urban growth boundary increases a place's black-white index of dissimilarity (i.e., increases residential segregation) by about six points.

The findings regarding black-white segregation might be due to blacks' unique position as a minority in America's predominantly white society. Blacks (i.e., African Americans) have lived in the U.S. for hundreds of years and have lived in substantial numbers in U.S. cities for decades. It may be that the somewhat higher level of black-white segregation (i.e., the higher index of dissimilarity) in places with urban growth boundaries is the product of blacks' becoming established in those cities when residential segregation was the norm. An array of measures created and maintained segregated cities, such as zoning, redlining (i.e., avoidance of minority areas) by mortgage and insurance companies, restrictive covenants, and racial steering by real estate agents. The sample cities with urban growth boundaries may reflect these dynamics more strongly if those cities are older or if their black communities have been there longer than those in cities without growth boundaries. Unfortunately, I cannot test this possibility since the places in my sample were not matched by age. Also, I do not have information on the age of these municipalities or the black communities residing in them.

Factors Affecting Black-White Versus Hispanic-White Segregation

This study does reveal some interesting insights into factors affecting black-white versus Hispanic-white segregation. First, though, it is important to note that the black-white and Hispanic-white multiple regression analyses share a common finding, namely that the independent variables in the model explain only a small amount of the variation in the 2000 index of dissimilarity scores. The black-white model explained 15.2 percent of the variation, while the Hispanic-white model explained 17.7 percent.

On further examination, however, the two multivariate regressions reveal that different factors are correlated with the 2000 level of black-white segregation than with the Hispanic-white segregation. For black-white segregation, the presence of an urban growth boundary and the proportion of the 1990 population that was black both have significant positive correlations with the 2000 level of black-white segregation, while being located in the West (as opposed to the Midwest) has a significant negative relationship. However, none of the other variables in the regression that reflect possible explanations, such as housing affordability, suggests why this might be so. Additional research examining the effect of other factors is needed.

It is clear how the proportion of a place's population that belongs to a minority race or ethnicity might help determine to what extent that group is segregated from the majority population of whites. It is understandable that a large minority population might be found in "pockets" within a city, rather than being evenly spread throughout. These enclaves would increase a place's level of segregation and index of dissimilarity. Such enclaves would not be captured by the index of dissimilarity used in this research. However, there is a group of clustering indexes that would address this issue. These include the absolute clustering index which expresses the average number of a group's members in contiguous units as a proportion of the total population in those units. Two other clustering indexes that might be useful are the spatial proximity index and the relative clustering index (Martori, Hoberg, and Suriñach 2005). These indexes could be used to analyze whether there is a relationship between urban growth boundaries and clusters or enclaves of minorities.

Also, a place being located in the West relates to a lower level of black-white segregation. Western cities have more new housing and fewer ghettos, are more dispersed, and have fewer black residents than other U.S. cities. All of these factors contribute to a low level of black-white segregation. As a result of urban growth boundaries being more prevalent in the Western U.S. than in other regions of the country, 46 percent of the sample places in this study are in the West. (Of the 43 places in the sample with boundaries, 20 are in Arizona, California, or Colorado.) As these Western cities attempt to control sprawl, it will be interesting to see if the smart growth measures, including urban growth boundaries, help to avoid the higher levels of segregation seen elsewhere.

For Hispanic-white segregation, only the proportion of the 1990 population that was Hispanic and the percentage of households paying 35 percent or more of their income for rent in 2000 were significantly statistically correlated with the 2000 Hispanic-white level of segregation.

Thus, Hispanic households are sensitive to the cost of rental housing. Rents that are high relative to Hispanics' incomes have an influence on whether Hispanics can live in a given place.

Limitations of this study

As with all studies, this research has some limitations. Several pertain to the sample. First, the definition of the phrase "urban growth boundary" is not uniform throughout the United States, nor is the way urban growth boundaries are implemented or administered the same in all places. So, asking a land use planner whether his city or town has an urban growth boundary does not always yield a simple "yes" or "no" answer, and even if two different cities have them, it does not necessarily mean that their urban growth boundaries function in the same way. The researcher occasionally must make a determination based on the planner's description of his municipality's land use policies. Another consideration is that no two cities or towns are a perfect match. In each place, there are unique factors, other than the presence or absence of an urban growth boundary, that affect its racial residential pattern. A third issue is that the sample of places with urban growth boundaries obtained from Pendall (1995) generally have a low 1990 index of dissimilarity (as did the places they were matched with). Their mean 1990 black-white index is 28.22 and their mean Hispanic-white index is 17.74. These are low compared to the United States as a whole (Massey and Denton 1993) and therefore the places studied here are atypical of most other U.S. municipalities in terms of residential segregation levels.

Also, it is important to keep in mind that, regarding smart growth policies, this research looks at only the urban growth boundary. The urban growth boundary is just one smart growth technique among an array of techniques. Most cities and towns that are concerned about urban sprawl implement a number of smart growth measures, which might include an urban growth boundary. The additional effects, if any, of other smart growth practices are not captured by this study.

The period under consideration is another constraint. Since the study uses 1990 and 2000 Census data, it is timely in that it looks at recent changes, but it does not look at long-term changes. As today's urban growth boundaries continue to be in force into the future, it will be interesting to examine whether they have an impact on racial residential segregation over many decades.

Finally, it must be noted that the index of dissimilarity used in this study is but one measure of segregation. This index was chosen because it is widely used and easily accessible. However, Massey and Denton (1988) classify 20 different indexes of segregation into five dimensions: evenness, exposure, concentration, centralization, and as mentioned earlier, clustering. Evenness measures, such as the index of dissimilarity, compare the spatial distribution of groups among units in a metropolitan area. The exposure measures analyze the likelihood of interaction between members of minority and majority groups. Concentration measures consider the amount of physical space occupied by a minority population in a metropolitan area. Measures of centralization look at the extent to which a group is spatially located near an urban area's center. As described above, clustering measures capture how groups cluster in space. Considering the impact of urban growth boundaries using these each various types of segregation measures might yield different results than those reported here.

In spite of these limitations, this research is a creditable effort to examine whether urban growth boundaries have racial residential effects. Parameters are necessary in every study in order to make the study focused and feasible. Within its specific parameters, this project sheds some new light on the research question at hand.

Sociological and Policy Implications

Since this study yields mixed findings about the relationship between urban growth boundaries and their effects on racial/ethnic minorities, neither a strong "pro" nor "con" position can be taken regarding boundaries. Thus, this research does not support Pozdena's (2002) negative stance on urban growth boundaries, and the beneficial effects on controlling urban sprawl and protecting open land must be fully acknowledged.

However, sociologists and urban planners should not be insensitive to or complacent about the possible sociological effects of urban growth boundaries. Based on this study's results and the fact that boundaries have been used generally since only 1980, there is a need for continued interest in the racial impact of boundaries. In the future, this analysis or a similar study should be conducted using updated Census data in order to monitor for the effects of urban growth boundaries. As boundaries remain in force over many decades, their impact on the U.S.'s ever evolving cities and towns merits ongoing study.

It is also critical that planners and elected officials remain alert to and consider the possible effects of their land use decisions on the racial/ethnic makeup of residents. Just as an environmental impact study is a required part of many proposals, the possible sociological impacts should also be addressed. As Bobo suggests, "Always pose an explicit race question" (2000:307).

Gentrification continues to be a concern in relation to smart growth practices. As mentioned earlier, gentrification by whites and the displacement of blacks are occurring in both Portland, Oregon, and Seattle, Washington, two cities with urban growth boundaries (Harden 2006). These changes might be due, at least in part, to the cities' urban growth boundaries. Since the Pacific Northwest is the national leader in implementing smart growth measures, it is also at the forefront of revealing the effects of these techniques. Sociologists and urban planners should consider the recent dynamics in Portland and Seattle as a warning of some of the possible unintended effects of smart growth.

Efforts can be made to ensure that minorities are considered by, and involved in, smart growth initiatives. One example is equity planning or the "conscious attempt by some professional urban planners to devise and implement redistributive policies that move resources, political power, and participation toward low-income groups" (Krumholz 1997, p. 167). Equity planners place a high priority on the needs of society's disadvantaged groups and seek to design cities that benefit all residents. Bobo (2000) suggests the following as measures planners should take to achieve this goal: incorporating the disadvantaged into the planning process, considering a proposal's possible effects on disadvantaged groups, advocating for low-income housing, and monitoring for possible housing discrimination and violations of anti-discrimination laws.

Planners can take additional measures to foster stable, racially integrated neighborhoods. These are suggested by the work of Ellen (2000) and Maly and Nyden (2000) who identified factors that contribute to such neighborhoods. A range of housing options, including a substantial number of rental units, is correlated with integrated neighborhoods. Renting an apartment or house is more affordable than homeownership, making the area more accessible to minorities. Also, since social networks are important to maintaining stability, creating venues such as recreation centers, parks, and meeting facilities is vital. These facilitate interaction and bonding among neighbors, encouraging them to reach outside their own household and social network. Likewise, ensuring that a neighborhood has amenities like stores and services, good schools, and a low crime rate makes an area desirable to all - whites and minorities, owners and renters, and current and potential residents.

Another approach to promoting racial integration in cities is to increase minorities' participation in the profession of urban planning. While the proportion of black students (about ten to 12 percent) in North American master's of urban planning degree programs is close to blacks' proportion in the general population, they make up only six percent of planning doctoral students and six percent of planning faculty (Thomas 1997). Other racial minorities are even less represented. To increase urban planning programs' accessibility to minority students, they could be offered at a larger number of historically black colleges and universities, where they currently are rare (Sen 1997). These programs might be more likely to incorporate awareness of, and sensitivity to, the concerns of racial minorities than are predominantly white schools.

Conclusion

I return to the question posed by the title of this dissertation: Is smart growth *fair* growth? This research, with regard to urban growth boundaries, shows that the answer is, for the most part, yes, based on the preponderance of evidence. This response is based on a definition of "fair" as an outcome in which urban growth boundaries do not hinder the in-movement, population growth, or residential integration of blacks or Hispanics.

In positioning my research in the ongoing debate about the impact of urban growth boundaries in particular and smart growth in general, I occupy the middle ground. That is, based on the evidence uncovered here, I do not concur with Pozdena's (2002) conclusion that "Portland style" growth containment policies exclude racial/ethnic minorities. But, neither do my findings support Nelson's (2004) contention that these growth control devices strongly promote integration. This research also shows that implied patterns based on comparisons of Portland and Atlanta are often misleading and should not go unchallenged.

As smart growth practices, and specifically urban growth boundaries, gain momentum, their possible effect on who lives in areas with boundaries becomes an increasingly vital concern. Further, as racial and ethnic minorities continue to make up a greater and greater proportion of U.S. residents, smart growth's impact on racial housing patterns is an important consideration for land use planners, sociologists, and society as a whole. Most of the results of this research should reduce or allay fears that urban growth boundaries are a barrier to the entry of racial minorities to communities.

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APPENDIX

List of pairs of places in sample.

State	Place with urban growth boundary	Place without urban growth boundary
AZ	Chandler	Peoria
AZ	Mesa	Tempe
CA	Camarillo	Mission Viejo
CA	Cathedral City	Banning
CA	Dublin	Pleasanton
CA	El Cajon	La Mesa
CA	Grand Terrace	Loma Linda
CA	Martinez	Pittsburg
CA	Milpitas	Newark
CA	Oxnard	Oceanside
CA	Pinole	Hercules
CA	Pleasant Hill	Walnut Creek
CA	Poway	Santee
CA	San Diego	Dallas, TX
CA	San Rafael	San Pablo
CA	San Ramon	Danville
CA	Santa Paula	Santa Clarita
CA	Thousand Oaks	Simi Valley
CO	Golden	Broomfield
CO	Louisville	Lafayette
FL	Clearwater	Largo
FL	Pinellas Park	Bradenton
FL	Safety Harbor	Oldsmar
GA	Peachtree City	Newnan
IL	McHenry	Woodstock
IL	W. Chicago	Lockport
MD	Westminster	Aberdeen
MN	Chaska	Chanhassen
MN	Eden Prairie	Minnetonka
MN	Plymouth	Brooklyn Park
MN	Prior Lake	Savage
MN	Ramsey	Elk River
MN	Stillwater	White Bear Lake
MN	Woodbury	Oakdale
MO	O’Fallon	Bridgeton
MO	St. Peters	St. Charles
TX	Lancaster	Cedar Hill
TX	McKinney	Allen
WI	Franklin	Greenfield

State	Place with urban growth boundary	Place without urban growth boundary
WI	Kenosha	Racine
WI	Muskego	Glendale
WI	New Berlin	Brookfield
WI	West Bend	Watertown