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Annexation and the Fiscal Fate of Cities

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"Expanding, elastic cities maintain growing tax bases and can sell bonds at lower interest rates, meeting needs for both municipal facilities and major infrastructure with regional benefits."

Findings

An analysis of the relationship between the annexation patterns and fiscal health of the nation's largest cities shows that:

- **A city's ability to annex land from its surrounding county is a primary determinant of its fiscal health. Cities with greater abilities to annex have much higher bond rating scores.** Of cities in large metropolitan areas, every city that expanded its boundaries by as little as 15 percent between 1950 and 2000 had a high bond rating in 2002. Conversely, all cities with low bond ratings are those that had been unable to expand their boundaries.

- **The ability to annex land varies widely by region and state.** Most high-bond-rated cities are located in "big box" states (primarily in the South and West) where land is more easily annexed. Most low-bond-rated cities are in "little box" states (primarily in the Northeast and Midwest) where land is more difficult, or impossible, to annex.

- **Annexation is far from an outmoded, dying practice.** During the 1990s, about 90 percent of the central cities that could annex additional land did so. Collectively, in just one decade they expanded their municipal territory by more than 3,000 square miles.

The flexibility to annex surrounding land and communities was more important to a city's bond rating (a sign of fiscal health) than the area's poverty rate or median household income. Annexing land, therefore, appears to be an important route to economic health and development for the nation's urban areas. State legislatures can play a vital role in ensuring the fiscal viability of their state by reviewing, and revising if necessary, state land development, zoning, and annexation laws. With careful planning, states can promote more compact development, preserve farmland and natural areas, and encourage reinvestment in older residential and commercial areas.

Introduction

Politicians, think tank policy analysts, and academics constantly argue why some cities succeed and others fail. One such view was succinctly summarized in 1995 by then-Speaker of the House Newt Gingrich, speaking specifically of Atlanta: "The city's got too many problems. The solution for Atlanta's problems is for city government to get its own house in order. Eliminate union featherbedding. Cut the bureaucracy. Slash high taxes that are driving families and jobs out of Atlanta. Become a lean, well-run, low-cost government like its suburbs. Then Atlanta can compete on even terms."[1]

Gingrich is not alone is espousing such policy prescriptions. However, thorough analyses show that cities' relative fiscal health is not simply determined by virtue or sin at City Hall. Rather, it is determined by their demographic profiles and economic bases within the context of sprawling metropolitan development patterns.[2]

Moreover, recent scholarship has shown that the more a region is broken up into multiple governments ("little boxes"), the more racially and economically segregated its housing market is and the slower its rate of regional economic growth.[3]

Annexation (which results in "big box" local governments) is often dismissed as an effective response to metropolitan decentralization and core disinvestments, primarily because in many parts of the country, annexation is either prohibited (the Northeast) or rarely an option because central cities are often trapped within rings of incorporated suburbs (the Midwest and coastal California).

First explored in the book *Cities without Suburbs*, the striking contrasts between elastic and inelastic cities has a direct relation to fiscal health. This more detailed survey demonstrates the crucial interrelationship between municipal elasticity and municipal fiscal health as measured not by various academic indices, but by financial markets—specifically, the assessment of a city's long-term fiscal health by rating agencies, which must advise investors of the relative risks they face in putting their own money on the line by purchasing a city's general obligation bonds.

Methodology and Definitions

To evaluate the relationship between municipal fiscal health, urban elasticity, and various socioeconomic conditions, this survey uses multivariate, least-squares linear regression analysis. Regression analysis measures the degree to which a dependent variable (typically the outcome of interest) and one or more independent variables (factors potentially affecting the outcome) are interrelated. A correlation of 1.0 (adjusted r-square) means that a change of some magnitude in the independent variable will be accompanied automatically by a completely predictable change in the dependent variable (that is, they are fully correlated). In this case, as annexation increases, fiscal health increases. A correlation of 0.0 means that the two variables are not correlated at all. In other words, annexation has no association with fiscal health. Thus, the nearer to 1.0 the number is, the more highly correlated the variables are. (However, a high degree of correlation does not necessarily mean that changes in independent variables *cause* changes in dependent variables.)

Bond ratings (dependent variable)
This study uses municipal bond ratings as assigned by Moody's Investors Service in the October 2002 edition of *Mergent Bond Record*. A casual review of the listings shows that most municipal bonds are marketed with Aaa ratings ("blue-chip," or the highest rating possible). Offering municipalities with an underlying rating

of less than Aaa will typically pay an insurance premium to one of several bond insurance companies (for example, MBIA, AMBAC, FGIC). These insurance companies guarantee their bonds' redemption to future bond holders; the lower a municipality's underlying bond rating, the greater the insurance premium. Because the interest here is in Moody's assessment of a municipality's long-term fiscal health, the study identified either the most recent "issuer letter rating" or the most recent "uninsured" issuance of general obligation bonds. Typically, general obligation bonds are backed by the municipality's long-term stream of property taxes or (less frequently) sales taxes. (The study did not include revenue bonds backed by utility revenues, revenues from other enterprise operations, or project-based financing given that these are not based on an assessment of the municipality's long-term economic health.)

This survey yielded Moody's bond ratings for 450 of the 581 current or former U.S. central cities (classifications sometimes change due to specific Census Bureau requirements on population and employment). Cities for which ratings could not be established fell into three groups: 1) those that had become too poor to be able to issue bonds (for example, East St. Louis, IL, and Benton Harbor, MI), 2) those that showed neither an uninsured issuance nor an "issuer credit rating," or 3) those that had never used Moody's Investors Service.

Any statistical analysis requires converting a letter grade (Aaa, Aa1, etc.) to a numerical value. Moody's Investors Service was consulted to establish the following scale:

Conversion of Rating Grades to Numerical Values

Aaa = 10.0	A1 = 6.5	Baa1 = 4.5
Aa1 = 8.5	A2 = 6.0	Baa2 = 4.0
Aa2 = 8.0	A3 = 5.5	Baa3 = 3.5
Aa3 = 7.5		Ba1 = 2.5
		Ba2 = 2.0
		Ba3 = 1.5

Any rating less than Ba3 indicates a very high-risk "junk bond" that cannot be purchased by pension funds, insurance companies, institutional endowments, and other investors with fiduciary responsibilities.

Urban elasticity and capture/contribute percentages (independent variable)

To establish the degree to which central cities did or did not expand their municipal boundaries, the study used data from the decennial censuses from 1950 to 2000.[4] It determined the land area for all 541 cities designated in 1950 as central cities and still holding that designation as of 2000. The study excluded those that had come into existence after 1950 (for example, Cape Coral, FL, and Irvine CA); those that had more than 2,500 residents but had reported no municipal area to the Census Bureau in 1950 (for example, Rogers, AK, and Jonesboro, AK); and those that had fewer than 2,500 residents in 1950 and were not listed in the decennial census.

In *Cities without Suburbs*, I employed a measure of the degree to which central cities either "captured" or (through population loss) "contributed" to the growth of the rest of the city's metropolitan region.[5] However, that past practice understated capture/contribute percentages of central cities in regions with multiple, substantially co-equal central cities (for example, Raleigh-Durham-Chapel Hill, NC, or Albany-Schenectady-Troy, NY). Therefore, this survey shifts the geographic framework from entire (often multicounty) metropolitan areas to a city's capture/contribute percentage of popu-

lation change in its host county.

For example, in 1950, Raleigh's population at 65,679 lived within 11 square miles; Wake County, its home county, had 136,450 residents. During the next 50 years, Wake County grew to 627,846 (an increase of 491,396). However, during that same period, Raleigh (a high-elastic city) expanded its city limits through annexation to 115 square miles, for a total population of 276,093 in 2000 (an increase of 210,414). In effect, Raleigh had "captured" 43 percent of Wake County's population growth (calculated as Raleigh's gain of 210,414 divided by Wake County's gain of 491,396).

Had Raleigh's capture rate been measured against the entire six-county metropolitan area, it would have been only 27 percent; other metro shares would have been captured by sister central cities Durham (15 percent) and Chapel Hill (5 percent). Instead, within its own home county context, high-elastic Durham captured 95 percent of the population growth of Durham County, and hyper-elastic Chapel Hill captured 47 percent of the population growth of Orange County. Measuring these central cities' gains against their home counties properly reflects the dominance of these highly elastic, big-box cities (all of which are Aaa bond rated).

The Albany-Schenectady-Troy region is a parallel setting but with very different outcomes. All central-city boundaries were frozen shortly after 1950 (as are all the boundaries of the 1,545 municipalities that make up the "little box" state of New York). As a consequence, while Albany County's population rose from 239,386 in 1950 to 294,565 in 2000 (a gain of 55,179), Albany city's population dropped from 134,995 to 95,658 (a loss of 39,337). Therefore, low-elastic Albany "contributed" -71 percent of its county's population growth.

With smaller county population growth and proportionally larger city population losses, zero-elastic Troy contributed -116 percent of Rensselaer County's modest net growth, and zero-elastic Schenectady's contributed -838 percent of Schenectady County's virtually stagnant population.[6] (In effect, both cities' population losses were so great that they wiped out any small gains that the balance-of-county had made.) Compared with the North Carolina "blue-chip" cities, Albany was rated a mediocre A3, Schenectady a dismal Baa2, and Troy a catastrophic Ba1 (second lowest bond rating to Flint, MI's, Ba2 among all central cities that are bondable).[7]

County-less cities: The study handled cases in which a central city was not part of a county in different ways. For the central-city-county consolidations listed in Appendix A that occurred after 1950, the resolution was easy. The analysis treats consolidation as one large annexation in which the city captured all of the county's net population growth. *Net* population growth refers to the county's growth in population minus that of any unmerged, smaller municipalities.[8]

A thornier issue arose in the case of pre-1950 consolidated cities or with "independent cities." Cities that consolidated with their counties prior to 1950 include New Orleans-Orleans Parish (1805), Philadelphia City and County (1852), and San Francisco City and County (1856). "Independent cities" established by state law (cities that exercise all county powers as well) included St. Louis City (1876) and Baltimore City (1918). The question for the analysis was, during the past 50 years, into what county could they hypothetically have expanded?

The solution was to place them within the framework of abutting counties on the theory that, but for the constraints of state law, these cities could have been annexing suburbanizing areas. Thus, Baltimore City hypothetically could have been annexing new development in sur-

rounding Baltimore County and Anne Arundel County. To assess properly the capture or contribute rate of the central city within this hypothetical "annexation zone," the analysis added the city's population to the population of the two abutting counties. In 1950, the combined population of the city and the two counties was 1,337,373; by 2000, it had risen to 1,895,104 (a net gain of 557,731). However, Baltimore City's population had shrunk from 949,708 to 651,154 (a net loss of 298,554). Thus, Baltimore City contributed -54 percent to its hypothetical "annexation zone's" growth.[9]

Norfolk, VA (Princess Anne County) and Portsmouth, VA (Norfolk County, Nansemond County) represent special cases given that their abutting counties municipalized as Virginia Beach City, Chesapeake City, and Suffolk City, respectively, to prevent further annexation by Norfolk and Portsmouth. For purposes of analyzing Norfolk and Portsmouth's annexation potential, this survey assumes that converting these counties into municipalities never happened. On the other hand, given that both Virginia Beach and Chesapeake are qualified central cities, in analyzing their elasticity, they are treated as post–1950 city-county consolidations. Another special case is 61-square-mile Washington, DC, specified by the U.S. Constitution as a federal district of 100 square miles. In 1846, Congress returned 39 square miles of the District of Columbia to Virginia. Alexandria City, VA, and Arlington County, VA, are included in Washington, DC's, hypothetical "annexation zone" as if retrocession never occurred.

Although this survey analyzes the interaction of urban elasticity and municipal fiscal health for all 450 central cities for which bond ratings could be located, it focuses on the 106 primary central cities listed in Appendix B. They are all (or have been) designated central cities within metropolitan areas of more than 500,000 residents in Census 2000.[10] With one exception, they all have (or have had) populations in excess of 100,000.[11] All are the primary central city within their home county; secondary central cities are omitted from the analysis. (Thus, for example, within Wayne County, MI, Detroit is included, but Dearborn is omitted; within Pinellas County, FL, Tampa is included, but Clearwater is not.) On the other hand, if two or more central cities share a metropolitan area and meet the minimum population threshold but are located in different counties, both are included (for example, Minneapolis and St. Paul, MN).

Appendix B groups the 106 central cities according to the elasticity categories first developed in *Cities without Suburbs*. They are divided into groups by their relative elasticity: hyperelasticity, high elasticity, medium elasticity, low elasticity, and zero elasticity. Elasticity scores are calculated on the basis of the relative rankings of cities' residential density in 1950 and the degree to which they annexed additional land from 1950 to 2000.

Other independent variables

The study tested a wide range of economic and social indicators against bond ratings initially through single variable regressions. Interestingly, long-term trends in job and income growth both at regional and (where it could be isolated) at city level had relatively low (although statistically significant) explanatory power. City and regional poverty rates and city and regional household income rates had the greatest correlation with bond ratings, and were used as the other independent variables.

Findings

A. A city's ability to annex land from its surrounding county is a primary determinant of its fiscal health. Cities with greater abilities to annex have much higher bond rating scores.

Of 106 principal cities in metropolitan areas of more than 500,000 residents, all that expanded their boundaries, even by as little as 15 percent, between 1950 and 2000 had no less than an A3 bond rating in 2002. All cities with low bond ratings (Baa and Ba) had been unable to expand their boundaries in the face of sprawling regional development (see Table 1).

A city's elasticity, as measured by its capture/ contribute percentage of its county's population change, was the dominant demographic (or socioeconomic) variable correlated with its municipal bond rating in 2002 (see Appendix Table C2 and C3). In effect, in the multivariate analysis, city elasticity totally subsumed the influence of the four economic measures, as none was statistically significant (although each had correlated with bond ratings in single variable regressions).

Hyper-elastic cities captured 64 percent of their county's population growth; high-elastic cities, 48 percent; and medium-elastic cities, 29 percent. All groups averaged lofty Aa2 bond ratings.[13]

Table 1. Bond Ratings by Elasticity Grouping

City Type	Average City Capture/ Contribute Percentage	Average City Elasticity Score	Average Bond Rating
Hyper-elastic	64%	33.5	8.2 (Aa2)
High elastic	48%	29.2	8.1 (Aa2)
Medium elastic	29%	23.4	8.0 (Aa2)
Low elastic	-22%	14.7	6.6 (A1)
Zero elastic	-44%	6.9	5.5 (A3)

Source: Author's calculations.

The correlation between five independent variables (city capture/ contribute percentage, city poverty rate, metro poverty rate, city median household income, metro median household income) and the dependent variable (2002 city bond rating) was 0.49 (see Appendix Table C1). That is a robust correlation considering that another entire dimension of rating agency criteria is not captured by these "environmental" variables. Rating agencies weigh such financial factors as the level of a city's outstanding indebtedness, quality of its fiscal management, limitations and conditions on the city's indebtedness imposed by state law, and so forth, as well as demographic and socioeconomic factors in determining a city's bond rating.[12]

Almost without exception, inelastic cities have contributed to (and not captured) their county's populationchange since 1950 through their sustained population losses. The only central cities that added population without adding land during the past five decades were Miami, San Francisco, Elizabeth and Paterson, NJ, and New York City. All five were returned to the positive side of the population ledger by sizable immigration of Hispanics and Asians in the 1990s. As a group, low-elastic cities' population losses contributed -22 percent of their counties' net change, and they averaged A1 bond ratings,

while zero-elastic cities' population losses accounted for -44 percent of their counties' population change and they averaged even lower A3 ratings.

Analyzing 106 cities individually admits some wide variations (sometimes quite anomalous).[14] Grouping them averages out such anomalies and establishes the central trend. Table 2 extends the analysis to 185 principal cities in metro areas of more than 250,000, grouped by their bond ratings, and calculates the average capture/contribute percentage for each grouping.

Table 2. Population Capture/Contribute Percentage by Bond Rating Group

Bond Rating Group	Number of Cities	Average Capture/Contribute Percentage
Aaa	13	57%
Aa1	14	28%
Aa2	34	39%
Aa3	31	26%
A1	33	15%
A2	16	10%
A3	16	-28%
Baa1	11	-54%
Baa2	8	-37%
Baa3	5	-52%
Ba	4	-61%

Source: Author's calculations.

The correlation between bond ratings and capture/contribute percentages for these grouped categories is a 0.91 (see Appendix Table C3). Even the elasticity scores register a correlation with bond ratings of 0.86. Both are extraordinarily high correlations.

A city's elasticity (whether measured by capture/contribute rates or by arbitrary scale of elasticity scores) determines how well it succeeds in maintaining its market share of sprawling growth. Maintaining (or even increasing) its market share appears to be the dominant factor in determining municipal bond ratings. Expanding, elastic cities maintain growing tax bases and can sell bonds at lower interest rates. They can both meet their own need for municipal facilities and undertake major infrastructure investments that can benefit entire regional economies. Inelastic cities can often do neither; they are highly dependent on state bailouts or state financing of major regional investments.

B. The ability to annex land varies widely by region and state.

Because urban elasticity plays such a central role in determining cities' fiscal health, it is worth examining annexation patterns during the past half-century. Of course, all cities were elastic in their youth, but for the past half-century, annexation trends have varied dramatically. Most high-bond-rated cities are located in big-box states (primarily in the South and West) where land is more easily annexed. Most low-bond-rated cities are in little-box states (primarily in the Northeast and Midwest) where land is more difficult, or impossible, to annex (see Table 3).

In big-box states, municipalities are organized only in more urbanized areas; they are surrounded by unincorporated land that falls under the general authority of county governments. As urbanization continues, elastic cities capture the new development by annexation or, more rarely, by city-county consolidation. In little-box states, all territory is divided among a myriad of cities, villages, boroughs, towns, or townships. Throughout New England, New York, New Jersey, and Pennsylvania, all such jurisdictions have full municipal powers, and their boundaries are immutable; there is not one square inch of unincorporated land. In

Table 3. Average City Bond Rating by Region

Region	Average City Capture/ Contribute Percentage	Average City Elasticity Score	Average City Bond Rating
South	34%	25.8	7.6 (Aa3)
West	34%	25.5	7.8 (Aa2)
Midwest	-20%	16.8	7.2 (<Aa3)
Northeast	-34%	7.1	5.2 (<A3)

Source: Author's calculations.

the Midwest, townships' legal status and political power vary from weak (Indiana) to almost politically unassailable (Michigan). Moreover, in many major metropolitan areas, the traditional central city has become surrounded by incorporated suburbs and can no longer expand. (This is also true of the San Francisco-Oakland and Los Angeles regions.) In little-box regions, inelastic cities typically contribute to their suburbs' growth through population and job loss.

As is illustrated in Appendix B, in the big-box South and West (except for Los Angeles and San Francisco-Oakland), most cities generally continued their long history of annexing significant amounts of land during the 1990s. More than three-fourths of Southern and Western cities fell into the most elastic categories (medium-, high-, and hyper-elastic). A dozen others were low elastic, and only Miami, FL, Wilmington, DE, Washington, DC, and San Francisco, CA, were zero-elastic cities.

By contrast, all Northeastern cities were zero-elastic except low-elastic Albany, NY, and Allentown, PA (each added a few square miles to their municipal territory in the 1950s before state laws foreclosed further annexations). The 22 Midwestern cities were evenly split among the zero-, low-, and medium-elastic categories. Four Midwestern cities (Kansas City, MO; Wichita, KS; consolidated Kansas City-Wyandotte County, KS; and Indianapolis-Marion County, IN) edging into the high-elastic category.

C. Annexation is far from an outmoded, dying practice.

During the 1990s, of approximately 400 central cities that could annex additional land (among 568 total central cities), 249 did annex additional land. Collectively, in just one decade they expanded their municipal territory by 3,041 square miles, nearly an 11 percent increase, or an area larger than the entire state of Delaware. During the past five decades, the nation's central cities as a whole almost tripled in area, from 10,604 square miles in 1950 to 31,405 square miles in 2000.[15]

Through annexation, or city-county consolidation, these elastic cities brought new subdivisions, shopping centers, regional malls, and office and industrial parks within their expanding city limits. Many developments sprang up on vacant land annexed by the city in anticipation of such growth; existing developments that were annexed had often been built to city specifications and were already served by city utilities. In either case, annexation added greatly to city tax bases.

It is true that annexation activity in the 1990s was less than in any previous decade since 1950 (see Table 4). However, closer examination shows that the number of square miles annexed was only slightly lower than in the 1980s and about 85 percent of the rate in the 1950s. The significant annexation during the 1960s and

Table 4. Summary of Annexation Patterns by Decade and City/State Type: 1950-2000

City/State Type	City Area in Square Miles					
	1950	1960	1970	1980	1990	2000
Little Box (rigid) (110 cities)	**2,600**	**2,630**	**2,651**	**2,663**	**2,679**	**2,672**
Decade change		30	21	12	16	-7
Little Box (hard) (51 cities)	**1,064**	**1,244**	**1,441**	**1,545**	**1,633**	**1,726**
Decade change		179	197	105	88	93
Little Box (soft) (87 cities)	**1,396**	**1,845**	**2,560**	**2,818**	**3,115**	**3,432**
Decade change		449	715	257	297	317
Virginia (11 cities)	**166**	**215**	**264**	**325**	**364**	**365**
Decade change		49	50	61	39	1
Consolidated City-County (13 cities)	**185**	**384**	**2,194**	**4,688**	**4,704**	**5,103**
Decade change		199	1,811	2,493	17	399
Big Box (296 cities)	**5,194**	**7,876**	**10,858**	**13,124**	**15,868**	**18,108**
Decade change		2,683	2,982	2,266	2,744	2,240
Total (566 cities)	**10,604**	**14,194**	**19,969**	**25,162**	**28,364**	**31,405**
Decade change		3,589	5,775	5,194	3,202	3,041

Source: U.S. Bureau of the Census, various years.

1970s was the result of significant consolidation efforts, especially in Anchorage, AK, Jacksonville, FL, and Nashville, TN.

To determine how annexation plays out under different regulatory regimes, the center cities were organized into categories on the basis of their state's annexation laws—or lack thereof—from rigid (laws make it nearly impossible to annex), to hard, to soft (easy to annex).

Little Box (rigid) contains the six New England states, New York, New Jersey, and Pennsylvania. All these states are fully divided into municipalities with no unincorporated land. Very infrequently, two jurisdictions (a village and a town, for example) will merge. Such a merger expanded Danbury, CT, from 3.9 square miles to 43.9 square miles in the 1960s. Such mergers accounted for most of the net growth in these 110 zero-elastic cities during the five decades. Most variations in municipal area in this category are the result of either better surveying or coast-land reclamation.[16]

Little Box (hard) covers Michigan, Minnesota, and Ohio. All are divided into townships that legally are not municipalities and therefore subject to annexation. However, their state township associations are very politically powerful and, as the category designation suggests, annexations are difficult to accomplish. The modest level of annexations in this category appears to be trending downward, largely a reflection of the decreasing rate of annexation by the city of Columbus, OH.[17]

Little Box (soft) includes Iowa, Illinois, Indiana, Kansas, Missouri, Nebraska, Wisconsin, and North and South Dakota. All have townships, but they are legally and politically weak and, to degrees that vary from state to state, their lands are annexed with some regularity. The large increase of annexed land in the 1960s was driven largely by Kansas City, MO's, acquisition of land north of its downtown as the site for its

new airport. Three-quarters of these cities have doubled in size since 1950, and one-half have grown by at least 10 percent since 1990.

Virginia occupies a category by itself. Counties overwhelmingly consist of unincorporated land. However, Virginia has a unique, statewide system of "independent cities" that are not part of their surrounding counties. Prior to 1972, Virginia's cities annexed regularly, but in 1972 the counties successfully petitioned the state's General Assembly to impose a moratorium that lasted until 1979, when they were given a veto over annexations.[18] Since then, only Danville has undertaken a major annexation (17 square miles) successfully. Four other census-designated central "cities" in Virginia are classified among the 13 city-county consolidations described below.[19]

City-county consolidations can be considered "super-annexations." Three major consolidations took place during the 1960s involving the cities of Nashville, TN, Jacksonville, FL, and Indianapolis, IN. Several took place in the 1970s, including Anchorage's addition of 1,698 square miles. After no activity in the 1980s, Athens (Clarke County), GA; Augusta (Richmond County), GA; and Kansas City (Wyandotte County), KS, consolidated in the 1990s. Louisville's merger with Jefferson County occurred in 2003. See Appendix A.

The big-box category refers to 296 central cities in 28 states.[20] As Table 4 illustrates, this is by far the largest category of cities—both in terms of the number of places represented as well as the amount of land annexed. These cities together grew by 2,240 square miles during the 1990s (about three-quarters of all annexation activity in the nation).

Based on this historical examination, one can make assumptions about where future annexation could occur. Most activity will surely take place in the big-box and little-box (soft) categories where annexation is still widely practiced. But beyond such a broad statement, specific predications are more challenging.

Ascertaining how much annexable land remains in the high-annexation regions is subject to a variety of factors, including how different state annexations laws function, the status of different municipal competitors, and how much land is developable and therefore potentially desirable for annexation.[21]

Policy Implications and Recommendations

In an age of sprawl, municipal annexation remains the nation's most successful urban policy. However, this is not an issue controlled by the federal government.[22] Whether cities can annex is the result of different "rules of the game" adopted by 50 state legislatures (although sometimes the laws' origins have been lost from institutional memory and customary arrangements are enshrined as if written on tablets of stone).[23]

State legislatures everywhere have the constitutional power to rewrite state statutes governing annexation and municipal incorporation as they see fit. States have absolute power over cities, and the extent of that power was extravagantly emphasized by the United States Supreme Court in *Hunter v. City of Pittsburgh* (1907):

> The State … at its pleasure may modify or withdraw all [city] powers, may take without compensation [city] property, hold it itself, or vest it in other agencies, expand or contract the territorial area, unite the whole or a part of it with another

> municipality, repeal the charter and destroy the corporation. All this may be done, conditionally or unconditionally, with or without the consent of the citizens, or even against their protest. In all these respects the State is supreme, and its legislative body, conforming its action to the state constitution, may do as it will, unrestrained by any provision of the Constitution of the United States.

State legislatures should have a vital interest in ensuring the fiscal viability of their state's municipalities, particularly their major cities.

In the context of practical politics, however, there is no turning back the clock. The New York General Assembly, for example, will not turn New York (no annexation law) into North Carolina (the nation's most flexible annexation law). In fact, the pressure is in the opposite direction. Recent transplants from New York moving into a new subdivision outside Charlotte may shortly find their subdivision routinely annexed by Charlotte by simple city council resolution. As more such little-box natives migrate to big-box states, they often form the core of campaigns to restrict municipal annexation.

Because little-box state legislatures will not reinstitute annexation laws, inelastic cities might appear doomed. However, legislatures could enact progressive *functional* policies to counter current trends of constant peripheral development and core abandonment.

Little-box state agenda

To counteract the decline of central cities and, increasingly, of older suburbs, state legislatures in little-box states must implement three key policies that will allow them to act as a big box on issues that transcend municipal boundaries. Such functional policies might be termed "elasticity mimics."[24]

Implement regional fair-share housing policies. *Use regional inclusionary zoning and other mixed-income housing strategies to integrate low-income households into middle-class communities to diminish racial and economic segregation and eliminate concentrated poverty.*

"Public policy dictates where development occurs," states the National Association of Home Builders (surely no champions of governmental regulation).[25] Through planning and zoning powers, local governments shape what gets built where for whose benefit, affecting, in particular, the local housing market. A broad-based, big-box government is not generally as afflicted with the "not-in-my-backyard" syndrome as is a narrow-based, little-box government. A big-box government can carry out inclusionary zoning policies that require private, for-profit homebuilders to create mixed-income rather than economically segregated housing developments. In many highly fragmented metro areas, however, many little-box governments will not adopt such politically controversial policies without being compelled to do so by state legislatures or state courts (as has occurred most notably in New Jersey through the *Mt. Laurel* decisions).

Promote Regional Growth Management. *Implement regional land use and transportation planning and growth management strategies to control suburban sprawl and reverse urban disinvestments.*

Suburban sprawl does not just happen as the natural outcome of unfettered, "free market" forces. Sprawl is the result of interlocking federal, state, and local policies that set the framework for private investment. State legislatures have delegated broad planning and

zoning powers to local governments to regulate land development. If it has the political will, a big-box government (particularly one with extraterritorial zoning power) can promote more compact development, preserve farmland and natural areas, and encourage reinvestment in older residential and commercial areas. Within a little-box region, it is virtually useless (and even perilous) for a single little box to undertake such policies by itself. Getting all neighboring little boxes to act as one invariably requires state mandates or very powerful state incentives.

Promote Regional Tax Base Sharing. *Implement regional tax base sharing to reduce fiscal imbalances that result from uneven growth and socioeconomic imbalances.*

By taxing a larger share of a region's wealth, a big box matches resources to problems. A big box is implicitly a tax-base-sharing mechanism; it taxes richer neighborhoods to maintain adequate services in poorer neighborhoods. In little-box regions, however, richer and poorer neighborhoods are separate governments unto themselves. Poorer communities have no way of tapping the wealth of richer communities without the intervention of state government. State legislatures should mandate regional tax-base-sharing programs such as the Twin Cities Fiscal Disparities Plan, or greatly strengthen compensatory state aid to municipalities as in Wisconsin's Shared Revenue Program.

Tax base sharing alone would be inadequate; no feasible amount of money can salvage isolated inner cities and declining inner suburbs. Unfettered urban sprawl promotes economic segregation and constantly threatens inelastic cities and older suburbs with slow abandonment. "Fair share" housing programs are slow to take hold and are most effective within a vigorously expanding housing market. All three strategies are inseparable and indispensable parts of a successful approach.

Big-box state agenda

Big boxes also exist within multi-jurisdictional regions, and big boxes would benefit from the same regional tools outlined above, just less so. With the exception of Oregon's powerful, anti-sprawl land use law (now under attack), typical state "smart growth" laws serve big boxes less well than active annexation programs combined with extraterritorial zoning powers. A city's working poor are more likely to escape high-poverty ghettos and barrios and settle into inclusionary housing in mixed-income neighborhoods within an expanding city than in neighboring jurisdictions that, understandably, extend priority for inclusionary housing to their own low-income residents and workers. No regional tax-base-sharing program will match the benefits provided by having 100 percent of a city's revenue-producing property within its own expanding borders.

Defend or Strengthen Annexation Laws

In practical terms, the challenge in big-box states is more to protect than to improve on existing annexation laws. In general terms, a model state annexation statute would:

1. Set forth the standards by which an annexation would be deemed to serve the general public interest;
2. Authorize annexation to be initiated either by petition by landowners or resolution by city council;
3. Require public hearings and due process;
4. Authorize annexation to be consummated by council action alone; and
5. Extend to affected landowners the right of appeal to the state's district court in the event landowners are aggrieved because the annexation was approved or rejected in violation of state standards or should

the city subsequently fail to fulfill its commitments to extend services and needed infrastructure.

Facilitate City-County Consolidation.

A special form of super-annexation is city-county consolidation. Only 15 states have specific statutes authorizing and procedures for city-county consolidation. Of these, six states are in the West, six in the South, three in the Midwest. None are in the Northeast, where counties often hardly exist as meaningful governmental units.

The absence of authorizing legislation, however, does not preclude most legislatures from implementing specific city-county consolidations as legislative acts. Such, indeed, was the path followed successfully in consolidating Indianapolis-Marion County as well as, a century ago, in creating New York City.

Uniform state laws should be enacted to encourage city-county consolidation. The desirable provisions of such laws would include:

1. Establishing a consolidation charter commission by action of city and county government;
2. Authorizing the creation of urban and rural service districts (with different tax levels) within a consolidated government;
3. Authorizing the inclusion of traditional county functions (sheriff, assessor, clerk, and so on) in the consolidated government; and
4. Authorizing approval of the consolidated government by a single referendum of all affected voters (no single-jurisdiction veto).

Limit New Municipalities.

The ease or difficulty with which new municipalities are formed strongly influences how extensively urbanizing areas are fragmented into multiple local governments. Virtually all states in the South, West, and Midwest set some limitations for minimum population, minimum area, or minimum tax base. These limitations, however, tend to be modest. With the exception of New York (whose law is an anachronism given that new municipalities essentially cannot be formed), Northeastern states are silent on the matter. In effect, the geopolitical maps of New England, New Jersey, New York, and Pennsylvania are set in perpetuity.

Requirements for minimum population, minimum area, and minimum tax base should be set considerably higher than prevailing standards. State law should also establish a substantial zone around existing municipalities within which the existing government can veto the incorporation of new municipalities or other public bodies, such as quasi-public water and sewer districts. Sixteen states require a minimum distance between the proposed and existing municipalities. (In New Mexico, for example, the distance is five miles.) This is perhaps the most useful requirement limiting the formation of new municipalities.

Finally, municipalities should be classified on the basis of population size. Large cities should be given the presumptive authority over smaller cities to annex contested lands or even to absorb smaller cities in quasi-consolidation actions. Small municipalities, in turn, should have the right to appeal such actions to the state district court.

Conclusion

None of these changes in the "rules of the game" are easy to achieve politically, particularly in inelastic, fiscally stressed central cities. Legislatures typically delude themselves by adopting "band-aid" remedies for life-threatening diseases, such as placing Camden, NJ, under

state receivership or bringing Buffalo, NY, under a state fiscal control board or extending special state financial aid (Act 47) to Pittsburgh. Without fundamental reform, the list of the Camdens, Buffalos, and Pittsburghs will simply grow decade by decade.

The profound disparities affecting inelastic cities will not be solved by better management alone. "What gets built where for whose benefit?" is always the basic regional issue. For decades the answers have steadily sapped the vitality of inelastic central cities and, more recently, many of their older suburbs. Such trends must be reversed. They will not be reversed by flashy "urban revitalization" initiatives that look significant but do not dramatically reshape the directions of public and private investment.[26]

What *will* motivate state and local governments to change their ways are politically powerful grassroots regional reform movements. Building political coalitions to achieve fundamental reforms in the "rules of the game" is hard, time-consuming work. To reach critical mass politically to bring about fundamental reforms, many different interest groups must come together. Partners in such regional reform coalitions should include environmental groups, affordable housing advocates, civil rights organizations, farmland preservation groups, regional planning advocates, progressive labor unions, urban studies centers, and, of course, alliances of declining central cities and older suburbs.

Two players are essential: business organizations and interfaith coalitions. Respected business groups bring access, influence, credibility, and resources to the regional reform movement. The business groups, however, cannot mobilize large numbers of people. For that, we must look to networks of faith-based coalitions committed to changing the rules of the game through metropolitan- and state-level action. Affiliated with the Chicago-based Gamaliel Foundation, faith communities are organizing across denominational lines, across racial, ethnic and class divides, and across city, town, and township boundaries for political action. Their targets are city halls, county courthouses, and, above all, state capitols—and they are achieving some notable victories.

APPENDIX A

Successful Central City-County Consolidations after 1950	"Stand-Alone" Central Cities Nested Within Their Abutting Counties (in parentheses) Include:
Hampton-Elizabeth City County VA (1952)	New York City (Nassau, Westchester)
Newport News-Warwick County VA (1957)	Philadelphia (Bucks, Chester, Delaware, Montgomery)
Nashville-Davidson County TN (1962)	San Francisco (San Mateo)
South Norfolk-Norfolk County VA (1962)[a]	Baltimore (Anne Arundel, Baltimore County)
Virginia Beach-Princess Anne County VA (1962)	St. Louis (St. Louis County)
Jacksonville-Duval County FL (1967)	New Orleans (Jefferson Parish)
Indianapolis-Marion County IN (1969)	Denver (Adams, Arapahoe, Jefferson)
Columbus-Muscogee County GA (1970)	
Lexington-Fayette County KY (1972)	And Virginia's network of "independent cities:"
Suffolk-Nansemond County VA (1972)	Richmond (Chesterfield, Henrico)
Anchorage-Anchorage Borough AK (1975)	Norfolk (Princess Anne)
Houma-Terrebone Parish LA (1984)	Portsmouth (Nansemond, Norfolk County)
Athens-Clarke County GA (1990)	Roanoke (Botetourt, Roanoke County)
Lafayette-Lafayette Parish LA (1992)	Charlottesville (Albemarle)
Augusta-Richmond County GA (1995)	Danville (Pittsylvania)
Kansas City-Wyandotte County KS (1997).	Lynchburg (Amherst, Campbell)
Louisville-Jefferson County KY (2003)[b]	

[a] *- renamed Chesapeake City*

[b] *- falls outside the time frame of this study*

APPENDIX B. Elasticity-Bond Ratings of 106 Principal Cities in Metro Areas with Populations Greater than 500,000

		Numeric Change 1950–2000						
City	Region	Square Miles of City	Population of City	Population of County	Capture/Contribute Percentage	Moody's City Bond Rating, 2002	City Bond Rating Score, 2002	City Elastic-ity Score
21 Hyper-Elastic Cities,		5,225	10,238,810	19,374,127	**64%**[a]	Aa2[b]	8.2	33.5
Virginia Beach-Princess,	S	246	419,867	388,980	100%[c]	Aa1	8.5	39.0
Oklahoma City, OK	S	556	262,628	335,096	78%	Aa2	8.0	37.0
Tucson, AZ	W	185	441,245	702,530	63%	Aa2	8.0	35.5
Colorado Springs, CO	W	176	315,418	442,676	71%	Aa3	7.5	35.5
Las Vegas, NV	W	89	453,810	1,327,476	34%	Aa3	7.5	35.5
Austin, TX	S	219	524,103	651,300	80%	Aa2	8.0	35.0
Phoenix, AZ	W	458	1,214,227	2,740,379	44%	Aa1	8.5	35.0
Charlotte, NC	S	212	406,786	498,402	82%	Aaa	10.0	34.0
Bakersfield, CA	W	106	212,273	433,336	49%	Aa3	7.5	34.0
Jacksonville-Duval, FL	S	727	531,100	474,850	94%[c]	Aa2	8.0	34.0
El Paso, TX	S	224	433,177	484,654	89%	A1	6.5	33.0
Nashville-Davidson, TN	S	451	371,217	248,133	95%[c]	Aa2	8.0	33.0
San Jose, CA	W	158	799,663	1,392,038	57%	Aa1	8.5	33.0
Houston, TX	S	419	1,357,468	2,593,877	52%	Aaa	10.0	32.0
San Antonio, TX	S	338	736,204	892,471	82%	Aa2	8.0	32.0
San Diego, CA	W	225	889,013	2,257,025	39%	Aa2	8.0	31.5
Anaheim, CA	W	24	313,458	2,630,065	12%	Aa2	8.0	31.5
Albuquerque, NM	W	133	351,792	411,005	86%	Aa3	7.5	31.0
Little Rock, AR	S	95	80,920	164,789	49%	Aa3	7.5	31.0
Winston Salem, NC	S	90	97,965	159,932	61%	Aaa	10.0	31.0
Charleston, SC	S	92	26,476	145,113	18%	Aa2	8.0	31.0
19 High-Elastic Cities, To-tal/Average		2,408	3,506,563	7,975,339	**48%**[a]	Aa2[b]	8.1	29.2
Orlando, FL	S	79	133,584	781,394	17%	Aa2	8.0	30.5

City	Region	Numeric Change 1950–2000			Capture/Contribute Percentage	Moody's City Bond Rating, 2002	City Bond Rating Score, 2002	City Elastic-ity Score
		Square Miles of City	Population of City	Population of County				
Dallas, TX	S	231	754,118	1,608,100	47%	Aaa	10.0	30.5
Greensboro, NC	S	87	149,502	229,991	65%	Aa1	8.5	30.5
Raleigh, NC	S	104	210,414	491,396	43%	Aaa	10.0	30.5
Fresno, CA	W	89	335,983	522,892	64%	A1	6.5	30.5
Fort Worth, TX	S	199	255,916	1,084,966	24%	Aa1	8.5	30.0
Kansas City, MO	MW	233	-15,077	113,845	-13%	Aa3	7.5	30.0
Indianapolis-Marion, IN	ME	306	354,697	308,677	83%	Aaa	10.0	30.0
Columbia, SC	S	112	29,364	178,112	16%	Aa2	8.0	29.5
Tulsa, OK	S	156	210,309	311,613	67%	Aa2	8.0	29.5
Memphis, TN	S	175	254,100	415,079	61%	Aa2	8.0	29.0
Hampton-Elizabeth City	S	51	140,471	85,443	100% [c]	Aa2	8.0	29.0
McAllen, TX	S	37	86,347	409,017	21%	A1	6.5	29.0
Mobile, AL	S	93	69,906	168,738	41%	A2	6.0	28.5
Durham, NC	S	81	115,724	121,675	95%	Aaa	10.0	28.5
Tampa, FL	S	93	178,766	762,233	23%	Aa2	8.0	28.0
Kansas, City-Wyandotte, KS	MW	106	17,313	-7,436	*13%*	A2	6.0	28.0
Wichita, KS	MW	110	176,005	230,579	76%	Aa2	8.0	27.5
Knoxville, TN	S	67	49,121	159,025	31%	Aa2	8.0	26.5
18 Medium-Elastic Cities		1,093	2,082,748	10,764,219	**29%** [a]	Aa2	8.0	23.4
Columbus, OH	MW	171	335,569	565,568	59%	Aaa	10.0	26.0
Newport News-Warwick, VA	S	64	137,792	97,917	100% [c]	Aa2	8.0	26.0
Sacramento, CA	W	80	269,446	946,359	28%	Aa2	8.0	25.5
Vancouver, WA	W	34	101,896	259,931	39%	Aa3	7.5	25.0
Birmingham, AL	S	85	-83,217	103,119	-81%	Aa3	7.5	25.0
Baton Rouge, LA	S	47	102,189	254,616	40%	A1	6.5	24.5
San Bernardino, CA	W	39	122,343	1,427,792	9%	A1	6.5	24.0

City	Region	Numeric Change 1950–2000			Capture/Contribute Percentage	Moody's City Bond Rating, 2002	City Bond Rating Score, 2002	City Elasticity Score
		Square Miles of City	Population of City	Population of County				
Salt Lake City, UT	W	55	-31,061	623,492	-5%	Aaa	10.0	24.0
Riverside, CA	W	39	208,402	1,375,341	15%	A1	6.5	23.5
Fort Wayne, IN	MW	60	72,120	148,127	49%	Aa2	8.0	23.5
Omaha, NE	MW	75	138,890	182,565	76%	Aaa	10.0	23.0
Denver, CO[d]	W	87	138,850	1,369,504	10%	Aa1	8.5	23.0
Atlanta, GA[e]	S	95	85,160	871,904	10%	Aa3	7.5	23.0
Joliet, IL	MW	30	54,620	367,930	15%	Aa3	7.5	22.0
Portland, OR	W	70	155,493	188,949	82%	Aaa	10.0	21.5
Aurora, IL	MW	28	92,414	253,731	36%	A1	6.5	21.5
Fort Lauderdale, FL	S	13	116,069	1,539,085	8%	Aa2	8.0	20.5
Ann Arbor, MI	MW	20	65,773	188,289	35%	Aa2	8.0	19.5
19 Low-Elastic Cities, Total/		272	765,284	11,245,561	**-22**%[a]	A1[b]	6.6	14.7
St. Petersburg, FL	S	7	151,494	749,054	20%	A1	6.5	18.0
Portsmouth, VA[d]	S	0	20,526	103,399	19%	A1	6.5	18.0
Richmond, VA[d]	S	23	-32,520	391,943	-8%	A1	6.5	17.0
Dayton, OH	MW	31	-77,693	160,621	-48%	A2	6.0	17.0
Norfolk, VA[d]	S	26	20,890	399,480	5%	A1	*6.5*	16.5
Toledo, OH	MW	42	10,003	59,503	17%	A3	5.5	16.5
Milwaukee, WI	MW	46	-40,418	69,117	-58%	Aa2	8.0	16.0
Los Angeles, CA	W	18	1,724,462	5,367,651	32%	Aa3	7.5	15.5
Tacoma, WA	W	2	49,883	424,944	12%	A1	6.5	15.0
Akron, OH	MW	8	-57,531	132,867	-43%	A1	6.5	15.0
Grand Rapids, MI	MW	21	21,285	286,043	7%	Aa3	7.5	15.0
Louisville, KY	S	22	-112,898	208,989	-54%	Aa3	7.5	14.0
New Orleans, LA[d]	S	-19	-85,771	265,812	-32%	Baa2	4.0	13.5
Seattle, WA	W	13	95,783	1,004,042	10%	Aa1	8.5	13.0

		Numeric Change 1950–2000						
City	Region	Square Miles of City	Population of City	Population of County	Capture/Contribute Percentage	Moody's City Bond Rating, 2002	City Bond Rating Score, 2002	City Elasticity Score
Albany, NY	NE	2	-39,337	55,179	-71%	A3	5.5	12.5
Cincinnati, OH	MW	3	-172,713	-121,351	-100%	Aa1	8.5	11.5
Allentown, PA	NE	2	-124	113,893	0%	A3	5.5	11.5
Oakland, CA	W	3	14,909	706,426	2%	A1	6.5	11.5
Chicago, IL	MW	20	-724,946	867,949	-84%	A1	6.5	11.5
29 Zero-Elastic Cities, To-		17	-4,493,901	8,429,730	-44% [a]	A3	5.5	6.9
Youngstown, OH	MW	1	-86,304	-74	-100%	Baa3	3.5	10.5
Miami, FL	S	1	113,194	1,758,278	6%	Baa2	4.0	10.0
Wilmington, DE	S	1	-37,692	281,386	-13%	A2	6.0	10.0
Springfield, MA	NE	0	-10,317	184,677	-6%	Baa3	3.5	9.0
Worcester, MA	NE	1	-30,838	235,053	-13%	A3	5.5	9.0
Philadelphia, PA[d]	NE	8	-554,055	706,979	-78%	Baa1	4.5	8.5
Jersey City, NJ	NE	2	-58,962	-38,462	-100%	Baa3	3.5	8.5
St. Paul, MN	MW	1	-24,198	155,703	-16%	Aa2	8.0	8.0
New Haven, CT	NE	1	-40,817	278,224	-15%	A3	5.5	8.0
Baltimore, MD[d]	S	2	-298,554	557,729	-54%	A1	6.5	8.0
Cleveland, OH	MW	3	-436,405	4,446	-100%	A1	6.5	8.0
Pittsburgh, PA	MW	1	-342,243	-233,571	-100%	A3	5.5	8.0
Buffalo, NY	NE	1	-287,484	51,027	-100%	Baa2	4.0	7.0
San Francisco, CA[d]	W	2	1,376	472,878	0%	Aa3	7.5	7.0
Camden, NJ	NE	0	-44,651	208,189	-21%	Ba2	2.0	7.0
Elizabeth, NJ	NE	1	7,751	-112,346	6%	A3	5.5	7.0
Paterson, NJ	NE	0	9,886	151,956	7%	Baa2	4.0	7.0
Minneapolis, MN	MW	1	-139,100	439,621	-32%	Aa1	8.5	6.5
Syracuse, NY	NE	0	-73,277	116,617	-63%	Baa1	4.5	6.0
Providence, RI	NE	1	-75,056	451,410	-17%	Baa1	4.5	5.5

City	Region	Numeric Change 1950–2000			Capture/Contribute Percentage	Moody's City Bond Rating, 2002	City Bond Rating Score, 2002	City Elasticity Score
		Square Miles of City	Population of City	Population of County				
St. Louis, MO[d]	MW	1	-508,607	101,359	-100%	A3	5.5	5.5
Cambridge, MA	NE	0	-19,385	400,827	-8%	Aaa	10.0	5.5
Rochester, NY	NE	0	-112,715	297,113	-38%	A2	6.0	5.0
Hartford, CT	NE	0	-55,819	678,046	-8%	A1	6.5	5.0
Washington, DC[f]	S	0	-230,119	-109,619	-100%	Baa1	4.5	4.0
Detroit, MI	MW	-1	-898,298	-374,073	-100%	Baa1	4.5	4.0
Boston, MA[d]	NE	1	-212,303	802,930	-26%	Aa2	8.0	4.0
Newark, NJ	NE	0	-165,230	-112,316	-100%	Baa1	4.5	4.0

[a] *Averages for each elasticity category are nonweighted means. For the category as a whole (for example, hyper-elastic cities' total population increase of 10,238,810 represented a capture rate of 53 percent of their central counties' total population increase of 19,374,127), the capture/contribute percentages were: hyper-elastic, 53 percent; high elastic, 44 percent; medium elastic, 19 percent; low elastic, 7 percent; and zero elastic, -53 percent.*

[b] *Post-1950 city-county consolidation: percentage reflects percentage of population excluding surviving unconsolidated municipalities.*

[c] *"Independent city": county area includes one or more adjacent counties.*

[d] *Atlanta includes both Fulton and DeKalb counties.*

[e] *Washington, DC includes Alexandria City and Arlington County (formerly part of DC)*

APPENDIX C. Regression Results

Table C1. Linear Regression Results I: Five "Environmental" Variables
(Y = Moody's municipal bond rating in 2002; adjusted r-square (correlation) 0.49; standard error 1.25 [10-point scale]; *N* = 106 cities)

Independent Variables	*t* statistic
X1 = city capture/contribute percentage (1950-2000)	+3.70 ***
X2 = city poverty rate (1999)	-1.47
X3 = metro poverty rate (1999)	-1.16
X4 = city median household income (1999)	+0.51
X5 = metro median household income (1999)	-0.53

*** $p \leq .01$

The *t*-statistic for city capture/contribute percentage is the only variable that reaches statistical significance, and its sign is positive; in other words, the greater the percentage of its county's population growth that the city captures, the higher its bond rating. Of the four economic variables, city poverty rate (-1.47) verges on the margin of statistical significance at the 90 percent probability level (a *t-statistic* of 1.64 or more would be required), but the other three economic factors do not come close. For both city and metro poverty rates, the sign is negative, indicating that the higher the poverty rate, the lower the bond rating. As anticipated, the higher a city's median household income, the higher its bond rating (a positive sign). However, the sign reverses for metro median household income: the higher the metro median household income, the lower the central city's bond rating. Although the result appears counterintuitive, many of the regions with the highest median household incomes are in the Northeast and coastal California, where the regions surround completely inelastic cities. However, these regions also have the nation's highest cost of living. Adjusting median household incomes for differences in costs of living, that is, analyzing real rather than nominal incomes, would eliminate this anomaly. I did not do so, however, because I doubted that rating agencies themselves make such adjustments.

Table C2. Linear Regression Results II: Five "Environmental" Variables plus Financial Management Variable (Y = Moody's municipal bond rating in 2002; adjusted r-square (correlation) 0.52; standard error 1.20 [10-point scale]; *N* = 106 cities)

Independent Variables	*t* statistic
X1 = city capture/contribute percentage (1950-2000)	+3.50 ***
X2 = city poverty rate (1999)	-0.77
X3 = metro poverty rate (1999)	-1.60
X4 = city median household income (1999)	+0.93
X5 = metro median household income (1999)	-0.94
X6 = quality of financial management (2003)	+2.94 ***

*** $p \leq .01$

Table C3. Linear Regression Results III
(Y = Moody's municipal bond rating in 2002; adjusted r-square (correlation) 0.91; standard error 0.73 [10-point scale]; *N* = 11 groupings by common bond rating)

Independent variable	*t* statistic
X = city capture/contribute percentage (1950-2000)	+9.83 ***

*** $p \leq .01$— however, the number of data points (11) severely limit the statistical reliability.

Endnotes

1. See David Rusk, Inside Game/Outside Game (Washington: Brookings, 1999), p. 127.b
2. See, for example, Helen F. Ladd and John Yinger, America's Ailing Cities: Fiscal Health and the Design of Urban Policy (Baltimore, MD: Johns Hopkins University Press, 1991).
3. David Y. Miller, The Regional Governing of Metropolitan America (Boulder, CO: Westview Press, 2002), pp. 126-128; and Jerry Paytas, "Does Governance Matter? The Dynamics of Metropolitan Governance and Competitiveness." Working paper (Carnegie Mellon Center for Economic Development, 2002).
4. Thanks to the special diligence of David A. Timko, Reference Librarian at the U.S. Bureau of the Census Library, who tracked down a rare census publication.
5. See David Rusk, Cities without Suburbs, 3rd ed. (Baltimore, MD: Woodrow Wilson Center/Johns Hopkins University Press. 2003) for a full discussion of the consequences of urban elasticity and inelasticity.
6. To limit extreme statistical outliers, I capped capture/contribute rates at maximum values of +100 percent or -100 percent.
7. The capital region's fourth central city, newly designated Saratoga Springs, is the exception that proves the rule. In 1950, as the result of a pre-1950 village-town consolidation, Saratoga Springs "City" was really a "village" with a "town's" geography. It had only 15,473 residents for an area of 27.9 square miles. Its population density was 555 persons per square mile, the third lowest of 57 urban centers in New York's 57 counties. Cities of comparable geographic area were Buffalo (39.4 sq. mi.; pop. 580,152; 14,724 persons per sq. mi.); Rochester (36.0; 332,488; 9,236 per sq. mi.), and Syracuse (25.3; 220,583; 8,719 per sq. mi.). With most of its population in 1950 clustered around its "village" core, Saratoga Springs had ample vacant land into which it could expand, and Saratoga Springs has been suburbanizing within its own largely vacant city boundaries. The Census Bureau has now designated a Saratoga Springs urbanized area of 36.9 sq. mi. and 51,072 urbanized residents in 2000. Saratoga Springs City itself contained 76 percent of all urbanized land and 51 percent of all urbanized residents, higher percentages of an urbanized area's land and population than any other New York city can claim. Within New York's 57 counties, Saratoga Springs was the one urban center that was comparatively better off in 2000 than in 1950. It had an A1 bond rating in 2002, two small steps better than Albany's, but four giant steps behind the North Carolina cities' Aaa-ratings.
8. No smaller municipality has ever joined the merger of a central city and county anywhere. Thus, Nashville-Davidson County still had seven smaller municipalities with 4.4 percent of the county's population in 2000; Jacksonville-Duval County, four with 5.4 percent; Indianapolis-Marion County, three with 9.2 percent; Athens-Clarke County, two with 1.2 percent; Augusta-Richmond County, two with 2.4 percent; and Kansas City-Wyandotte, three with 7.2 percent. After consolidation, Louisville-Jefferson County still contained 83 smaller municipalities totaling 20.5 percent of the population.
9. See Appendix A.
10. Elizabeth, NJ, and Paterson, NJ (both still included in this study) are among 29 former central cities that were de-designated as central cities before Census 2000.
11. Albany, NY, Camden, NJ, Wilmington, DE, and Youngstown, OH, have all dropped below 100,000 after several decades of shrinking population. The one exception is Charleston, SC (96,650), which is so close to my population minimum and annexed so much land in the past decade (the nearly-vacant Daniel Island) that I felt justified in including Charleston in the study.
12. In an effort to fill in the unexplained half of the correlation attributable to financial factors, I experimented with using whether a city had been awarded a "Certificate for Achievement for Excellence in Financial Reporting" by the Government Finance Officers Association in 2003 as a proxy for the quality of its fiscal management. Adding this sixth independent variable raised the correlation from 0.49 to 0.52 (see Appendix C). This variable joined elasticity as significantly correlated to bond ratings.
13. The only real population loser within the elastic groups was Birmingham, AL, which, with its Northern-style coal-and-steel economy collapsing, found itself also surrounded by more Northern-style, virtually "whites-only" suburbs than any other Southern city, a reality that offset its major annexations in the 1980s.
14. For instance, zero-elastic Cambridge, MA, sports a blue-chip Aaa bond rating. How many other zero-elastic cities are home to Harvard and MIT and sit just across the river from downtown Boston? Similarly, the only Aaa-rated city that lost population, medium-elastic Salt Lake City, might be more properly categorized with the world's smallest (108.7 acres) but undoubtedly richest independent municipality, Vatican City.
15. This tabulation actually covers 568 current or former central cities, including 42 former central cities that the federal Office of Management and Budget had

de-designated as such before Census 2000. The 1950 census included only 193 designated central cities in 168 metropolitan areas. By Census 2000, the number had increased to 541 central cities in 331 metropolitan areas. I have tracked the population and municipal area covered by 568 current or former central cities dating back to the 1950 census. Omitted are Honolulu, HI (a nonmunicipality) and 14 current central cities that were either too small for data on their municipal area to have been reported by the 1950 census or that did not yet exist at all.

16. However, the net loss was mostly real when New York City lost contested tidal flats around Ellis Island to New Jersey in a case decided by the U.S. Supreme Court. New Jersey v. New York, 523 U. S. 767 (1998).
17. Of Ohio's major cities, only Columbus and Springfield still annex; the rest are now totally surrounded by incorporated suburbs, many of which were townships that municipalized to escape annexation by their central cities. Rochester is the only consistently expanding city in Minnesota, based on long-term, collaborative agreements with its surrounding townships. The only Michigan central city that has annexed steadily over the decades is Midland, which controls the regional water system and has a long-standing policy of "No Annexation, No Water." See City of Midland, MI, Planning Department, "Evolution of an Urban Growth Policy" (undated), available at www.midland-mi.org/government/departments/planning/Planning/muga.htm.
18. Roger Richman, "Formal Mediation in Intergovernmental Disputes: Municipal Annexation Negotiations in Virginia," Public Administration Review 45 (4) (1985): 510-517.
19. During the 1950s, Hampton (Elizabeth City County) and Newport News (Warwick County) absorbed their surrounding counties. In 1962, 248-sqare-mile Princess Anne County "consolidated" with 2-square-mile, 5,000-resident Virginia Beach to become the "City of Virginia Beach" to halt annexations into Princess Anne County by Norfolk. In the 1970s, Suffolk (Nansemond County) and Chesapeake (nee South Norfolk/Norfolk County) did the same to forestall annexations by both Norfolk and Portsmouth. In effect, the "cities" of Virginia Beach, Suffolk, and Chesapeake are really suburban counties.
20. States in this category are Alabama, Alaska, Arizona, Arkansas, California, Colorado, Delaware, Florida, Georgia, Idaho, Kentucky, Louisiana, Maryland, Mississippi, Montana, Nevada, New Mexico, North Carolina, South Carolina, Oklahoma, Oregon, South Carolina, Tennessee, Texas, Utah, Washington, West Virginia, and Wyoming.
21. For example, California law readily permits annexation, but parts of the state are so densely developed and so filled with suburban municipalities that the annexation potential for cities such as San Francisco, Oakland, and Los Angeles is nonexistent, while places such as Bakersfield and Fresno continue to annex steadily. Some state laws also prohibit a city from crossing county lines, while others have no such restriction. Oklahoma City, for example, covers parts of four counties.
22. For certain states, however, annexations must be reviewed and approved by the U.S. Department of Justice under Title V of the Voting Rights Act of 1965 to prevent actions prejudicial to minority voters.
23. See Rusk Inside Game/Outside Game for how the old Northwest Territory became little-box states.
24. I am indebted to Dr. John P. Blair of Wright State University for coining the phrase "elasticity mimics."
25. National Association of Home Builders, "Smart Growth: Building Better Places to Live, Work, and Play" (2000), p. 8.
26. For example, the New Jersey legislature appropriated $175 million for the multi-year Camden Recovery Act, but $1.7 billion in federal-state highway funds will be spent in Camden's suburbs over the next three fiscal years. Camden has seen an increase in private investment of $4 million to $5 million per year in recent years (and projects totaling hundreds of millions of dollars are on the drawing boards), but actual new private investment in Camden's suburban area averages an estimated $1.2 billion annually. See Melanie Burney and Dwight Ott, "Judge Allows Camden Recovery Act," Philadelphia Inquirer, March 19, 2003, p. B1.

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