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**The Emergence of the Galactic City:  
Population and Employment Growth  
in American Metropolitan Areas, 1970-2000  
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## Introduction

The notion that the American city is decentralizing is by no means news. Writers on the city from the time of Lewis Mumford have decried unplanned urban (or suburban) sprawl. Since the 1970s, social scientists and historians, shocked and awed by the dramatic growth of suburbia, have sought new ways to describe the changes in the form of American cities. During the 1990s, sprawl—thanks to increasing traffic congestion and despoiled landscapes—became so controversial that in 2000 Al Gore raised it as an issue in his ill-fated run for the presidency.

Most recent research on the subject has concentrated on creating statistical measures of sprawl, and the resulting studies are, by and large, static analyses of large numbers of metropolitan areas at one point in time; they frequently neglect the historical and geographical dimensions of the phenomenon. As a way of complementing the sprawl-measurement type of studies, I have plotted the location of people and employment in urban regions across time, specifically between 1970 and 2000. The statistics and Geographic Information System maps derived from this effort indicates not only the extent of urban sprawl, but also that large parts of the United States are being transformed into vast urban regions.

Because long-term historical trends shaped these metropolitan areas prior to 1970, the paper begins with a brief history of urban areas. It shows that for much of their history, American cities grew from the center, where most of economic activity and residences were located. From the nineteenth century, however, the urban zone began to spread out. As the core area expanded, the suburbs began to share the urban activities and population. The outward movement of city people and jobs accelerated over the course of the twentieth century, creating large and complex metropolitan areas made up of places including satellite cities, bedroom communities and finally edge cities.

Having established the historical context for urban expansion, the paper then charts the shifting geography of metropolitan population between 1970 and 2000 by analyzing United States census data for 10 metropolitan areas, representing diverse regions and types of “sprawl.” These areas are Atlanta, Boston, Chicago, Dallas-Fort Worth, Los Angeles, Minneapolis-St. Paul, Phoenix, Portland, St. Louis and Washington, D.C.

Between 1970 and 2000, this survey shows, an extensive and wide-ranging outward redistribution of people occurred in America’s metropolitan areas. In 1970 most of the regions in this study still retained a majority of the regional population clustered in the center, that area

within a 10-mile radius from the major city's city hall, while a substantial proportion (a quarter or more of the total) lived outside the center in a large suburban band—defined as between 10 and 30 miles from city hall. By 2000 the population of the core areas had shrunk to a minority of the metropolitan population, while the suburban band gained more residents and in most regions gained a larger share of the regional population. Furthermore, within this suburban band, the rate of population growth in the outer ring—20 to 30 miles out—far exceeded that of the inner ring—10 to 20 mile band in all but one of the 10 regions. At the same time, more people were moving to distant exurban places. The portion of residents living 30 or more miles away from downtown increased in all the metropolitan areas, and in three of them equaled or exceeded a fifth of the total metropolitan population.

The next section, an analysis of data from the Bureau of Economic Analysis, investigates the distribution of employment by industry category in the counties within the same metropolitan areas, except for those of Los Angeles and Phoenix (whose large county sizes renders them impractical for comparative analysis). It demonstrates that between 1970 and 2000 the kind of jobs traditionally associated with central cities also dispersed. As these kinds of jobs declined in relative terms in the core counties that contained the central cities, they flourished in two different areas within the metropolitan regions. They grew most dramatically in first-ring suburban counties, the home to edge cities, shopping malls, and other dense concentrations of economic activities. Less noticed but nevertheless significant was the increase of urban jobs into second-ring and third-ring counties, which were largely rural in landscape, had low population densities, and were remote from the central city.

The great outward dispersion of people and jobs reflects the transformation of metropolitan areas. The extensive and varied development of suburbs and the penetration of urban life deep into the countryside have created a new kind of urban region. This new type of region, vast in scale and diverse in landscape, may be called the galactic city.

### **Historical Urban Development Patterns in the United States**

The changes in spatial distribution of the population and employment of the last three decades of the twentieth century are the recent phase of the long history of development patterns of American cities and their outlying areas. From the colonial period onwards, the greatest number and concentrations of urban dwellers resided in core areas near the city centers. These

centers were adjacent to the main water and land transportation ports and were therefore the places of greatest business activity. The core areas became densely settled because they held most of the commercial, industrial, and administrative, including government, employment, and most people wanted to live within short travel time—whether by foot or conveyance—of their places of work. As a result of the great number of residences and jobs, a dense fabric of shops, churches, schools, and other community institutions and services grew up in these urban centers. The network of urban homes and activities began to expand in the era of the early republic, yet the towns and small cities were small compared to the vast countryside outside it. As late as 1860, four of five Americans lived in rural areas. Indeed it was not until 1920 that a majority of the United States population lived in urban as opposed to rural places.<sup>1</sup>

During the late nineteenth century, the population of cities grew both by concentrating and spreading out. The core of the old cities remained the most densely populated section of the urban region, but it began to decline relative to outer areas. Warner's landmark work on the history of early suburban development in Boston shows both the compact nature and the outward thrust of American urban population patterns in the late nineteenth century. Warner defined the metropolitan area of Boston in 1850 and 1900 as the cities and towns falling within a ten-mile radius of Boston's city hall. In 1850, Warner calculated, 74 percent of the 282,000 who lived in this "ten-mile metropolis" lived within the three-mile radius of city hall, and 26 percent resided in new suburbs that were home to railroad and streetcar commuters. By 1900, the number of residents of this metropolitan district had grown to 1.1 million, but the share of the population living within the three-mile radius had dropped to 61 percent, while that living in the suburban towns had risen to 39 percent.<sup>2</sup>

Meanwhile, not just the people but also the economic activities associated with the city expanded into the hinterland. Railroads furthered industrial deconcentration by carrying freight to and from factories located in the growing suburban borderlands. Aided by improved passenger railroad and streetcar service, suburban areas sprouted a plethora of businesses. In addition to factories and workshops, retail stores, workshops, personal service shops—such as barbershops and milliners—offices of doctors, lawyers and insurance agents became part of the changing

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<sup>1</sup> Table 4. Population: 1790 to 1990, Urban and Rural, 1990 Census of Population and Housing, "1990 Population and Housing Unit Counts: United States," (CPH-2). Available on the Internet at <http://www.census.gov/population/censusdata/table-4.pdf>.

<sup>2</sup> Sam Bass Warner, Jr., *Streetcar Suburbs, The Process of Growth in Boston, 1870-1900* (Cambridge, 1962), Appendix B.

landscape between city and country. Some clustered at the larger intersections, sometimes in large enough numbers to create secondary downtowns, while others distributed along the major streets. At the same time, the emergence of a national railroad system encouraged the growth of industrial towns in the regions beyond the city. By the early twentieth century, sociologists noted these “satellite cities,” such as those devoted to railcar and steel manufacturing that appeared outside Chicago and St. Louis.<sup>3</sup>

During the early years of the twentieth century, America’s urban cores continued to expand its land area, but in the process, the old centers of large cities began to lose population relatively and, in some cases, absolutely to outer neighborhoods and suburbs. In New York City, for example, the City Census Committee calculated that the number of inhabitants of who lived within a four-mile radius of city hall dropped from 2.1 million in 1905 to 1.7 million in 1925. During the same period, as subway service was established, the boroughs, particularly the outer sections and Queens increased population at a rapid rate. Between 1905 and 1925, the portion of the surveyed population that lived within the four-mile radius dropped from 54 percent to 29 percent; the portion in the four to eight-mile radius rose from 36 percent to 44 percent, and the share in the eight to 12-mile radius shot upwards from 8.5 percent to 22 percent.<sup>4</sup>

Meanwhile, the areas outside the urban centers expanded almost continuously, gaining ever-larger shares of metropolitan populations at the expense of the core. These peripheral areas contained diverse kinds of communities, ranging from satellite cities to bedroom communities for city workers, that provided jobs and stores as well as homes. A study published in 1925 reported that the percentage of industrial wage earners in industrial and mixed residential and industrial suburbs frequently equaled or exceeded the percentage in central cities.<sup>5</sup>

The outer movement of people and jobs gained momentum from the 1920s onwards. In that decade, for example, suburbs adjacent to central cities of more than 200,000 residents increased in population more rapidly than the center cities. In cities—such as Washington, D.

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<sup>3</sup> Alexander von Hoffman, *Local Attachments: The Making of an American Urban Neighborhood, 1850 to 1920* (Baltimore: Johns Hopkins University Press, 1994); Graham Romeyn Taylor, *Satellite Cities; a Study of Industrial Suburbs* (New York and London: D. Appleton and Co., 1915).

<sup>4</sup> A small increment of New York City’s population lived beyond 12 miles from city hall, which rose from about 1.5 percent to 3.5 percent. *Population, Land Values, and Government; Studies of the growth and distribution of population and land values; and of problems of government*, Regional Survey, Vol. II, prepared by Thomas Adams, Harold M. Lewis, and Theodore T. McCrosky (New York, Regional Plan of New York and Its Environs, 1929), 99-100.

<sup>5</sup> Harlan P. Douglass, *The Suburban Trend*, (New York: The Century Co., 1925), 87-89.

C., and St. Louis—that had undeveloped land within the city boundaries, suburban development inside but at the outer edge of the city outpaced the growth at the city center and sometimes even that of outside communities. In the 1920s, Hawley computed in a study of metropolitan deconcentration, population growth in “satellite areas” (cities outside the central city) and in five-mile radial areas up to 30 miles outside central cities’ borders outpaced that of the central cities. In the 1930s and 1940s, all areas up to 35 miles and beyond in metropolitan areas increased population more than central cities did. During these same decades, the kinds of jobs that had been associated with the densely built-up parts of cities were also moving to the suburbs. Researchers traced what they called the “suburbanization” of manufacturing and service sector employment, noting that the extent of the phenomenon varied in different regions and metropolitan areas.<sup>6</sup>

As is well known, the outward movement of urban populations accelerated again after World War II. The appearance of new suburbs in the 1950s—including the famous large-scale housing subdivisions of the Levitts—was so dramatic that it inspired a spate of books about suburban culture.<sup>7</sup> In 1970 the United States reached a statistical milestone when the U. S. Census Bureau reported that for the first time in the nation’s history the percentage of the nation’s residents living in suburban places (37.1 percent) had surpassed those living in either central cities (31.5 percent) and in rural areas (31.4 percent). The move to the suburbs was more extreme in metropolitan areas. In his authoritative account of postwar suburbia, Peter O. Muller calculated that by 1970 the suburbanites made up the majority of all residents in 13 of the 15 largest metropolitan areas—the exceptions being Houston and Dallas by virtue of their extremely large land areas.<sup>8</sup>

Research on New York City shows the decentralization of population in the admittedly somewhat unique case of the nation’s largest metropolis. In their groundbreaking work published

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<sup>6</sup> Douglass, *Suburban Trend*, 39-41; Amos H. Hawley, *The Changing Shape of Metropolitan America: Deconcentration Since 1920* (Glencoe, Ill.: Free Press, 1956), Table 4, 14, 114-145; Evelyn M. Kitagawa and Donald J. Bogue, *Suburbanization of Manufacturing Activity Within Standard Metropolitan Areas* (Miami and Chicago: Scripps Foundation for Research in Population Problems and Population Research and Training Center, 1955), 22, passim; Raymond P. Cuzzort, *Suburbanization of Service Industries Within Standard Metropolitan Areas* (Miami and Chicago: Scripps Foundation for Research in Population Problems and Population Research and Training Center, 1955), 14-19.

<sup>7</sup> See, for example, William H. Whyte, *The Organization Man* (New York: Simon and Schuster, 1956) John Keats, *The Crack in the Picture Window* (Boston: Houghton Mifflin, 1957); Herbert Gans, *The Levittowners: Ways of Life and Politics in a New Suburban Community* (New York: Vintage Books, 1967).

<sup>8</sup> Peter O. Muller, *Contemporary Suburban America* (Englewood Cliffs, N.J.: Prentice-Hall, 1981), 3-19, 22 (Table 2.2).

in 1959, Edgar M. Hoover and Raymond Vernon grouped the counties within the New York City metropolitan area. They defined New York's urban core as the built-up counties that fell within a 10-mile radius of the Empire State Building, categorized counties located from 10 to 20 miles from midtown Manhattan as an inner ring; and counties situated from 25 to 65 miles from midtown they labeled the outer ring.<sup>9</sup> In 1900 the core counties held about 68 percent of the total population, the inner ring held 18 percent, and the outer rings held 14 percent.<sup>10</sup> By 1956 almost half the metropolitan population had shifted outside the core. A slim majority of 54 percent still lived within 10 miles of the Empire State Building, but the inner ring share climbed to 30 percent and the outer ring counties now held 17 percent. Following Hoover and Vernon's approach, Richard Harris found that by 1975, the percentage of people living in New York's core area had dropped to a minority of 40 percent. In 1975, New York's inner suburban ring counties held 29 percent of the population, about the same share as it had in 1956, but the share of the metropolitan population in New York's outer ring grew dramatically from 17 percent to 31 percent—making the region's population *highly dispersed*.<sup>11</sup>

Meanwhile, the movement of urban jobs to the suburbs also accelerated. The construction of not only industrial parks but also office parks brought both blue- and white-collar jobs to the suburbs. The development of first the shopping center and later the regional shopping mall made retailing a dynamic growth area. The increase in employment ran across the board of job categories. A study of 101 metropolitan areas found that between 1960 and 1970 suburbs gained blue-collar employment by 29 percent as opposed to a 13 percent loss in central cities and suburbs increased white-collar jobs by 67 percent while central cities gained only by 7 percent. The suburbs were usurping the traditional role of the big city downtown as an employment center.<sup>12</sup>

The case of the New York metropolitan area further illustrates the outward trend. Between 1956 and 1975 employment in greater New York's core counties dropped from 64

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<sup>9</sup> Edgar M. Hoover and Raymond Vernon, *Anatomy of a Metropolis* (Cambridge: Harvard University Press, 1959), 8-11. The core area included the city's largest four boroughs and Hudson County.

<sup>10</sup> Although this procedure is useful for comparison, it violates the historical reality of 1900 when the functional core of New York was geographically smaller than it was in the mid-twentieth century.

<sup>11</sup> See below for definition of "highly dispersed." Richard Harris, "The Geography of Employment and Residence in New York Since 1950," in John Hull Mollenkopf and Manuel Castells, eds. *Dual City: Restructuring New York* (New York: Russell Sage Foundation, 1991), 131-134, Table 5.1 and Table 5.2.

<sup>12</sup> Brian J. L. Berry and John D. Kasarda *Contemporary Urban Ecology* (New York: Macmillan Pub. Co., 1977), 236, cited in Muller, *Contemporary Suburban America*, 131.



percent to 48 percent. The inner suburban ring's share of jobs rose from 23.5 percent to 28 percent, while the outer ring doubled its share from 12 percent to 24 percent. The suburban areas therefore took the majority of jobs, and the outer suburbs increased employment the fastest. As of 1980 Manhattan continued to dominate in finance and business services employment, but at the same time the suburban rings had the same as or higher location quotients (degree to which a type of employment is over- or under-represented) than the core in manufacturing, in retailing, wholesaling (inner ring only), and services. Even with the continued importance of Manhattan as the nation's finance capital, urban types of employment had spread throughout the metropolitan area.<sup>13</sup>

By the 1970s scholars found that metropolitan areas were no longer as focused on the central city as they had been earlier in the century but instead had evolved into large diverse regions characterized by numerous nuclei whose size and function varied widely. Together with the central cities, industrial satellite cities, bedroom suburbs, "edge cities" with office parks and shopping centers, institutional towns, and a variety of hybrid sorts of places, made up the vast metropolitan areas. They formed a constellation of urban places, which have complex and subtle economic, social, and political relationships with one another. To these scholars now attempted to attach a label, such as urban field or urban realm.<sup>14</sup>

### **Population Size and Growth of Ten Metropolitan Areas, 1970-2000**

Both in 1970 and in 2000, the metropolitan areas examined here were among the largest in the United States. These regions are, in alphabetical order: Atlanta, Boston, Chicago, Dallas-Fort Worth, Los Angeles, Minneapolis-St. Paul, Phoenix, Portland, St. Louis and Washington, D.C.<sup>15</sup>

According to the census bureau population statistics in 2000, five of these 10 metropolitan areas rank among the 10 most populous Metropolitan Statistical Areas, and the remaining five fall in the top 25 Metropolitan Statistical Areas in population. The metropolitan areas of Los Angeles, Chicago and Boston are the second, third, and seventh most populous,

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<sup>13</sup> Harris, "Geography of Employment and Residence," *ibid.*

<sup>14</sup> James E. Vance, Jr., *This Scene of Man: the Role and Structure of the City in the Geography of Western Civilization* (New York : Harper's College Press, 1977); Muller, *Contemporary Suburban America*, 8-11.

<sup>15</sup> The following analysis is drawn from an unpublished study, Alexander von Hoffman and James DeNormandie, "Density and Growth Patterns in Ten Metropolitan Areas of the United States: Patterns and Process of Sprawl," Joint Center for Housing Studies/United States Geological Survey, February 2004.

whereas at the other end of our list, the urban regions of Minneapolis-St. Paul, St. Louis, and Portland, Oregon, rank fifteenth, eighteenth, and twenty-third among all metropolitan areas.<sup>16</sup>

Although all these metropolitan areas were very large within the context of the United States, they varied considerably by size of population in relation to each other in 2000 (see Table 1). The largest by far, with a population of over 16 million in 2000, is the Los Angeles region. It is followed by Chicago, whose population was about 9 million; Boston, with 5.8 million residents; Dallas, 5.2 million; and Washington, D.C., 4.9 million. The remaining metropolitan areas have substantial but not huge populations. The most populous of these regions is Atlanta, which in 2000 held 4.1 million residents. The population of the Phoenix area was still smaller, with 3.2 million inhabitants, followed by that of Minneapolis, with 2.9 million. The St. Louis area held 2.6 million people, and the Portland region, with 2.2 million residents, was the least populous of the 10 metropolitan areas.

Between 1970 and 2000, all 10 of these metropolitan areas gained population, but they did so at different rates. At one extreme was the remarkable gain in the Los Angeles region. The increase of about 6.4 million people was 64 percent more than the population of the metropolitan area in 1970, which was the second largest in the country. At the other extreme was the St. Louis area, which added a miniscule 174,000 people—less than 10 percent of the St. Louis metropolitan area's 1970 population. Regions that experienced particularly strong population growth between 1970 and 2000 included Dallas-Fort Worth, with 2.8 million new residents; Atlanta, 2.4 million new residents; Phoenix, 2.4 million new residents, and Washington, D. C., with 2 million new residents.

The pattern of population settlement varied greatly between one metropolitan area and another as well. (See Metropolitan Area Maps of Population Density by Tracts, 1970 to 2000.) Influenced by topography and history, the pattern of population densities gave each metropolitan area a distinctive shape. As the population grew during the last three decades of the twentieth century, the shapes of population density within these metropolitan areas changed form.

Although population densities rose in most metropolitan census tracts and fell in some others—

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<sup>16</sup> In descending order their precise rank by population among was as follows: Los Angeles – 2; Chicago - 3; Boston - 7; Dallas-Fort Worth – 9; Washington, D.C. (not including Baltimore) – 10; Atlanta - 11; Phoenix – 14; Minneapolis-St. Paul –15; St. Louis - 18; and Portland –22. Note that the census bureau lists the CMSA of San Juan—Caguas—Arecibo, in the territory of Puerto Rico as twentieth in size of population, which would make Portland, Oregon twenty-third. Here we follow the common practice of listing only metropolitan areas in the 50 states, and omit the territories of the United States. See Census 2000 PHC-T-3. Ranking Tables for Metropolitan Areas: 1990 and 2000. Table 3: Metropolitan Areas Ranked by Population: 2000.

usually located more centrally—the most striking change in the shape of the metropolitan areas was the expansion of their territory.

### **Bands of Population Settlement**

A statistical analysis of the location of the metropolitan population gives a more precise understanding of the changing demographic patterns depicted on the geographic information maps. To measure the changes in the distribution of population throughout an urban region, the metropolitan areas here are divided into large bands of less than 10 miles, between 10 and 30 miles, and greater than 30 miles from the central city's city hall. (The central city's city hall is a useful point of reference because despite the relative declines of central urban areas, they are almost always still the most densely populated parts of metropolitan areas.) Note that the area of 10 miles around the center generally encompasses both urban and suburban neighborhoods—filled with densely populated neighborhoods in the great cities such as New York and Chicago, and interspersed with suburban neighborhoods and towns in areas of large cities such as Boston, Minneapolis, or Portland. Similarly the 10 to 30-mile zone includes not only suburbia but also exurbia in many metropolitan areas. The areas beyond 30 miles from the central city's downtown encompass places that developed in the distant past. These include towns and cities that developed as part of an urban industrial region—semi-independently of the central city—and rural communities that grew up as the agricultural hinterland for the urban centers. In more far-flung metropolitan areas, the 30-miles-plus zone has suburban and exurban areas that emerged as offshoots of the center city's metropolitan realm.<sup>17</sup>

### **Changes in Population Settlement Bands, 1970 to 2000**

Although American cities have decentralized for much of the last two centuries, the outward population movement between 1970 and 2000 in all 10 metropolitan areas is nonetheless striking. (See Table 2.) In 1970 the population in seven of the 10 metropolitan areas was *concentrated* in the core—that is, more than 50 percent of the area's residents lived within a 10-mile radius of city hall. By 2000—or more precisely, by 1990—*none* of the metropolitan areas were concentrated in the cores. Furthermore, in all the metropolitan areas

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<sup>17</sup> To avoid skewing the suburban population of the Washington, D. C. metropolitan area with a large number of central city dwellers in an outlying ring, the statistics of the distribution of the population for Washington, D. C. omit the population of the Baltimore PMSA.

save one, Portland, the share of population in the center was smaller than the shares in either the broad suburban middle band or the outskirts. In most of these, the cores held between 30 percent and 40 percent of the metropolitan population. In the Atlanta and Los Angeles regions, however, the central population had dropped to less than a quarter of the total metropolitan population.

Over the course of the three decades, the great bulk of the metropolitan populations shifted to the suburban band between 10 and 30 miles from the center. Indeed, already in 1970 all but the Portland area were *suburban* in character; that is, more than a quarter of the population lived between 10 and 30 miles beyond city hall. By 2000 five of the 10 metropolitan areas were *highly suburban* places with more than half their residents located in the middle ring.

The great surge of people outwards also shifted metropolitan populations beyond the established band of suburbs. In 1970 only Boston of the 10 urban regions was *dispersed*—having a fifth or more of the metropolitan population living more than 30 miles from center. In three other regions—Chicago, Los Angeles and Portland—at least 15 percent of the total population lived in these distant areas. By 2000 three metropolitan areas—Boston, Chicago and Los Angeles—had *dispersed* populations. Three others—Atlanta, Portland and Washington—were on the verge of having dispersed populations, as the residents of the outskirts had increased the share of the metropolitan population to a little less than 20 percent. Between 1970 and 2000, all the metropolitan areas increased the portion of residents living in the distant band that lay 30 or more miles beyond the center; in six regions, the outskirts gained 10 or more percentage points of the total population share.

### **A Closer Look at the Core**

In any large city, the territory that lies within 10 miles of a central city's city hall contains a diverse set of components of urban life. At the very center is the central business district around which are arrayed the oldest and, in the past if not always in the present, the most densely settled residential neighborhoods. The residential areas often include wealthy neighborhoods—Boston's Beacon Hill and Chicago's Gold Coast are examples—and also industrial or working-class neighborhoods, some of which may be home to racial minority groups. Starting from three to five miles away from downtown and extending approximately to the 10-mile ring is an array of other neighborhoods. This next band was built out later than the inner city—from the late nineteenth century to the post World War II era, depending on the city and the place. This band

includes working-class, middle-class, and upper-middle-class neighborhoods and at its further end contains settlements—either neighborhoods or independent towns—whose lawns, parks, and single-family houses mark them as suburban.

Setting the boundaries for the first band at five miles and the second band at 10 miles from city hall allows comparison between urban areas that have different functions and histories within a city. The population of these two bands in most metropolitan areas took different paths between 1970 and 2000. (See Table 3.)

In eight of the 10 metropolitan areas, the number of inhabitants of the central area of the central city (within five miles of city hall) fell between 1970 and 2000. By and large, the population trends turned around in the 1990s, when the city centers gained residents in most of the metropolitan areas. The exceptions were inner St. Louis, where population continued to decrease in the 1990s and central Los Angeles, where population grew in every decade. In seven of the eight regions that gained population between 1970 and 2000, the next ring, located five to 10 miles from city hall fared better in population than the center. The two regions that gained population in the center were the southwestern areas of Los Angeles and Phoenix. In both these regions, however, the five to 10-mile band gained more residents in absolute numbers than did the center.<sup>18</sup>

In the next ring out from the center—in the outer city neighborhoods and towns located from five to 10 miles from downtown—the direction of population change varied according to the kind of metropolitan area. In older, slow-growing regions of Boston, Chicago, Minneapolis-St. Paul and St. Louis, the second ring—which had been built-out early in the twentieth century, lost or barely increased residents. (In Boston the population revival occurred earlier in the center than in the second ring.) In booming, fast-growing metropolitan areas (such as Atlanta, Dallas-Fort Worth, Los Angeles, Phoenix and Portland), this area—with ample land available for development after World War II—increased population at a rapid rate.

The *relative* size of the population of core areas—that is, their share of the total metropolitan population—continued to decline during the last decades of the twentieth century. (See Table 4.) In every one of the 10 metropolitan areas, the share of the total metropolitan population in the center ring (within five miles of city hall) fell between 1970 and 2000. In 1970

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<sup>18</sup> In Los Angeles, the area within five miles from city hall gained 355,000 people whereas the five to ten mile ring gained 476,000; in Phoenix, the center gained 64,000 residents, far fewer than the increase of 337,500 in the next ring.

the center rings were still relatively important in eight of the 10 metropolitan areas, holding a fifth or more of the regional population. By 2000, however, the population in the centers of these eight areas had shrunk to 15 percent or less of their regional total. Furthermore, in nine of the 10 metropolitan areas, the centers' share of the regional population declined dramatically, ranging from reductions of five percentage points in greater Boston to 19 points in the Phoenix area. The exception was the Los Angeles region, where the number of inhabitants of the center dropped very slightly (by one point). The center in Los Angeles, however, appears to have dwindled sometime previously, because already by 1970 it held a mere 8 percent of the total population.

### **A Closer Look at the Suburban Rings**

A closer look at the population changes inside the suburban band, between 10 and 30 miles from the central city's city hall, shows that within this area the population tended to grow fastest further away from the core.

Breaking the suburban ring into two rings, a 10 to 20 mile ring and a 20 to 30 mile ring, reveals the pattern. It is important to keep in mind that in most urban regions the suburbs of the central city, as most people conceive of them, extend at most about 20 miles from the city's center. Communities located 20 to 30 miles away from the major city's downtown may be suburban in character, but generally are considered to function separately and independently of the center city. That is, these distant communities may owe their existence to the central city—and thus be “satellites” of the city—but their residents can work, shop, and take care of other daily needs in and around these communities without traveling to the central city.

So for example, in the Los Angeles region, the city of Long Beach falls near the 20-mile circle from L.A.'s city hall, whereas Anaheim, in Orange County is about 25 miles from the city. In greater Chicago, Evanston (13 miles from the city), Wilmette (16 miles out), and Winnetka (18 miles out) fall in the 10 to 20-mile ring, whereas Glencoe and Highland Park are between 20 and 30 miles from downtown Chicago, and Lake Forest sits about on the 30-mile line. Outside Atlanta, Marietta and Sandy Springs fall in the 10 to 20-mile band, and Cobb County's fast-growing towns, such as Kennesaw, are between 20 and 30 miles away from city hall.

Generally, beyond the 20-mile ring, towns—or their residents—exist independently of the big city, even though the communities may owe much of their growth and prosperity to their location in the central city’s galaxy of urban places.

Intense suburban development generally moves out gradually (if unevenly) from the central city, and thus in 1970 the inner suburban ring (10 to 20 miles from city hall) had a greater share of the metropolitan area population than the outer suburban ring (20 to 30 miles from city hall) in all metropolitan areas. (See Table 5.) Yet from 1970 to 2000, in every region but Portland’s, the rate of population growth in the 20 to 30 mile band—the outer band—far exceeded that of the inner 10 to 20 mile band. The greatest leap in population in the 20 to 30 mile band occurred in the Phoenix region, in which it soared by more 1000 percent. This meant in absolute numbers an area that once contained a mere 31,000 souls now contained 364,000. This was a remarkable increase, even if the population of the outer suburban band continued to be much smaller than the inner suburban band.

In greater Atlanta the population in the outer suburban ring went from 107,000 to 1.1 million, an increase of more than 900 percent. Other metropolitan areas where the population in the 20 to 30 mile band rose steeply were those of Washington, D. C., and Dallas-Fort Worth. In the Washington metropolitan area, the ring increased population by almost 490 percent, from 142,000 to 831,000 people. In the Dallas-Fort Worth region, the population of the outer suburban ring went from 122,000 to 636,000, an increase of about 420 percent.

As a result of the faster growth in the outer suburban ring, the gap between the two rings in the share of the regional population narrowed. (See Table 6.) In 1970 the 10 to 20 mile ring had the greatest share of the population in all 10 metropolitan areas. By 2000 the 20 to 30 mile ring had matched the inner ring in the Boston and Chicago regions and made significant gains in population in all the metropolitan areas, save Los Angeles and Portland (where the outer rings still increased population by more than 150 percent). Even in the metropolitan areas of Phoenix, Dallas-Fort Worth, Minneapolis-St. Paul, and St. Louis where the inner of the two suburban rings had about two-fifths or greater of their region’s population, the outer rings claimed at least a tenth of the total population.

## Large Metropolitan Areas, Already Deconcentrated, Dispersed

Given that the overall population movement has been outward, it is worth noting that the three metropolitan areas whose population became *dispersed* in 2000 were those that had the least concentrated populations in 1970. (See Table 2.) In 1970 the metropolitan areas of Boston, Chicago and Los Angeles had the lowest proportions of population living in their cores (40 percent in Boston and Chicago and only 26 percent in Los Angeles). In each successive census year the share of the metropolitan population in the core fell.

Meanwhile, although they gained population in different amounts and at different rates,<sup>19</sup> all three of these metropolitan areas retained or lost population in the suburban band and increased significantly the share of total population into the distant outskirts. In the Boston metropolitan area, the population in the suburban middle-band stayed at just under two-fifths of the total over the 30-year period, but the population in the outskirts climbed from about a fifth to about a third of the total for the metropolitan area. Similarly, in Chicago, the suburban share of the metropolitan population was 46 percent in 1970, rose slightly in 1980 and 1990, and returned to 46 percent in 2000, while the periphery gained about 3 percentage points each decade, reaching 25 percent of the regional population in 2000.

The giant metropolitan area of Los Angeles presents an unusual pattern, but one that perhaps prefigures the evolution elsewhere. In 1970 the region already housed a little more than half its inhabitants in the suburban zone and just under a fifth of the population on the far-flung periphery, the areas 30 miles and more from Los Angeles city hall. In each of the next three census years, the suburban share of the total population *declined*, while the outskirts' share climbed, reaching more than 30 percent by 2000. Between 1970 and 2000, moreover, the territory beyond 30 miles away from downtown Los Angeles gained 4 million people or almost 60 percent of the region's total increase in population.

Undoubtedly the relative size and stage of regional development contributed to the evolution of these metropolitan areas from deconcentrated to dispersed categories. Among the

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<sup>19</sup> Between 1970 and 2000, the Boston and Chicago regions each gained 1.3 million residents, while Los Angeles added about 6.4 million. This represented a 30 percent increase for the Boston region, an 18 percent rise for the Chicago region, and a 64 percent increase for the Los Angeles region. The population of the Chicago region rose by only about 3 percent in both the 1970s and the 1980s before posting a gain of 11 percent in the 1990s. The Boston metropolitan area increased population by almost 15 percent in the 1970s, and then by about 6.5 percent in the following decades. The Los Angeles region, in contrast, swelled its population in double digits in each decade (15 percent, 26 percent, and 13 percent respectively).



10 metropolitan areas studied here, these three have the largest populations and most extensively developed urban regions (with satellite industrial cities and suburbs of all sizes and types).

### **The Dispersion of Urban Employment**

An analysis of occupations by industry types in the counties of eight of the metropolitan regions shows that during the period between 1970 and 2000 urban employment, no less than urban people, continued to spread outward.<sup>20</sup> (See Urban Region Maps with Population Density of Counties, 1970 and 2000.) The highly concentrated activities and settlement patterns traditionally associated with central cities spread to two different kinds of areas within metropolitan regions within the last three decades. The first was first-ring suburban counties, many of which developed dense concentrations of population and economic activities like those found in downtowns. The second kind of area into which urban people and activities dispersed were second-ring and third-ring counties, some of which were remote from the central city. These counties have low- and some have very-low densities, and by 1970 often contained manufacturing plants that supplemented the agricultural economy.

Here follows a brief examination of the changing employment patterns in each of the eight metropolitan areas.

The **Atlanta** region exemplifies not only what many identify as urban sprawl, but also a bifurcated growth pattern in which the number of urban people and activities increased both in first-ring suburban counties and in more distant low-density counties. (See Table 7.)

The most dynamic employment generators were the first-ring counties, which gained a share of total jobs at the expense of the core county, Fulton (in which most of the city of Atlanta was located), and the lower-density counties. The population of the two medium-density suburban first-ring counties (Cobb and Clayton) and one low-density second-ring county (Gwinnett) grew, making them by 2000 high-density counties like the first-ring county, DeKalb. Together these high-density counties during the same period garnered the highest proportions of the construction, transportation, wholesale, retail, FIRE, services and government jobs in the

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<sup>20</sup> The following analysis is drawn from an unpublished study, Alexander von Hoffman and James DeNormandie, "County Population and Employment Patterns in Metropolitan Areas: Patterns and Process of Sprawl," Joint Center for Housing Studies/United States Geological Survey, February 2004. The eight urban regions are those of Atlanta, Boston, Chicago; Dallas-Fort Worth; Minneapolis-St. Paul; Portland; St. Louis; Washington, D. C. The size of the counties in the Los Angeles and Phoenix metropolitan areas were too large to interpret geographic changes in occupations, and therefore these regions were omitted.

metropolitan area. Interestingly these first-ring counties also had more manufacturing jobs, thanks to the large Lockheed Martin plant in Marietta (in Cobb County) and numerous small scattered industrial facilities, than either the central core or the lower-density counties (44 percent in the high-density counties, as opposed to 24 percent for Fulton and 32 percent for the rest.)

Nonetheless, the low- and very-low-density population counties of 1970 also increased the numbers of residents and jobs. These lower density counties held in 2000 a sizeable share of jobs in urban industrial categories, even as they maintained their hold in the rural industries of farming and manufacturing. These counties (including Rockdale, which in 2000 had become a medium-density county) raised their regional share of employment in retail from 12 percent to 21 percent, in FIRE from 7 percent to 13 percent; and wholesale from 4 percent to 11 percent, and services from 11 percent to 14 percent. These figures significantly understate the gains in urban occupations in greater Atlanta's low-density counties because the 2000 figures do not include those of powerhouse Gwinnett County, one of the fastest growing counties in the United States, which had moved into the high-density category.

The **Boston** region grew jobs and people at a moderate pace. The population growth spread throughout, with only a couple of areas showing dramatic increases in the number of residents. (See Table 8.) The high-density first-ring counties (Essex, Middlesex, and Norfolk) held half or more of the metropolitan area's jobs in wholesale, manufacturing, services and construction. As office buildings rose in the suburbs along the belt highways between 1970 and 2000, the FIRE component of these counties' employment grew from 33 percent to 43 percent. Despite these losses, Suffolk County maintained significant shares of employment in 2000, which indicated the continuing importance of Boston as a center of economic activity. In the medium-density category were two second-ring counties, Plymouth and Bristol, which between 1970 and 2000 raised their shares of several industrial categories. By century's end, they had reached 18 percent of retail, 15 percent of wholesale, and about 10 percent of FIRE and service metropolitan area jobs.

Further away from Boston, the metropolitan area's low-density counties captured an increasing share of employment in every industrial category between 1970 and 2000. While maintaining about a fifth of all manufacturing jobs, these low-density counties increased their share of retail jobs from 14 percent to 20 percent; of wholesale jobs from 9 percent to 17 percent;

of FIRE jobs from 10 percent to 14 percent; and of service jobs from 11 percent to 14 percent. (At the regional scale—which is larger than the metropolitan area—low-density counties follow the same upward trend in urban occupations, with even greater gains in some employment categories. The share of wholesale jobs, for instance, doubled from 12 percent to 25 percent.)

The **Chicago** metropolitan area followed the widespread pattern of a shift of residents and jobs out of the core toward first-ring suburbs and second- and third-ring low-density counties. (See Table 9.) Cook County, containing the city of Chicago, lost sizeable shares of the metropolitan area's employment in all categories. (A similar trend in Lake County, Indiana, whose central city was Gary, Indiana, is obscured by the shift from of this county from high to medium density.) While the core lost ground, two first-ring suburban high-density counties—DuPage and Lake—captured major shares of the metropolitan area's jobs. The two counties, one directly west and the other directly north of Cook County, by 2000 had 29 percent of wholesale, 19 percent of FIRE, and about 19 percent of services and government of the metropolitan area's total jobs.

Here, as elsewhere, peripheral low-density counties attracted more people, so much so that three of them (Will and Kane, Illinois, and Kenosha, Wisconsin) became medium-density counties. The figures for the low and medium-density counties of 1970 and 2000 are not strictly comparable because the medium-density category in 2000 included Lake County, Indiana, a formerly high-density county that contributed about a third of all the jobs in the medium-density category of 2000. Nonetheless, the three formerly low-density second- and third-ring counties raised their share in all urban categories, save manufacturing, and helped give the medium-density category significant shares of retail, government, services, and wholesale jobs. Except in farming, the counties that remained low-density counties—located still further in the interior of the region—did not fare as well in the competition for share of the region's employment.

In the greater **Dallas-Fort Worth** region, both the core and the periphery grew. The core counties that contain the area's central cities (including rapidly expanding Arlington, Texas) continue to grow and hold the majority of people and jobs. (See Table 10.) Nonetheless, the evidence shows that here too a ring of places adjacent to the central cities—led by Collin County, home of the corporate boom town of Plano—are growing quickly. The expansion of the number of residents and jobs extends deep into the interior, especially to the east. Between 1970 and 2000 four counties (Denton, Johnson, Ellis, and Rockwall) grew from very-low-density

counties to low-density counties and one (Collin) became a medium-density county. In 2000 these five counties taken together held a higher percentage of employment in most industries than all the very-low-density counties had in 1970. In addition, the low-density counties accounted for 11 percent of the metropolitan area's construction jobs, an indication of that they continue growing in the future.

The **Minneapolis-St. Paul** metropolitan area, as elsewhere, showed erosion of population and employment in the center and growth outside. (See Table 11.) Despite losing ground, however, the two central counties that contain the Twin Cities maintained strong shares of employment and thereby dominance in the regional economy. The growth in this region took place especially in the ring around the core counties, with perhaps a spillover into the next ring. These three first-ring counties (Dakota, Anoka and Washington) increased the number of inhabitants enough to reach medium population densities and gained sizeable shares of employment at the expense of the central counties. In 2000 they held 27 percent of construction, 23 percent of manufacturing, 24.5 percent of retail, 19 percent of government, and 17 percent of services, much higher shares than the same counties had in 1970 when they were low-density counties. Although the tables do not reflect the progress of the four low-density counties of 2000 because 1970 figures aggregate them with the eight very-low-density counties, the precise figures for Carver, Scott, Sherburne, and Wright counties show triple-digit increases in all urban categories between 1970 and 2000. Thus, despite the continuing importance of the center, the Twin Cities metropolitan area illustrates the pattern of urban people and employment bleeding into suburban and exurban counties.

The **Portland** region is nucleated in population and employment—a situation reinforced by Urban Growth Boundaries, legislation that discourages further development beyond designated urban areas. (See Table 12.) Nonetheless, here too the nucleus, located in Multnomah County, lost shares of employment to neighboring counties in many categories. The first-ring medium-density counties, Washington County, Oregon, and Clark County, Washington, took up from about a quarter to a third of the metropolitan area's of the urban employment categories and surpassed the core county in the share of jobs in manufacturing and construction. Meanwhile, the low-density counties held most of the remaining jobs, and, remarkably, kept the same relatively high proportion of employment in many categories. That low-density counties

maintained this hold on jobs is striking in 2000, as by then this group no longer included fast growing—and now medium-density —Washington and Clark counties.

The slow-growing **St. Louis** region showed distinctive geographic population and employment patterns between 1970 and 2000. (See Table 13.) At the core, the central city lost people and jobs at a startling rate. As elsewhere, population and jobs grew in the first ring of counties, particularly St. Louis County. Further west, St. Charles County rose from a low-density county to become the only medium-density county in the metropolitan area. At the same time, it increased its share of employment, particularly in retail—in which in 2000 it held 10 percent of the area's jobs—and in construction—in which its 12 percent share exceeded that of the central city.

Both in 1970 and 2000, the low-density counties mixed traditionally rural and urban employment. By 2000, however, this group (Madison, St. Clair, and Jefferson were in 1970 and Franklin replaced St. Charles county) held a large proportion of the region's jobs in most industries, exceeding the shares of the City of St. Louis in manufacturing, government, and retail, and equaling the city's portion of service jobs. In another indication of extreme deconcentration, the rural, very-low-density counties also had a share, albeit a small one, of the metropolitan area's urban occupations.

The **Washington, D. C.**, area is another model of decentralized population and employment. (See Table 14.) The core, in this case defined as the District of Columbia and adjacent Virginia cities of Arlington and Alexandria, lost a significant share of major urban industrial-sector employment between 1970 and 2000. The core area's percentage of jobs plummeted in the wholesale sector from 30 percent to 7 percent; in retail from 25 percent to 12 percent, and in FIRE by half from 33 percent to 16 percent.

The great rivals of the core in urban employment were the high-density counties of 2000: the first-ring suburban growth counties of Fairfax in Virginia and Montgomery (a medium-density county in 1970) and Prince George's in Maryland, and the somewhat anomalously remote Spotsylvania County, Virginia. These four counties, for example, boosted their share of the metropolitan area's FIRE jobs from 26 percent to 40 percent, of services from 23 percent to 38 percent, and of government from 22 percent to 28 percent.

At the same time, a group of nine counties that had low and very low population densities in 1970 also grabbed a significant share of urban employment. Led by booming Prince William

and Loudon counties, both in Virginia, these remote (third-ring and beyond) counties had moved into the medium and low-density category in 2000. In that year, these nine counties held 15 percent of retail, 10 percent of wholesale and transportation, and 8 percent of FIRE jobs in the region. At the same time, they commanded large share of agricultural and blue-collar industrial employment: 14 percent of manufacturing and 35 percent of farming jobs in the metropolitan area. In all cases, their employment percentages were much higher than the combined share of all 13 low and very-low-density counties of 1970.

## Conclusion

Taking into account the changes of the last three decades of the twentieth century, we can draw some conclusions about the ever-expanding metropolises. First, in the last decades as in the earlier decades of the twentieth century, metropolitan populations and urban occupations have continued to move inexorably outwards.

Second, despite great erosion of population and jobs, the center as of yet still holds. Traditional cities have persevered: downtowns to greater or lesser degree are viable, and the old neighborhoods and suburbs—of the early railroad and later automobile varieties—may be thinning but remain relatively densely populated. (Indeed, as I have written elsewhere, many inner-city neighborhoods are in the midst of a revival.<sup>21</sup>) Furthermore, in a number of metropolitan areas, such as that of Minneapolis-St. Paul, moreover, the core continues to be a major employment center.

Nonetheless, in most urban regions between 1970 and 2000, suburban areas experienced dynamic growth at the expense of the central cities. As a number of observers have pointed out, development of large-scale commercial and office centers—so-called “edge cities”—and, usually nearby, housing subdivisions have transformed the formerly quiet parts of the hinterlands into urban regions independent from the city that spawned them. Their physical form is suited more to the automobile than the old downtowns, but in regard to the size of their populations and the nature of economic activities, these suburbs are bustling urban places. And, as we have seen, this kind of suburban development continues to expand away from the central cities.

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<sup>21</sup> Alexander von Hoffman, *House By House, Block By Block: The Rebirth of America's Urban Neighborhoods* (New York: Oxford University Press, 2003).

At the same time, urban activities and people have penetrated deep into the countryside. (See Metropolitan Area Maps of Population Density by Tracts, 1970 to 2000.) The increasing population density and proportion of urban occupations in distant areas reflects this change, which is physically manifested in the shopping centers, stores, factories, offices and growing—or, in some cases, booming—small communities that dot the rural landscape. The steady stream of city people into ever-more remote rural locales is creating areas of “countrified city,” as one scholar described them. In regions such as the northeast, where most agriculture has ceased to be highly profitable and has become a marginal or hobby kind of pursuit, the countryside is becoming a rural or semi-suburban setting for urban folk to live and often to dominate economically and socially. In other regions, where extractive industries continue to be viable economically, the two modes of activity—rural and urban—may intermingle and compete for space and control of the environment.

Thus, the building up of suburban districts and the transformation of the country into exurbia has extended the urban way of life across great swaths of the nation. Within these regions, settlements of all different sizes and shapes dot the land, strung together by highways. When the inhabitants desire or need to connect to other places—sometimes but not necessarily the nearest central cities—they link virtually through electronic communications or move physically through space usually by means of automobile or airplanes.

Such a region may be called in the words of geographer Pierce Lewis, a “galactic city.”<sup>22</sup> The landscape of the galactic city includes not only bustling cities and suburbs but also sparsely settled villages and stretches of fields and forests. The appearance is deceptive, however, because increasingly all the territory within it is urban.

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<sup>22</sup> Pierce Lewis, “The Urban Invasion of Rural America: The Emergence of the Galactic City,” in Emory N. Castle, *The Changing American Countryside: Rural People and Places* (Lawrence: University Press of Kansas, 1995), 39-62.

**Table 1. Size of Population , 10 Metropolitan Areas, 1970, 1980, 1990, and 2000**

	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>	<b>% Change (1970 - 2000)</b>
<b>Atlanta</b>	1,684,200	2,138,136	2,964,066	4,118,739	144.6%
<b>Boston</b>	4,454,659	5,111,919	5,444,815	5,807,894	30.4%
<b>Chicago</b>	7,778,948	8,008,475	8,239,827	9,157,540	17.7%
<b>Dallas-Fort Worth</b>	2,351,568	2,946,160	4,029,966	5,208,910	121.5%
<b>Los Angeles</b>	9,980,859	11,497,548	14,531,529	16,373,645	64.1%
<b>Minneapolis-St. Paul</b>	1,981,951	2,140,382	2,538,081	2,968,806	49.8%
<b>Phoenix</b>	971,228	1,599,727	2,238,481	3,251,876	234.8%
<b>Portland</b>	1,195,509	1,547,173	1,793,467	2,265,223	89.5%
<b>St. Louis</b>	2,429,376	2,392,828	2,492,527	2,603,607	7.2%
<b>Washington, D.C.</b>	2,900,419	3,265,485	4,223,152	4,923,153	69.7%



**Table 2. Percentage of CMSA Population in Bands, 1970, 1980, 1990, and 2000**

<b>Atlanta</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
<b>0 - 10 miles</b>	58.4	39.4	26.0	20.9
<b>10 - 30 miles</b>	40.4	53.6	58.5	62.6
<b>Greater than 30 miles</b>	1.2	7.0	15.5	16.5
<b>Boston</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
<b>0 - 10 miles</b>	39.8	31.5	29.7	28.6
<b>10 - 30 miles</b>	39.2	38.7	38.2	38.6
<b>Greater than 30 miles</b>	21.0	29.7	32.1	32.6
<b>Chicago</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
<b>0 - 10 miles</b>	39.4	33.5	30.5	29.1
<b>10 - 30 miles</b>	45.6	47.9	47.8	45.7
<b>Greater than 30 miles</b>	15.0	18.6	21.7	25.2
<b>Dallas</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
<b>0 - 10 miles</b>	61.9	50.9	40.2	35.6
<b>10 - 30 miles</b>	32.5	43.1	50.9	55.4
<b>Greater than 30 miles</b>	5.7	6.0	8.5	8.6
<b>Los Angeles</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
<b>0 - 10 miles</b>	26.1	24.1	22.3	20.5
<b>10 - 30 miles</b>	52.5	48.4	44.2	42.9
<b>Greater than 30 miles</b>	17.9	22.0	26.6	28.9
<b>Minneapolis</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
<b>0 - 10 miles</b>	67.2	52.5	45.2	39.7
<b>10 - 30 miles</b>	32.5	40.7	45.9	50.4
<b>Greater than 30 miles</b>	0.3	6.8	8.9	9.8

**Table 2. Percentage of CMSA Population in Bands, 1970, 1980, 1990, and 2000 (continued)**

<b>Phoenix</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
<b>0 - 10 miles</b>	70.6	50.7	39.7	33.4
<b>10 - 30 miles</b>	28.4	43.2	54.6	60.4
<b>Greater than 30 miles</b>	0.9	5.2	5.0	5.5
<b>Portland</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
<b>0 - 10 miles</b>	62.5	51.7	48.7	44.8
<b>10 - 30 miles</b>	22.2	30.3	32.9	37.2
<b>Greater than 30 miles</b>	15.3	18.0	18.4	18.0
<b>St Louis</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
<b>0 - 10 miles</b>	52.4	41.6	35.7	31.1
<b>10 - 30 miles</b>	42.7	49.1	53.1	56.0
<b>Greater than 30 miles</b>	4.9	9.3	11.2	12.9
<b>Washington, D.C. *</b>	<b>1970</b>	<b>1980</b>	<b>1990</b>	<b>2000</b>
<b>0 - 10 miles</b>	64.1	50.6	40.2	35.6
<b>10 - 30 miles</b>	29.2	38.0	42.6	45.4
<b>Greater than 30 miles</b>	6.4	11.1	16.8	18.6

\* The figures for the Washington, D.C. CMSA omit all data from the Baltimore PMSA

**Table 3. Percent Change in Population in Core Rings, 1970 - 2000**

	<b>&lt; 5 miles</b>	<b>5 - 10 miles</b>
<b>Atlanta</b>	-22.7	21.6
<b>Boston</b>	-5.3	-7.1
<b>Chicago</b>	-22.8	-7.4
<b>Dallas-Fort Worth</b>	-8.7	55.0
<b>Los Angeles</b>	42.8	26.5
<b>Minneapolis-St. Paul</b>	-10.6	1.8
<b>Phoenix</b>	21.7	86.7
<b>Portland</b>	-2.5	70.9
<b>St. Louis</b>	-49.0	-24.7
<b>Washington, D.C.</b>	-19.4	2.6

**Table 4. Percent of CMSA Population in Core Rings, 1970 and 2000**

	1970		2000		1970 - 2000 Change	
	< 5 miles	5 - 10 miles	< 5 miles	5 - 10 miles	< 5 miles	5 - 10 miles
<b>Atlanta</b>	27.6	30.8	7.6	13.3	-20.0	-17.5
<b>Boston</b>	20.0	19.8	14.6	14.1	-5.5	-5.7
<b>Chicago</b>	12.9	26.5	8.4	20.7	-4.5	-5.8
<b>Dallas-Fort Worth</b>	26.6	35.2	11.0	24.6	-15.7	-10.6
<b>Los Angeles</b>	27.1	37.0	13.0	22.6	-14.1	-14.4
<b>Minneapolis-St. Paul</b>	26.6	40.6	14.5	25.2	-12.1	-15.4
<b>Phoenix</b>	30.4	40.3	11.0	22.4	-19.4	-17.9
<b>Portland</b>	29.8	32.7	15.3	29.5	-14.5	-3.2
<b>St. Louis</b>	22.2	30.1	10.4	20.7	-11.9	-9.4
<b>Washington, D.C. *</b>	8.3	17.9	7.0	13.5	-1.2	-4.4

\* The figures for the Washington, D.C. CMSA omit data from the Baltimore PMSA

**Table 5. Percent Change in Population in Inner and Outer Suburban Rings, 1970 – 2000**

	<b>10-20 mile ring</b>	<b>20-30 mile ring</b>
<b>Atlanta</b>	204	937
<b>Boston</b>	5	65
<b>Chicago</b>	-4	55
<b>Dallas-Fort Worth</b>	251	422
<b>Los Angeles</b>	63	156
<b>Minneapolis-St. Paul</b>	131.5	291
<b>Phoenix</b>	556	1067
<b>Portland</b>	225	195
<b>St. Louis</b>	20	155
<b>Washington, D.C.</b>	99	487

**Table 6. Percent of Total Metropolitan Area Population  
by Inner and Outer Suburban Rings, 1970 and 2000**

	1970		2000	
	10-20 mile ring	20-30 mile ring	10-20 mile ring	20-30 mile ring
<b>Atlanta</b>	33	7	36	27
<b>Boston</b>	24	15	19	19
<b>Chicago</b>	28	17.5	22	23
<b>Dallas-Fort Worth</b>	27	5	43	12
<b>Los Angeles</b>	36	7	27	10.5
<b>Minneapolis-St. Paul</b>	28	5	39	11
<b>Phoenix</b>	25	3	49	11
<b>Portland</b>	17	5	29	8
<b>St. Louis</b>	35	7.5	38.5	17.5
<b>Washington, D.C.</b>	24	5	29	16

**Table 7. Atlanta, Percentage of Metropolitan Area Industrial Sector Jobs in Groups of Counties of Different Population Densities (People Per Square Mile), 1970 and 2000**

		Number of counties	Farm	Agric serv	Mining	Const	Manuf	Transp	Wholesale	Retail	FIRE	Services	Govt
<b>1970</b>	<b>Very low density (&lt;100)</b>	11	70.1	20.2	57.3	9.8	19.2	4.5	2.0	8.2	4.2	6.8	9.9
	<b>Low density (100 - 500)</b>	5	21.2	8.6	4.9	6.8	9.8	2.5	1.8	5.4	3.1	4.1	6.1
	<b>Medium density (500 - 1000)</b>	2	3.1	13.3	12.2	11.3	21.6	10.9	3.8	10.8	6.9	7.5	14.2
	<b>High Density (1000 - 4500)</b>	1	1.2	24.6	9.9	23.0	12.5	8.3	21.5	17.4	17.8	20.1	20.2
	<b>Core (&gt; 4500) *</b>	1	4.4	33.3	15.8	49.2	36.9	73.7	71.0	58.1	67.9	61.5	49.6
<b>2000</b>	<b>Very low density (&lt;100)</b>	1	3.4	0.0	0.0	0.6	0.3	0.2	0.1	0.3	0.5	0.2	0.4
	<b>Low density (100 - 500)</b>	13	80.8	3.7	8.2	27.1	28.8	7.3	9.6	19.3	11.8	12.7	19.1
	<b>Medium density (500 - 1000)</b>	1	1.5	0.0	0.0	2.6	3.0	1.2	1.1	1.9	0.9	1.3	1.2
	<b>High Density (1000 - 4500)</b>	4	10.2	71.8	61.9	52.6	43.8	48.6	58.6	52.9	44.5	47.0	41.3
	<b>Core (&gt; 4500) *</b>	1	4.0	24.5	29.9	17.0	24.1	42.7	30.6	25.7	42.4	38.8	37.9

**Table 8. Boston, Percentage of Metropolitan Area Industrial Sector Jobs in Groups of Counties of Different Population Densities (People Per Square Mile), 1970 and 2000**

		Number of counties	Farm	Agric serv	Mining	Const	Manuf	Transp	Wholesale	Retail	FIRE	Services	Govt
<b>1970</b>	<b>Very low density (&lt;100)</b>	<b>0</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	<b>Low density (100 - 500)</b>	<b>3</b>	36.0	10.8	16.2	14.7	20.2	12.1	9.8	14.1	10.3	11.5	15.5
	<b>Medium density (500 - 1000)</b>	<b>2</b>	29.4	26.7	18.0	12.1	16.7	10.3	7.8	13.1	8.4	8.9	12.0
	<b>High Density (1000 - 4500)</b>	<b>3</b>	34.6	54.4	51.2	52.5	50.8	36.3	43.1	49.7	33.6	50.6	44.2
	<b>Core (&gt; 4500) *</b>	<b>1</b>	0.0	8.1	14.6	20.7	12.2	41.3	39.3	23.0	47.7	29.0	28.4
<b>2000</b>	<b>Very low density (&lt;100)</b>	<b>0</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	<b>Low density (100 - 500)</b>	<b>3</b>	33.4	21.0	27.7	19.9	21.5	16.9	17.3	20.0	13.8	14.2	19.4
	<b>Medium density (500 - 1000)</b>	<b>2</b>	34.5	27.5	19.2	17.4	16.4	12.8	15.0	18.3	9.2	10.4	14.8
	<b>High Density (1000 - 4500)</b>	<b>3</b>	32.1	51.5	53.1	51.2	54.8	43.7	57.6	48.9	43.5	52.8	40.8
	<b>Core (&gt; 4500) *</b>	<b>1</b>	0.0	0.0	0.0	11.4	7.3	26.6	10.1	12.7	33.5	22.5	25.0



**Table 9. Chicago, Percentage of Metropolitan Area Industrial Sector Jobs in Groups of Counties of Different Population Densities (People Per Square Mile), 1970 and 2000**

		Number of counties	Farm	Agric serv	Mining	Const	Manuf	Transp	Wholesale	Retail	FIRE	Services	Govt
<b>1970</b>	<b>Very low density (&lt;100)</b>	<b>2</b>	10.3	1.4	1.1	0.8	0.9	0.1	0.2	0.5	0.3	0.1	0.5
	<b>Low density (100 - 500)</b>	<b>7</b>	65.7	17.3	17.3	11.2	11.3	7.4	4.1	10.3	7.1	8.5	11.7
	<b>Medium density (500 - 1000)</b>	<b>1</b>	5.3	12.3	2.7	3.9	3.6	1.9	1.2	3.9	2.7	3.9	12.7
	<b>High Density (1000 - 4500)</b>	<b>2</b>	10.7	14.4	4.3	15.6	10.9	9.0	6.6	11.4	7.8	8.8	9.2
	<b>Core (&gt; 4500) *</b>	<b>1</b>	7.9	54.7	74.6	68.6	73.3	81.6	87.9	73.9	82.2	78.6	65.9
<b>2000</b>	<b>Very low density (&lt;100)</b>	<b>1</b>	5.6	0.7	1.6	0.5	0.2	0.9	0.2	0.4	0.3	0.3	0.3
	<b>Low density (100 - 500)</b>	<b>5</b>	47.9	9.2	7.9	8.8	7.7	3.5	4.2	6.7	3.7	4.3	6.8
	<b>Medium density (500 - 1000)</b>	<b>4</b>	34.5	24.8	21.3	18.5	15.5	10.4	10.1	15.4	9.0	12.2	14.7
	<b>High Density (1000 - 4500)</b>	<b>2</b>	7.0	16.6	15.0	23.0	19.3	16.3	29.1	21.2	19.2	19.4	18.5
	<b>Core (&gt; 4500) *</b>	<b>1</b>	5.1	48.7	54.2	49.2	57.2	68.9	56.4	56.2	67.8	63.9	59.6

**Table 10. Dallas-Fort Worth, Percentage of Metropolitan Area Industrial Sector Jobs in Groups of Counties of Different Population Densities (People Per Square Mile), 1970 and 2000**

		Number of counties	Farm	Agric serv	Mining	Const	Manuf	Transp	Wholesale	Retail	FIRE	Services	Govt
<b>1970</b>	<b>Very low density (&lt;100)</b>	<b>10</b>	84.0	30.5	4.1	10.3	8.8	8.3	3.4	11.0	7.7	9.3	19.4
	<b>Low density (100 - 500)</b>	<b>0</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	<b>Medium density (500 - 1000)</b>	<b>1</b>	8.6	20.2	25.0	23.9	33.3	21.2	20.2	28.1	19.9	26.4	30.5
	<b>High Density (1000 - 4500)</b>	<b>0</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	<b>Core (&gt; 4500) *</b>	<b>1</b>	7.3	49.3	71.0	65.9	57.9	70.5	76.3	60.8	72.4	64.3	50.1
<b>2000</b>	<b>Very low density (&lt;100)</b>	<b>5</b>	48.1	5.9	2.8	6.1	4.8	2.1	1.8	4.7	3.1	3.2	6.4
	<b>Low density (100 - 500)</b>	<b>4</b>	32.8	16.4	4.1	10.7	9.7	5.4	5.5	9.6	5.7	6.5	11.5
	<b>Medium density (500 - 1000)</b>	<b>1</b>	8.0	10.7	7.9	6.3	6.2	2.6	4.1	7.8	7.3	7.3	6.9
	<b>High Density (1000 - 4500)</b>	<b>1</b>	6.4	24.4	27.2	25.9	28.0	33.1	20.1	28.8	20.4	24.5	28.1
	<b>Core (&gt; 4500) *</b>	<b>1</b>	4.7	42.5	58.0	51.0	51.2	56.8	68.6	49.1	63.5	58.5	47.1

**Table 11. Minneapolis-St. Paul, Percentage of Metropolitan Area Industrial Sector Jobs in Groups of Counties of Different Population Densities (People Per Square Mile), 1970 and 2000**

		Number of counties	Farm	Agric serv	Mining	Const	Manuf	Transp	Wholesale	Retail	FIRE	Services	Govt
<b>1970</b>	<b>Very low density (&lt;100)</b>	<b>8</b>	71.3	21.6	22.1	7.4	3.6	4.2	1.9	6.9	4.0	5.5	9.6
	<b>Low density (100 - 500)</b>	<b>3</b>	18.6	18.3	20.1	10.6	11.1	6.4	4.0	9.0	5.5	6.4	13.4
	<b>Medium density (500 - 1000)</b>	<b>0</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	<b>High Density (1000 - 4500)</b>	<b>1</b>	9.1	43.0	22.6	56.7	49.2	55.2	74.2	58.7	64.2	61.1	50.1
	<b>Core (&gt; 4500) *</b>	<b>1</b>	1.0	17.1	35.2	25.4	36.1	34.2	19.9	25.4	26.3	27.0	26.9
<b>2000</b>	<b>Very low density (&lt;100)</b>	<b>4</b>	38.1	4.7	1.2	5.7	4.3	3.0	1.5	4.4	2.3	3.3	4.9
	<b>Low density (100 - 500)</b>	<b>4</b>	33.5	7.4	10.7	12.1	8.4	6.0	4.5	6.9	4.6	5.8	7.4
	<b>Medium density (500 - 1000)</b>	<b>3</b>	20.2	26.9	26.8	26.7	23.2	17.4	17.0	24.5	15.8	16.9	18.8
	<b>High Density (1000 - 4500)</b>	<b>1</b>	7.1	45.1	49.5	39.6	43.2	59.7	61.0	46.8	60.4	53.6	43.5
	<b>Core (&gt; 4500) *</b>	<b>1</b>	1.1	15.9	11.7	15.9	20.9	14.0	16.0	17.4	16.9	20.4	25.4

**Table 12. Portland, Percentage of Metropolitan Area Industrial Sector Jobs in Groups of Counties of Different Population Densities (People Per Square Mile), 1970 and 2000**

		Number of counties	Farm	Agric serv	Mining	Const	Manuf	Transp	Wholesale	Retail	FIRE	Services	Govt
<b>1970</b>	<b>Very low density (&lt;100)</b>	4	41.8	32.3	34.3	15.3	16.8	5.7	7.8	14.2	10.9	11.4	14.8
	<b>Low density (100 - 500)</b>	3	49.9	37.3	40.6	30.3	32.4	15.4	10.6	27.0	23.2	24.1	36.0
	<b>Medium density (500 - 1000)</b>	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	<b>High Density (1000 - 4500)</b>	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	<b>Core (&gt; 4500) *</b>	1	8.4	30.4	25.1	54.4	50.8	78.9	81.6	58.8	65.9	64.5	49.1
<b>2000</b>	<b>Very low density (&lt;100)</b>	2	9.8	6.1	5.1	2.7	3.2	2.3	1.1	2.5	1.8	2.3	3.4
	<b>Low density (100 - 500)</b>	3	65.3	31.5	21.2	30.1	24.6	17.8	22.8	29.0	27.3	23.9	33.4
	<b>Medium density (500 - 1000)</b>	2	20.4	40.7	59.5	35.4	40.8	24.5	32.0	32.2	29.0	29.7	22.6
	<b>High Density (1000 - 4500)</b>	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	<b>Core (&gt; 4500) *</b>	1	4.5	21.6	14.2	31.8	31.4	55.3	44.1	36.2	41.8	44.1	40.6

**Table 13. St. Louis, Percentage of Metropolitan Area Industrial Sector Jobs in Groups of Counties of Different Population Densities (People Per Square Mile), 1970 and 2000**

		Number of counties	Farm	Agric serv	Mining	Const	Manuf	Transp	Wholesale	Retail	FIRE	Services	Govt
<b>1970</b>	<b>Very low density (&lt;100)</b>	<b>6</b>	52.6	16.4	11.3	5.2	3.1	3.6	1.9	5.0	3.3	3.3	4.4
	<b>Low density (100 - 500)</b>	<b>4</b>	39.2	24.5	44.9	26.7	20.0	24.7	8.8	22.4	16.6	18.4	29.2
	<b>Medium density (500 - 1000)</b>	<b>0</b>	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	<b>High Density (1000 - 4500)</b>	<b>1</b>	8.2	55.3	27.6	44.7	34.1	18.9	32.1	41.7	38.1	31.1	26.0
	<b>Core (&gt; 4500) *</b>	<b>1</b>	0.0	3.8	16.3	23.4	42.7	52.7	57.2	30.9	42.0	47.2	40.4
<b>2000</b>	<b>Very low density (&lt;100)</b>	<b>5</b>	40.4	7.0	13.1	5.2	2.7	2.6	2.7	4.4	3.3	2.6	4.6
	<b>Low density (100 - 500)</b>	<b>4</b>	47.3	27.9	35.8	26.0	23.0	17.7	12.9	25.2	16.5	19.2	29.4
	<b>Medium density (500 - 1000)</b>	<b>1</b>	8.0	11.6	5.0	12.1	7.5	5.4	5.2	10.1	5.7	6.7	6.8
	<b>High Density (1000 - 4500)</b>	<b>1</b>	4.2	53.5	46.0	46.5	48.1	49.1	59.1	49.0	55.3	51.4	33.0
	<b>Core (&gt; 4500) *</b>	<b>1</b>	0.0	0.0	0.0	10.2	18.6	25.2	20.0	11.3	19.2	20.1	26.2

**Table 14. Washington, D.C., Percentage of Metropolitan Area Industrial Sector Jobs in Groups of Counties of Different Population Densities (People Per Square Mile), 1970 and 2000**

		Number of counties	Farm	Agric serv	Mining	Const	Manuf	Transp	Wholesale	Retail	FIRE	Services	Govt
<b>1970</b>	<b>Very low density (&lt;100)</b>	<b>10</b>	42.8	10.8	8.8	5.1	4.4	3.1	2.7	4.1	3.1	4.0	3.1
	<b>Low density (100 - 500)</b>	<b>3</b>	13.1	4.4	9.2	2.3	2.3	1.5	1.9	1.9	1.6	1.4	2.5
	<b>Medium density (500 - 1000)</b>	<b>1</b>	3.8	12.0	9.5	13.6	2.8	3.2	4.3	10.5	11.7	11.7	7.1
	<b>High Density (1000 - 4500)</b>	<b>3</b>	6.7	13.8	41.8	20.9	5.7	7.4	10.0	17.5	14.7	11.5	15.0
	<b>Core (&gt; 4500) *</b>	<b>3</b>	0.0	22.7	10.0	21.2	8.4	38.4	30.1	24.8	33.3	37.6	45.2
<b>2000</b>	<b>Very low density (&lt;100)</b>	<b>4</b>	16.5	8.2	2.6	2.3	2.2	0.4	1.2	1.2	1.1	1.0	1.3
	<b>Low density (100 - 500)</b>	<b>8</b>	33.4	28.9	16.4	13.6	11.6	9.9	7.9	9.7	7.9	4.8	5.8
	<b>Medium density (500 - 1000)</b>	<b>1</b>	1.9	0.0	0.0	6.1	2.5	0.0	2.3	4.4	0.0	2.0	2.7
	<b>High Density (1000 - 4500)</b>	<b>4</b>	11.5	42.4	36.3	42.5	18.3	37.4	37.5	37.4	39.7	37.8	28.3
	<b>Core (&gt; 4500) *</b>	<b>3</b>	0.0	2.8	26.4	5.8	9.3	18.9	7.2	11.5	16.4	25.0	33.8