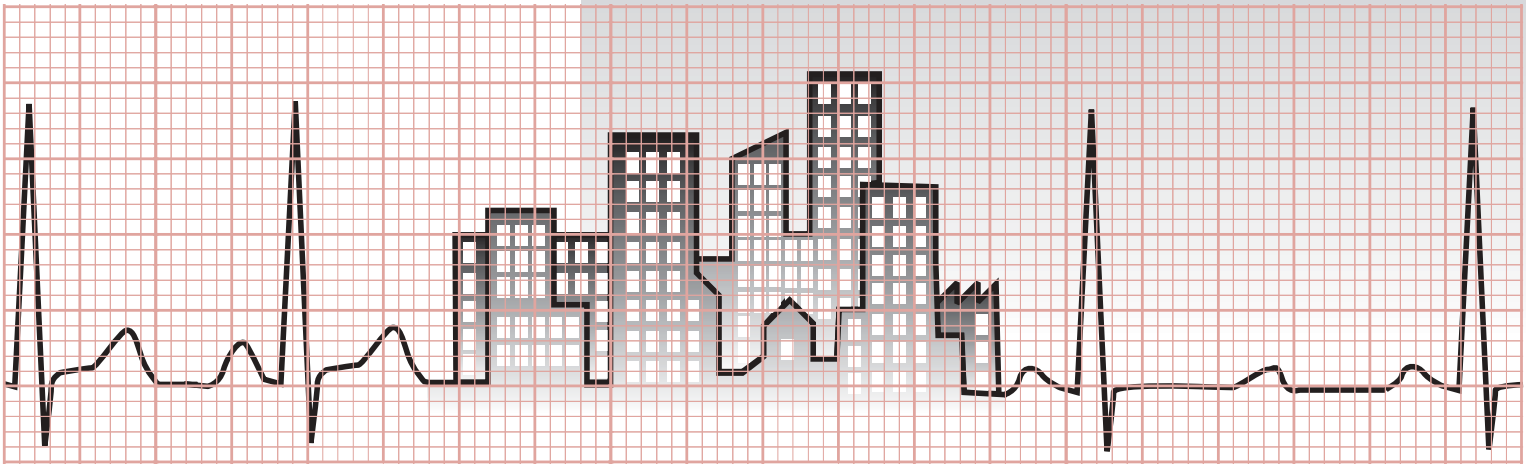


# An Update on **Urban Hardship**



**Lisa M. Montiel  
Richard P. Nathan  
David J. Wright**



**The  
Nelson A.  
Rockefeller  
Institute  
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Government**

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*Lisa M. Montiel, Richard P. Nathan, and David J. Wright*

**August 2004**



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Nelson A.  
Rockefeller  
Institute  
of  
Government

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## An Update on Urban Hardship

*By Lisa M. Montiel, Richard P. Nathan, and David J. Wright*

The Presidential campaign has largely overlooked the condition of America's cities. But with metropolitan areas home to more than 80 percent of Americans, as attention concentrates on the economic health and future of the country, it is timely to revisit the state of urban America.

Using a technique advanced by Nathan and Adams to assess urban hardship, the Rockefeller Institute's *Intercity Hardship Index* compares the economic condition of American cities relative to one another and to themselves and one another over time. The comparative analysis includes the largest cities within the most populated metropolitan areas in the nation, covering a total of 86 cities in 2000, and providing longer-term trend analysis for a group of 55 cities going back to 1970.<sup>1</sup>

The *Intercity Hardship Index* draws together six key factors:<sup>2</sup>

- ❖ Unemployment, defined as the percent of the civilian population over the age of 16 who were unemployed;
- ❖ Dependency, the percentage of the population that are under the age of 18 or over the age of 64;
- ❖ Education, the percentage of the population over the age of 25 who have less than a high school education;
- ❖ Income Level, the per capita income;
- ❖ Crowded Housing, measured by the percent of occupied housing units with more than one person per room; and
- ❖ Poverty, the percent of people living below the federal poverty level.

For each city, values on these six factors are compared to a national standard, and they are given equal weight when combined in a composite index. A higher Intercity Hardship Index score signifies worse economic conditions.

This paper provides an update on urban hardship conditions in the nation's most populated metropolitan areas beginning, in Section I, with national and regional perspectives on Intercity Hardship as of 2000. Next, in Section II, we look at conditions in 1990, and comment in Section III about changes in urban hardship levels over the decade of the 1990s. Section IV takes us back to the Nathan and Adams data on urban hardship in 1970, and Section V examines changes in those conditions between 1970 and 2000. Our penultimate discussion, in Section VI, analyzes several factors associated with changes in Intercity Hardship, and Section VII offers a final word on this research.

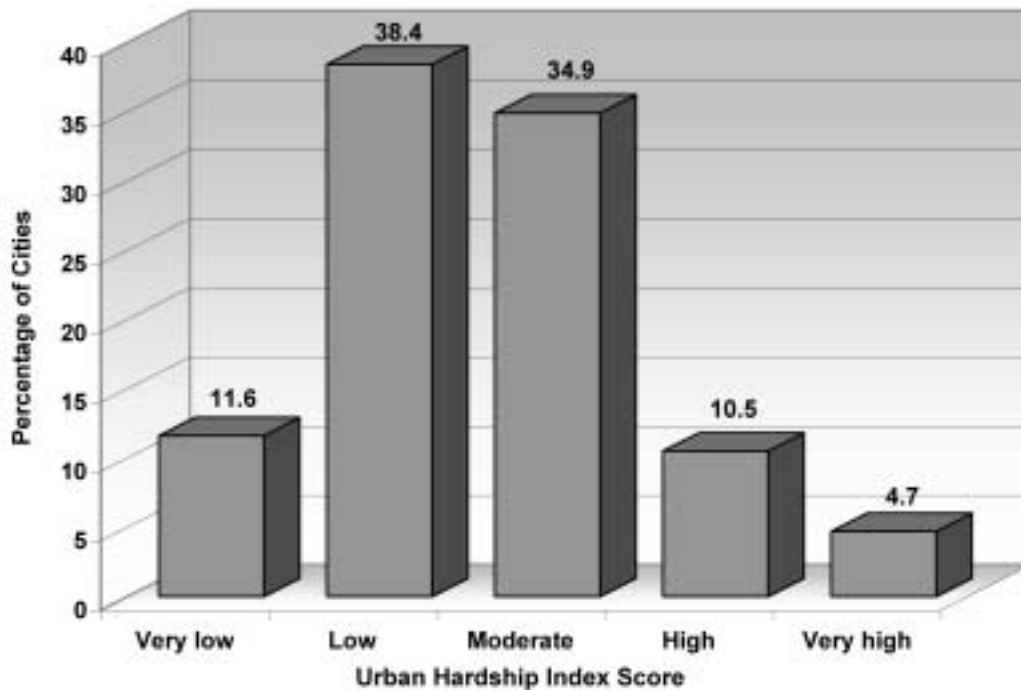


## I. URBAN HARDSHIP IN 2000

### A. Most Cities in 2000 have Low or Very Low Levels of Hardship

Images of extensive urban hardship are commonplace in much of the popular media, fueling the view that high or very high levels of hardship are the norm. But this isn't the case. Figure 1, which illustrates levels of hardship among 86 cities in the study based on data from the 2000 Decennial Census of Population and Housing, reports that half the cities in the study have low or very low levels of hardship. By contrast, only about 15 percent of the cities have high or very high levels of hardship.

Figure 1: Prevalence and Degree of Urban Hardship in 2000



NOTE: Categories are based on standard deviations from the median hardship score of all eighty-six cities. Thus, "very low" includes hardship scores from 9.2 to 19.39, "low" are scores from 19.4 to 33.19, "moderate" are from 33.2 to 46.99, "high" are from 47.0 to 60.8, and "very high" have scores over 60.8 (more than two standard deviations from the median).

The level of hardship and the location of each of the 86 cities are shown in Figure 2.

Figure 2: Level and Location of Urban Hardship in 2000



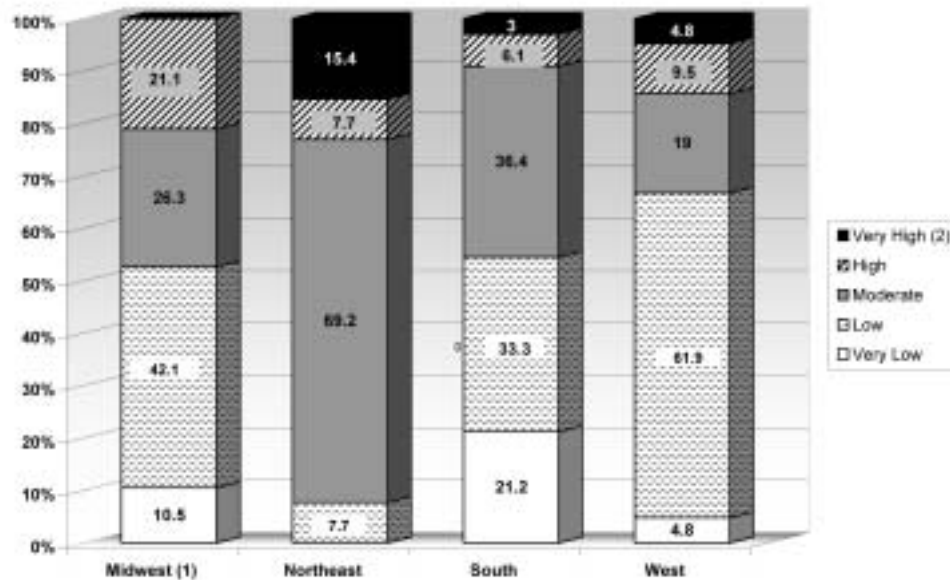
## B. Levels of Urban Hardship in 2000 Vary Considerably by Region

This national snapshot masks substantial variation in levels of urban hardship by region.

- ❖ Urban areas in the South are about twice as likely to have very low levels of urban hardship and are less likely to have high or very high levels of hardship.
- ❖ High levels of urban hardship are more common among large cities in the Northeast. (It is worth noting that nearly 7 in 10 Northeast cities have moderate rather than a higher level of hardship.)
- ❖ In between these extremes fall cities in the West and Midwest — those cities in the West more likely than others to have low hardship scores, and those in the Midwest more likely than others to have low and high hardship scores, and less likely to have very high, very low, or moderate scores on hardship.

These differing patterns of hardship levels by region are shown in Figure 3.

Figure 3: Composition of Cities in 2000 by Degree of Urban Hardship and Region



NOTES: 1. Regions are defined by The Geographic Area Reference Manual, Bureau of the Census, 1994, and comprise the following groupings of states: Midwest—Michigan, Ohio, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas; Northeast—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania; South—Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas, West-Montana, Idaho, Wyoming, Colorado; New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, Hawaii. 2. Categories are based on standard deviations from the median hardship score of all eighty-six cities. Thus, "very low" includes hardship scores from 9.2 to 18.30; "low" are scores from 18.4 to 33.70; "moderate" are from 33.2 to 46.80; "high" are from 47.0 to 60.6; and "very high" have scores over 60.6 (more than two standard deviations from the median).

### C. The Ten Most-Troubled Cities in 2000 are Spread Across the Northeast, Midwest, and West

Those cities with the ten highest levels of hardship in 2000 are, in order: Santa Ana, Miami, Hartford, Newark, Gary, Detroit, Cleveland, Fresno, Los Angeles, and Buffalo. Intercity Hardship Index scores and regions for these cities are shown in Table 1, below. Three of these highest-hardship cities are found in each of the Northeast, Midwest, and West regions, while only one, Miami, is in the South.

Table 1: Cities with Highest Hardship in 2000

| <i>City</i> | <i>Region</i> | <i>2000 Hardship Index Score</i> |
|-------------|---------------|----------------------------------|
| Santa Ana   | West          | 73.7                             |
| Miami       | South         | 71.6                             |
| Hartford    | Northeast     | 67.1                             |
| Newark      | Northeast     | 66.6                             |
| Gary        | Midwest       | 59.4                             |
| Detroit     | Midwest       | 56.6                             |
| Cleveland   | Midwest       | 55.8                             |
| Fresno      | West          | 54.4                             |
| Los Angeles | West          | 51.0                             |
| Buffalo     | Northeast     | 50.1                             |

For Miami, Newark, Gary, Detroit, and Cleveland, high hardship rankings are familiar territory. Each, as described more fully in Section V, has ranked among the highest hardship cities for thirty years. Buffalo and Hartford have been close behind, among the fifteen worst-off cities in the country on Intercity Hardship in 1970, with conditions worsening from then compared to 2000. Although Miami is in a different region, each of these cities reflect the well-worn pattern of older urban areas across the rust-belt: land-locked within inflexible boundaries, losing population share relative to their surrounding metropolitan area, characterized by high levels of residential segregation, facing considerable challenges in poverty levels as well as limited educational attainment, and home to low levels of newer housing stock.

Like Miami, Los Angeles is not usually associated with the problems of older cities in the Northeast and Midwest but it too defies convention. Los Angeles, like the other cities listed above, has seen most of the growth in the metropolitan area happening outside its relatively static borders. It has low levels of new housing, but high levels of family poverty and limited educational attainment among its residents.

The metropolitan areas encompassing Santa Ana and Fresno, respectively, were not sufficiently populated to have been included in the Nathan and Adams analysis for 1970. Each has since grown considerably.

Though it is in a rapidly growing, Western county popular enough to be the fictional home of a hot television series, Santa Ana — the seat of California’s Orange County — displays many of the same characteristics associated with hardship in the older “rust belt” cities listed above: a central city that represents a low, possibly shrinking share of population in the metropolitan area; stuck within inflexible city boundaries; with limited new housing stock; and tough social challenges, such as having nearly six out of every ten adults over 25 years of age having less than a high-school education.

Circumstances in Fresno illustrate a different story of Intercity Hardship. Even with highly elastic city boundaries enabling the city to capture a moderate level of metropolitan area population, and despite high levels of newer housing, Fresno’s Intercity Hardship score and ranking have been comparatively high (12th highest in 1990; 8th highest in 2000). This has been the result of a high level of population dependency — an exceptionally high proportion of youngsters relative to working-age adults — and rising unemployment.

#### **D. The Ten Least-Troubled Cities in 2000 Concentrate in the South**

Those cities with the ten lowest levels of hardship in 2000 are, in order: Seattle, Raleigh, Virginia Beach, Austin, Little Rock, Charlotte, Greensboro, Columbus, Arlington, and Omaha. Intercity Hardship Index scores and regions for these cities are shown in Table 2. With the exception of Seattle in the West and Columbus and Omaha of the Midwest, all of these lowest-hardship cities are in the South.

**Table 2: Cities with Lowest Hardship in 2000**

| <i>City</i>    | <i>Region</i> | <i>2000 Hardship Index Score</i> |
|----------------|---------------|----------------------------------|
| Seattle        | West          | 9.2                              |
| Raleigh        | South         | 10.9                             |
| Virginia Beach | South         | 15.3                             |
| Austin         | South         | 16.1                             |
| Little Rock    | South         | 17.1                             |
| Charlotte      | South         | 17.4                             |
| Greensboro     | South         | 17.5                             |
| Columbus       | Midwest       | 18.6                             |
| Arlington TX   | South         | 19.2                             |
| Omaha          | Midwest       | 19.3                             |

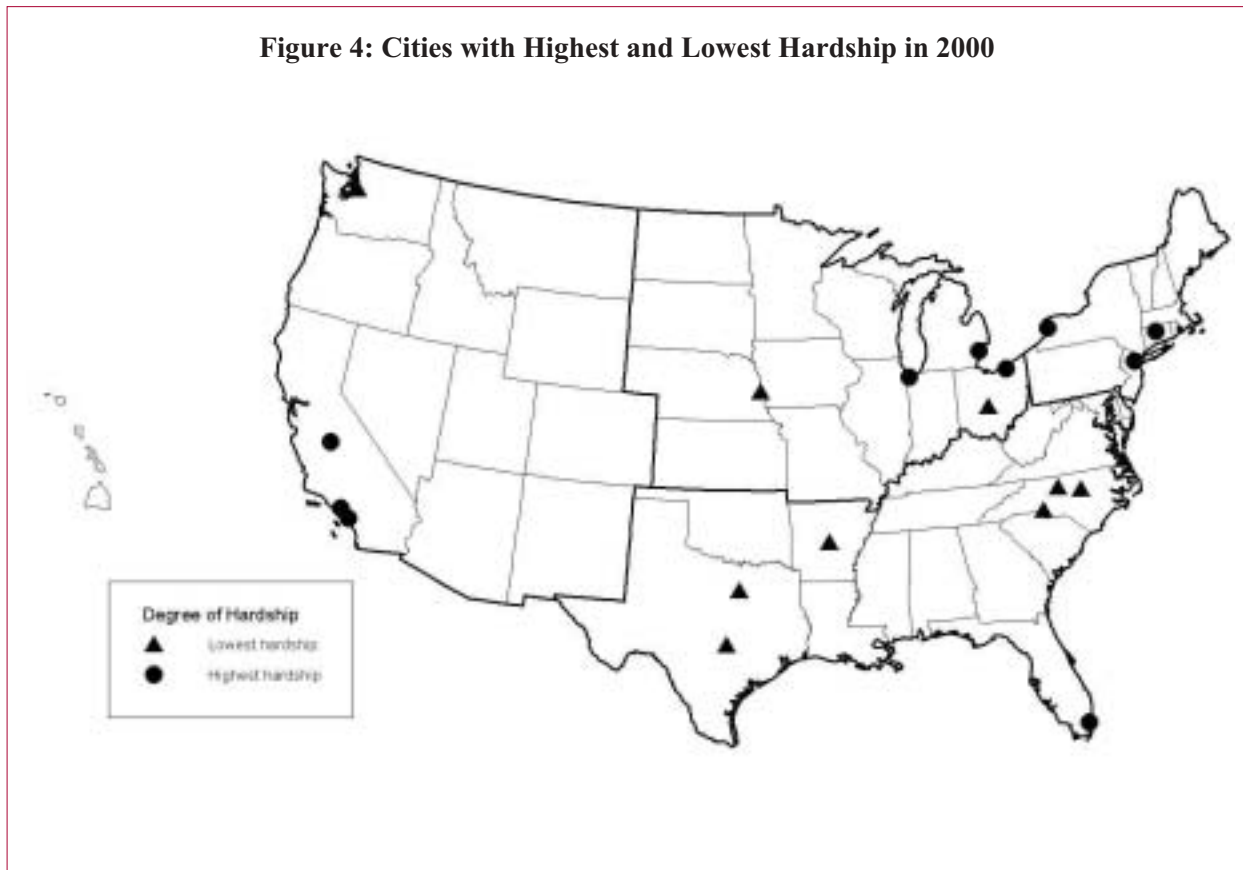
Six of the ten cities (Austin, Arlington, Charlotte, Little Rock, Raleigh, and Virginia Beach) on this list of lowest-hardship places are in metropolitan areas that did not have enough population in 1970 to make it into the original analysis by Nathan and Adams. This helps to underscore a point discussed in more detail in later sections of this paper: that growing cities in growth regions of the country have a strong tendency to have lower levels of Intercity Hardship than older, static or shrinking cities in the Northeast and Midwest.

The stalwarts on the list of lowest hardship cities are Seattle, Greensboro, and Columbus. Each has remained among the cities with lowest levels of Intercity Hardship since 1970. They are joined by Omaha, which fared better on hardship than all but 15 out of the 55 cities in the 1970 study, and improved to a relative position on Intercity Hardship that was better than all but 9 out of 86 cities in 2000.

Typically, the cities with lowest hardship benefited from having relatively elastic city boundaries, an ability to capture a moderate share of metropolitan area population, comparatively high levels of newer housing, and less intense pressures from high rates of racial segregation, poverty, limited education, and unemployment than other cities.

The ten highest-hardship and ten least-troubled cities are shown on the map below.

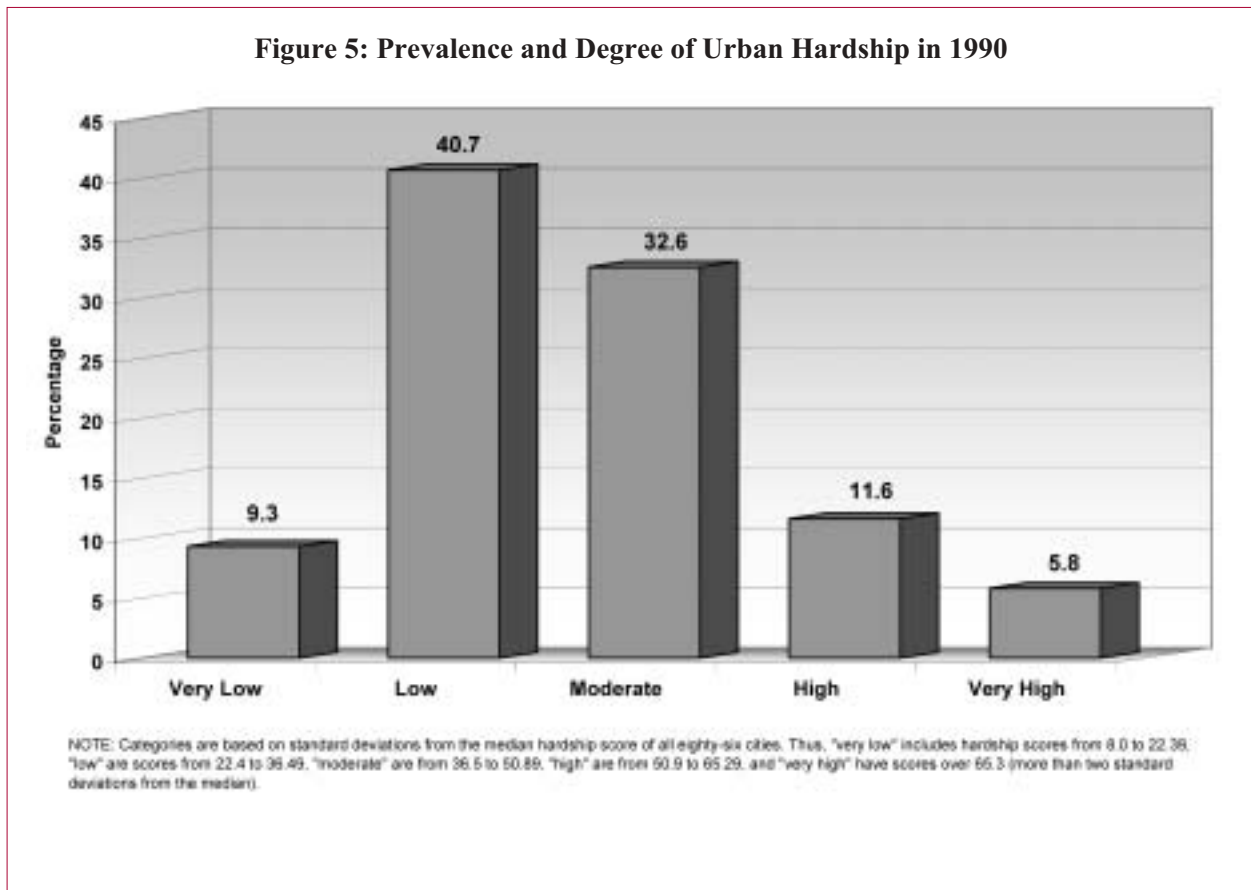
Figure 4: Cities with Highest and Lowest Hardship in 2000



## II. URBAN HARDSHIP IN 1990

### A. The Plurality of Central Cities in 1990 had Low Hardship

Among the largest cities in the most-populated metropolitan areas in the United States in 1990, the most common level of hardship was low. Combined with those categorized as having very low hardship, these cities comprise half of the 86 cities in the study. Compared to the distribution in 2000 shown above, fewer cities in 1990 are in the least-troubled category and a higher share have high or very high levels of hardship, shown in Figure 5 below.



The level of hardship in 1990 and the location of each of the 86 cities are shown on the map below.

Figure 6: Level and Location of Urban Hardship in 1990



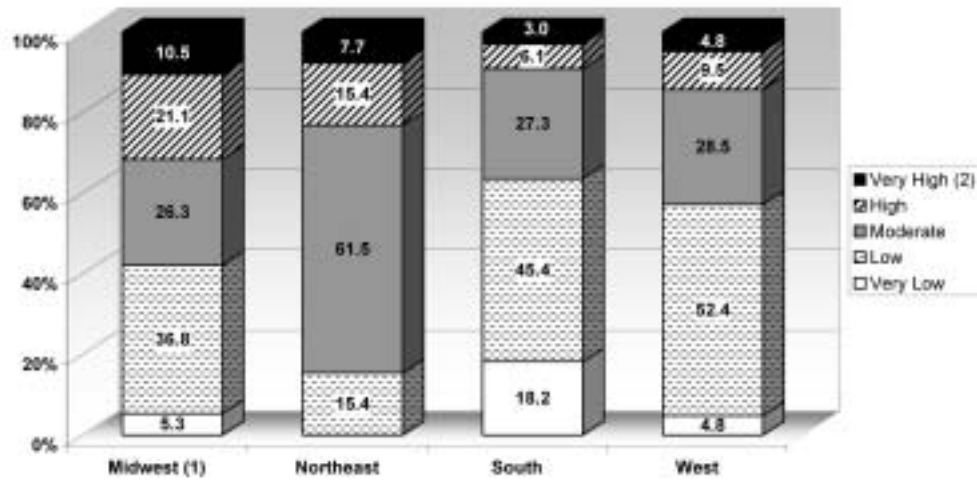
## B. Hardship Levels in 1990 Vary Considerably by Region

As was the case for 2000, urban hardship levels in 1990 can be seen to vary by region.

- ❖ Cities in the South were more likely to have very low and low levels of hardship, and were much less likely to have very high or high levels of hardship, compared to cities in other regions in 1990.
- ❖ The West had the second-most favorable urban conditions in 1990; better than half the cities in the West had low levels of hardship.
- ❖ Six of ten cities in the Northeast are classified as moderate hardship in 1990, twice the proportion of any other region. Nearly a quarter of Northeastern cities had high or very high levels of hardship, and none of the large cities in the region had very low levels of hardship.
- ❖ Nearly a third of Midwestern cities had high or very high Intercity Hardship Index scores in 1990.



Figure 7: Composition of Cities in 1990 by Degree of Hardship and Region



NOTES: 1. Regions are defined by The Geographic Areas Reference Manual, Bureau of the Census, 1994, and comprise the following groupings of states: Midwest—Michigan, Ohio, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas; Northeast—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania; South—Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas; West—Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, Hawaii.  
 2. Categories are based on standard deviations from the median hardship score of all eighty-six cities. Thus, "very low" includes hardship scores from 9.0 to 22.39, "low" are scores from 22.4 to 36.49, "moderate" are from 36.5 to 50.99, "high" are from 51.0 to 65.29, and "very high" have scores over 65.3 (more than two standard deviations from the median).

### C. The Ten Most-Troubled Cities in 1990 are Predominately in the Midwest and Northeast

Those cities with the ten highest levels of hardship in 1990 are, in order: Miami, Newark, Santa Ana, Detroit, Gary, Hartford, Youngstown, New Orleans, Cleveland, and Chicago. Seven cities are repeated in this top hardship group in 1990 and 2000: Miami, Newark, Santa Ana, Detroit, Gary, Hartford, and Cleveland. Intercity Hardship Index scores and regions for these cities are shown in Table 3. Four of these highest-hardship cities are in the Midwest, three in the Northeast, two in the South, and one in the West.

Table 3: Ten Highest Hardship Cities in 1990

| <i>City</i> | <i>Region</i> | <i>1990 Hardship Index Score</i> |
|-------------|---------------|----------------------------------|
| Miami       | South         | 76.5                             |
| Newark      | Northeast     | 74.6                             |
| Santa Ana   | West          | 74.6                             |
| Detroit     | Midwest       | 69.0                             |
| Gary        | Midwest       | 67.1                             |
| Hartford    | Northeast     | 62.6                             |
| Youngstown  | Northeast     | 56.8                             |
| New Orleans | South         | 56.8                             |
| Cleveland   | Midwest       | 56.6                             |
| Chicago     | Midwest       | 53.8                             |

Miami, Newark, Santa Ana and Detroit had the highest hardship scores in 1990. By 2000, all but Detroit were still in the top four. Santa Ana jumped to number one and Hartford entered the top four.

Other notable differences from the preceding list of highest-hardship cities in 2000 are the inclusion here of Youngstown, New Orleans, and Chicago. Although it ranked among those cities with highest Intercity Hardship scores in 1990, Youngstown reflected considerable improvement in levels of educational attainment, employment, income, and especially in lower poverty over the next decade. New Orleans had similar improvement during the 1990s on its intercity index scores for educational attainment, unemployment, and income, though it's overall hardship ranking was an improved but still-high 14th-highest in 2000. The driving forces behind Chicago's move out of the bottom ten cities appear to be improvement in levels of educational attainment and poverty, though its relative position improved only by one rung, to 11th-highest hardship in 2000.

With the exception of New Orleans, each of these cities is characterized by factors associated with high-hardship, as outlined above and discussed in more detail in Section VI. These factors include static city boundaries, a low or declining share of metro area population, and limited new housing.

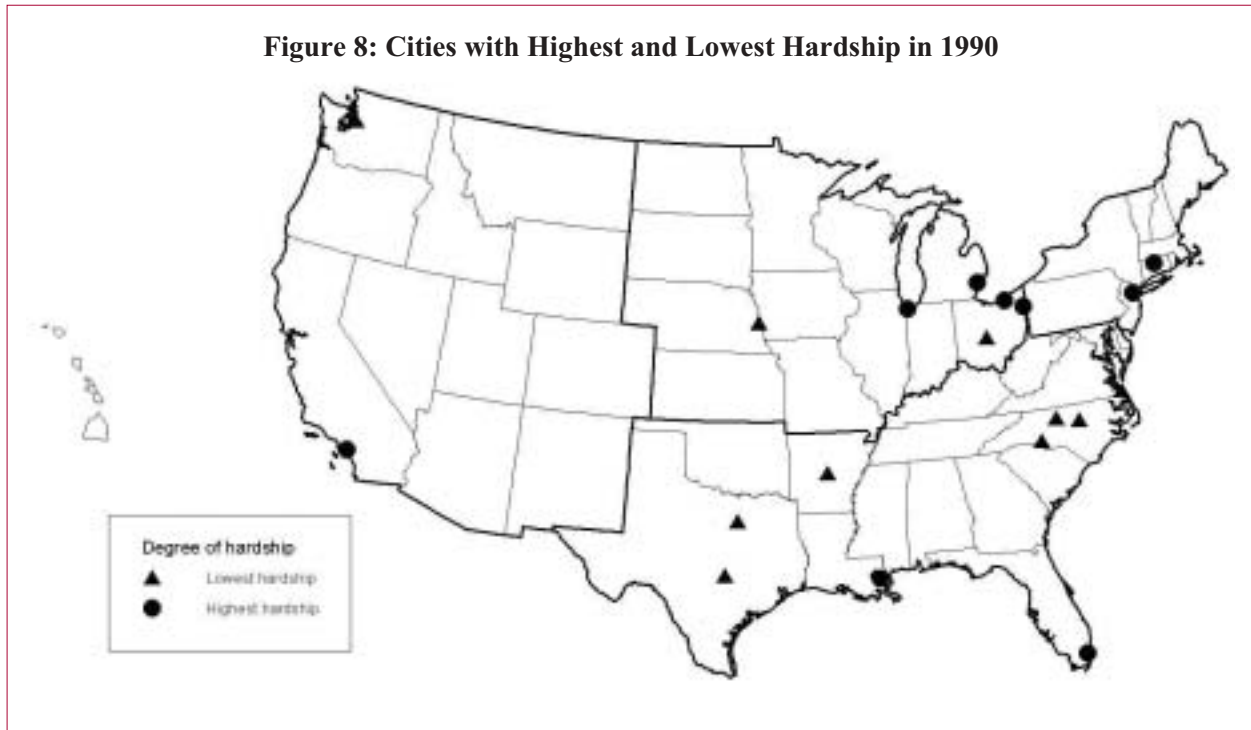
#### D. The Ten Least-Troubled Cities in 1990 were Concentrated in the South

Those cities with the ten lowest levels of hardship in 1990 are, in order: Raleigh, Seattle, Arlington, Virginia Beach, Greensboro, Charlotte, Little Rock, Omaha, Columbus, and Austin. These same cities comprised the lowest-ten on hardship in 2000, in slightly different order. Intercity Hardship Index scores and regions for these cities are included in Table 4, below. With the exception of Seattle in the West and Columbus and Omaha in the Midwest, all of these lowest-hardship cities are in the South.

| <i>City</i>    | <i>Region</i> | <i>1990 Hardship Index Score</i> |
|----------------|---------------|----------------------------------|
| Raleigh        | South         | 6.3                              |
| Seattle        | West          | 12.3                             |
| Arlington TX   | South         | 12.9                             |
| Virginia Beach | South         | 13.1                             |
| Greensboro     | South         | 13.2                             |
| Charlotte      | South         | 13.3                             |
| Little Rock    | South         | 21.1                             |
| Omaha          | Midwest       | 21.7                             |
| Columbus       | Midwest       | 22.5                             |
| Austin         | South         | 22.7                             |

The ordering has changed somewhat, but each of these cities were also among the ten lowest hardship cities in 2000. As outlined above and discussed in more detail in Section VI, these cities possess several characteristics — flexible boundaries, relatively higher shares of metropolitan area populations and newer housing — that are associated with lower levels of Intercity Hardship.

The ten highest-hardship and ten least-troubled cities in 1990 are shown in Figure 8.



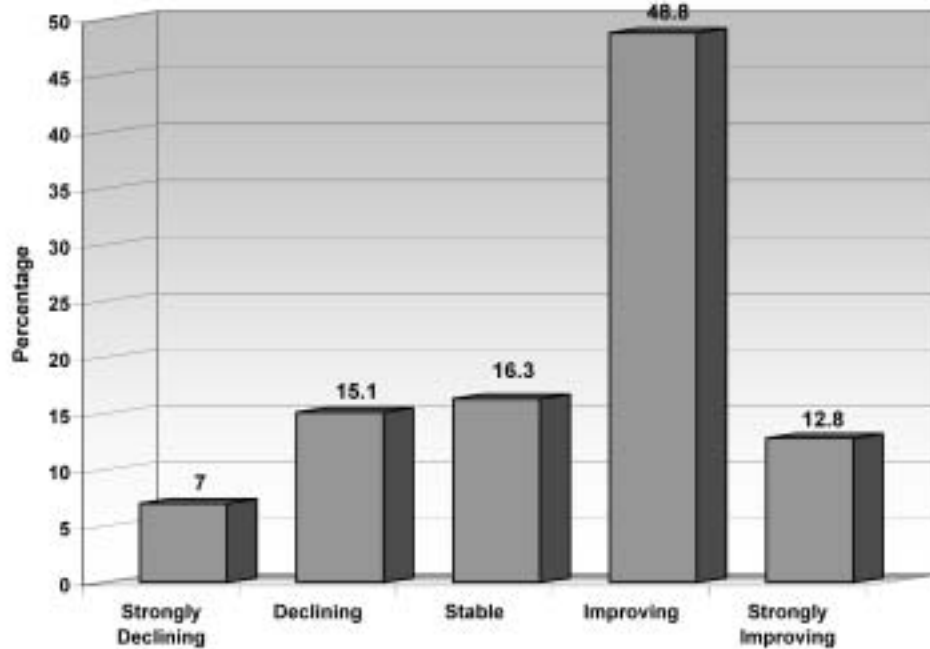
### III. URBAN HARDSHIP OVER THE 1990s

#### A. The 1990s Were Generally Good for Cities

Tracking scores on the *Intercity Hardship Index* over time provides useful perspective. Comparing measures of hardship in 2000 with those from 1990 shows the following (see Figure 9 below):

- ❖ The average hardship score among the 86 central cities improved, from 37.7 in 1990 to 35.0 in 2000.
- ❖ Three-fifths of the cities studied are classified as improving or strongly improving over the 1990s.
- ❖ Four-fifths of the cities studied are classified as either stable or improving.

Figure 9: Change in Urban Hardship Levels — 1990 to 2000



NOTE: Categories are based on the percent change in the hardship indices for 1990 and 2000. Cities are categorized as "strongly declining" if their percent change increases by more than 20%, "declining" if the percent change increases by 4.0% to 19.9%, "stable" if the percent change is between an increase of 3.9% and a decrease of 3.9%, "improving" if the percent change decreases by 4.0% to 19.9%, and "strongly improving" if the percent change decreases by more than 20%.

The location of each of the 86 cities and their change in level of hardship between 1990 and 2000 are shown on the map below.

Figure 10: Change in Hardship from 1990 to 2000



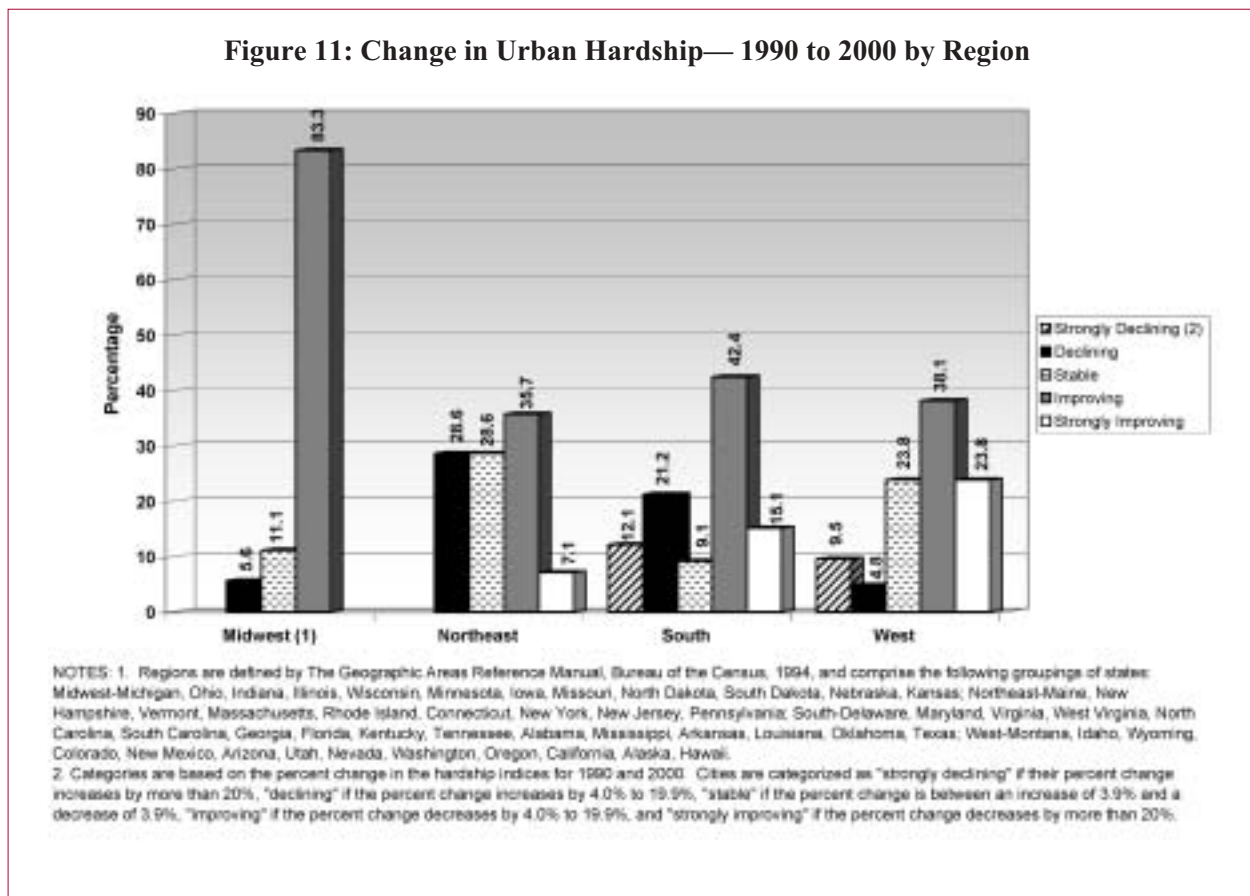
## B. The Degree and Direction of Change in Hardship Levels Over the 1990s Varies by Region

Average hardship scores declined for each region between 1990 and 2000, although there were notable differences in hardship levels among the regions.

- ❖ Cities in the Midwest improved the most in their average score from 1990-2000, followed by cities in the West.
- ❖ Hardship levels improved in the Northeast over the 1990s, but they improved less and remained higher in the Northeast than in the other regions.
- ❖ Cities in all regions showed improvement or stability on nearly all of the individual variables comprising the Intercity Hardship Index.
- ❖ The exception was crowded housing, where conditions generally worsened. While the number of residents living in crowded housing conditions tended to increase in all regions, the West had a significantly higher percentage in both 1990 and 2000. The Midwest, both in 1990 and 2000, had the lowest levels of crowded housing.
- ❖ The proportion of people aged 25 years or more with at least a high school education improved from 1990 to 2000 for cities in all regions except those in the West, which had the worst score on education among regions in 1990 and the second worst in 2000.
- ❖ Cities in the South continued to have the highest per capita income both in 1990 and 2000, and along with those in the Midwest, showed the most improvement in per capita income from 1990 to 2000.

- ❖ Cities in the Midwest and West experienced significant improvement in the share of residents living below poverty. The Northeast continued to show the lowest per capita income and the highest percentage of residents living below poverty.
- ❖ Changes in unemployment and share of “dependent population” were not significant.
- ❖ For cities in the West, crowded housing is a main factor in their hardship conditions. In the Northeast, low levels of educational attainment, lower per capita income, and high incidence of poverty underlie socioeconomic hardship.

These regional differences are illustrated by Figure 11, below.



### C. Cities with the Greatest Increases in Urban Hardship Over the 1990s Concentrate in the South

Most of the cities with the lowest hardship scores in 2000 are Southern cities. However, the South was also home to cities with the biggest increases in hardship scores from 1990 to 2000, which also tended to be in the West.

Two ways of looking at change in hardship levels are presented below. One method looks at change in hardship relative to a city’s own past, based on a change in its hardship score over time.

The second method looks at change in hardship both over time and relative to hardship levels in other cities, based on changes in the rank order of cities on hardship in 2000 and 1990.

First we use both methods to look at cities with the most deterioration in their socioeconomic condition. Table 5 reports those cities that had the largest proportional increase in their own hardship score between 1990 and 2000.

| <i>City</i>  | <i>Region</i> | <i>1990 Index</i> | <i>2000 Index</i> | <i>Change in Index<br/>1990-2000</i> |
|--------------|---------------|-------------------|-------------------|--------------------------------------|
| Anaheim      | West          | 38.7              | 46.4              | 7.7                                  |
| Honolulu     | West          | 25.7              | 32.7              | 7.0                                  |
| Arlington TX | South         | 12.9              | 19.2              | 6.3                                  |
| Norfolk      | South         | 33.6              | 39.8              | 6.2                                  |
| Birmingham   | South         | 42.6              | 48.0              | 5.5                                  |
| Houston      | South         | 34.1              | 39.6              | 5.4                                  |
| Raleigh      | South         | 6.3               | 10.9              | 4.5                                  |
| Hartford     | Northeast     | 62.6              | 67.1              | 4.5                                  |
| Milwaukee    | Midwest       | 44.7              | 49.1              | 4.4                                  |
| Syracuse     | Northeast     | 37.6              | 42.0              | 4.4                                  |
| Greensboro   | South         | 13.2              | 17.5              | 4.4                                  |

The largest increases in hardship score from 1990 to 2000 were in Anaheim, Honolulu, Arlington (TX), Norfolk and Birmingham. All of these are smaller cities, and there is a tendency for the most distressed cities to be the smaller cities.

Increases were largest among cities in the South and West. Six of the eleven cities with the largest increases in hardship scores are in the South. Two each are in the West and Northeast, while one is in the Midwest.

This list notably includes two cities that have, relatively speaking, very low levels of urban hardship. Indeed, Raleigh and Greensboro ranked among the ten cities with lowest hardship scores in both 1990 and 2000, with Raleigh the overall lowest in 1990 and second lowest in 2000. And yet, compared to where they were, both Raleigh and Greensboro experienced substantial increases in their levels of urban hardship over the 1990s.

A second way of looking at change over time is to look at relative hardship; that is, by comparing city rankings on urban hardship in 1990 and 2000. Cities where change in hardship ranking was the most negative are shown in Table 6, below (twelve rather than ten cities are shown because of ties).

The cities ranking with the highest levels of urban hardship in 1990 generally remained in the highest ten in 2000 (with the noted exceptions of Youngstown, New Orleans and Chicago which

improved their conditions and Fresno, Los Angeles and Buffalo, which joined the list with highest hardship). Twelve cities significantly worsened, moving 10 or more places higher in hardship ranking from 1990-2000. Honolulu had the most negative change, with a move of 26 places, followed by Anaheim with a move of nineteen and Norfolk with eighteen places. Allentown, Birmingham and Houston each had a relative worsening in their hardship ranking of 15 places. The other cities that significantly worsened in rank are Buffalo, Milwaukee, Dallas, Newport News, Richmond, and Syracuse.

**Table 6: Cities Where Intercity Hardship Ranking Worsened the Most from 1990 to 2000**

| <i>City</i>  | <i>Region</i> | <i>1990 Rank</i> | <i>2000 Rank</i> | <i>Change in Rank<br/>1990-2000</i> |
|--------------|---------------|------------------|------------------|-------------------------------------|
| Honolulu     | West          | 71               | 45               | 26                                  |
| Anaheim      | West          | 35               | 16               | 19                                  |
| Norfolk      | South         | 48               | 30               | 18                                  |
| Birmingham   | South         | 28               | 13               | 15                                  |
| Houston      | South         | 47               | 32               | 15                                  |
| Allentown    | Northeast     | 50               | 35               | 15                                  |
| Buffalo      | Northeast     | 22               | 10               | 12                                  |
| Milwaukee    | Midwest       | 24               | 12               | 12                                  |
| Syracuse     | Northeast     | 39               | 28               | 11                                  |
| Dallas       | South         | 45               | 34               | 11                                  |
| Richmond     | South         | 55               | 44               | 11                                  |
| Newport News | South         | 61               | 50               | 11                                  |

#### **D. Cities with the Greatest Improvement in Urban Hardship Over the 1990s Are in the West**

Next, we use both methods — change in score and change in ranking — to look at cities that improved the most on hardship over the 1990s. Cities with the largest decreases in hardship scores from 1990 to 2000 are: San Antonio, San Francisco, Youngstown, Detroit, Tucson, New Orleans, Mesa, Phoenix, St. Louis, and Oakland (Table 7). The largest decreases come from the South, West and Midwest regions. The West had the most cities with significant improvement, followed by the Midwest and the South. No city in the Northeast made this list.



**Table 7: Cities Where Intercity Hardship Index Scores Improved the Most from 1990 to 2000**

| <i>City</i>   | <i>Region</i> | <i>1990 Index</i> | <i>2000 Index</i> | <i>Change in Index<br/>1990-2000</i> |
|---------------|---------------|-------------------|-------------------|--------------------------------------|
| San Antonio   | South         | 48.5              | 33.9              | -14.6                                |
| San Francisco | West          | 33.4              | 20.2              | -13.1                                |
| Youngstown    | Midwest       | 56.8              | 44.2              | -12.6                                |
| Detroit       | Midwest       | 69.0              | 56.6              | -12.4                                |
| Tucson        | West          | 40.0              | 28.3              | -11.7                                |
| New Orleans   | South         | 56.8              | 45.9              | -10.9                                |
| Mesa          | West          | 30.5              | 19.8              | -10.7                                |
| Phoenix       | West          | 33.5              | 24.0              | -9.5                                 |
| St. Louis     | Midwest       | 52.9              | 44.5              | -8.4                                 |
| Oakland       | West          | 50.9              | 42.6              | -8.3                                 |

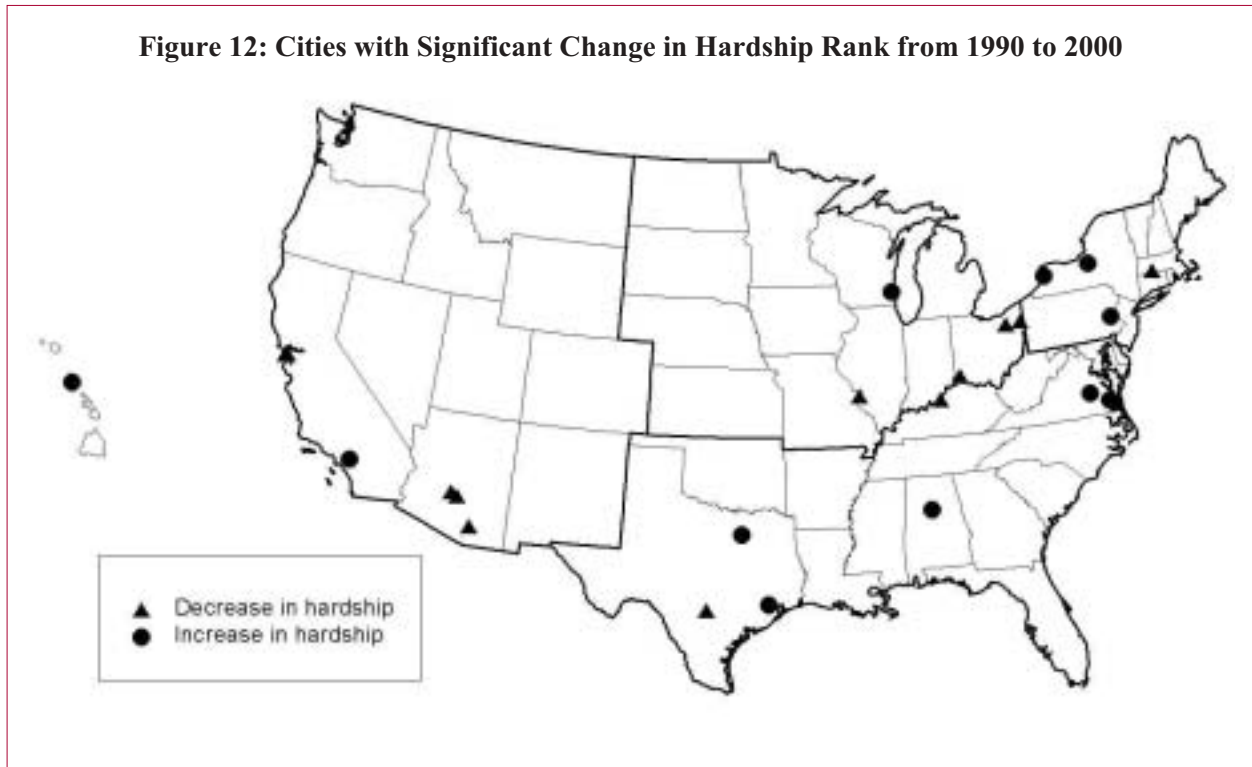
Thirty-eight of the 86 cities improved their rank from 1990-2000, indicating a relative reduction in urban hardship in these places compared to the others in the study. Twelve cities moved down 11 or more places from 1990-2000, indicating significant improvement, and are listed in Table 8. San Francisco and Tucson lead the way, improving 23 places in ranking, followed by San Antonio (20 places), Cincinnati and Youngstown at 17 places, Louisville and Mesa at 16, Phoenix (15), Oakland, (12) and Akron, Springfield, and St. Louis, which improved in rank by 11 places.

**Table 8: Cities Where Intercity Hardship Ranking Improved the Most from 1990 to 2000**

| <i>City</i>   | <i>Region</i> | <i>1990 Rank</i> | <i>2000 Rank</i> | <i>Change in Rank<br/>1990-2000</i> |
|---------------|---------------|------------------|------------------|-------------------------------------|
| Tucson        | West          | 33               | 56               | -23                                 |
| San Francisco | West          | 51               | 74               | -23                                 |
| San Antonio   | South         | 20               | 40               | -20                                 |
| Youngstown    | Midwest       | 7                | 24               | -17                                 |
| Cincinnati    | Midwest       | 31               | 48               | -17                                 |
| Louisville    | South         | 36               | 52               | -16                                 |
| Mesa          | West          | 60               | 76               | -16                                 |
| Phoenix       | West          | 49               | 64               | -15                                 |
| Oakland       | West          | 15               | 27               | -12                                 |
| St. Louis     | Midwest       | 11               | 22               | -11                                 |
| Springfield   | Northeast     | 14               | 25               | -11                                 |
| Akron         | Midwest       | 40               | 51               | -11                                 |

About half of the cities in each region improved in hardship rank. Cities with the most significant improvement in hardship rank were most often found in the West (5 of 12), Midwest (4 of 12), the South (2 of 12), followed by the Northeast (1 of 12).

The location of the cities with most significant change in hardship rank between 1990 and 2000 are shown on the map below.



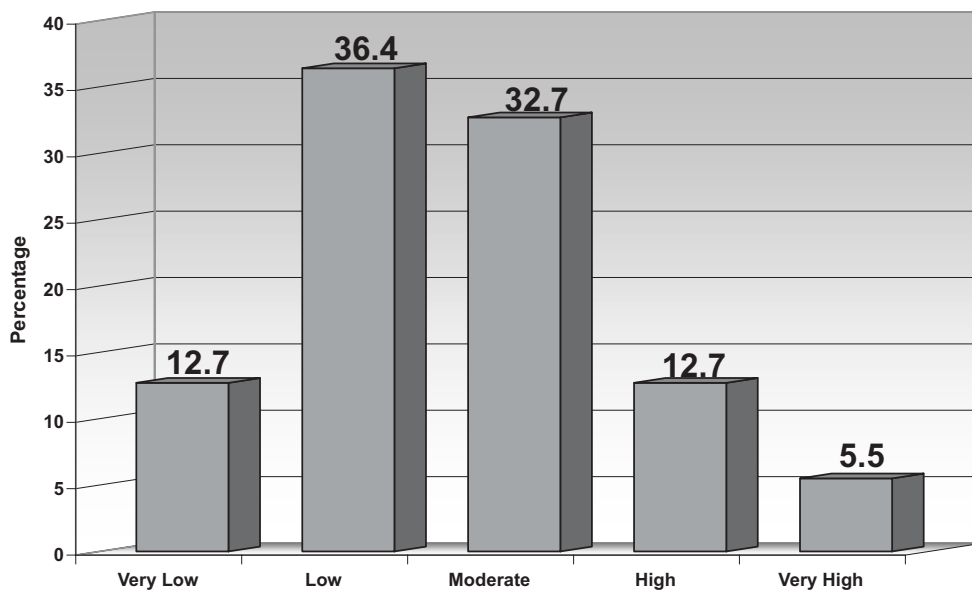
## IV. URBAN HARDSHIP IN 1970<sup>3</sup>

In combination with Nathan and Adams’ original analysis, this study provides a thirty year overview on the socioeconomic well being of the largest cities in the most populated metropolitan regions of the United States. In this section, we analyze the shares of cities experiencing improvement, stability or decline over this extended period, compare the composition of cities by levels of hardship for each of the four decades, and explore regional variation in both. We later examine the rankings of the original fifty-five cities for 1970, 1980, 1990 and 2000. Many of the same cities have remained in socioeconomic hardship — half of the cities with the worst socioeconomic hardship ranking have remained so for the entire period — and many have successfully improved their conditions over this thirty-year span. Most of the cities among the lowest hardship had difficult years between 1970 and 1990. The 1990s, however, were a period of stability for the cities with the best rankings.

### A. Most Cities in 1970 had Moderate to High Levels of Hardship

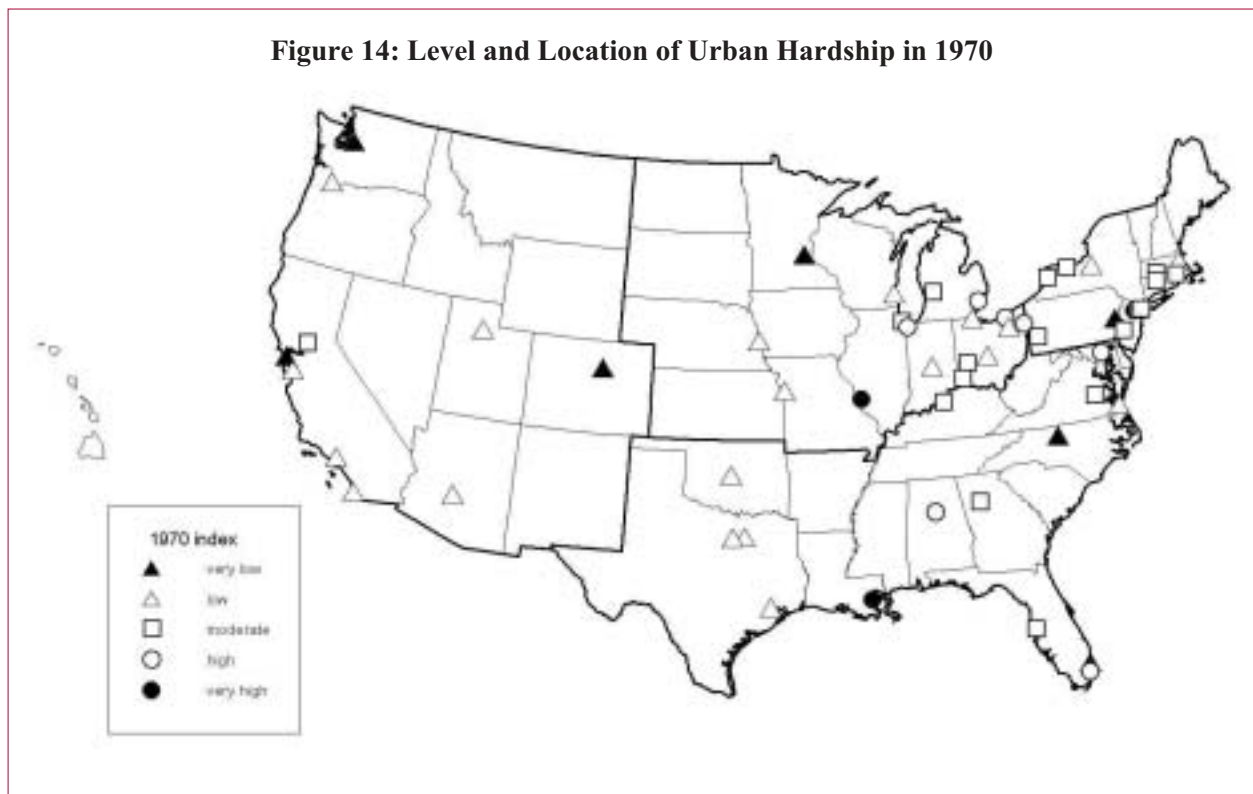
The most common level of hardship among the 55 cities included in the original analysis by Nathan and Adams for 1970 was low. However, unlike 2000 and 1990, the combination of low and very low hardship cities in 1970 encompasses less than half of the cities in the study. Compared to the distribution in 2000 and 1990 shown above, more cities in 1970 have very low hardship, but fewer have low hardship and a higher share have high or very high levels of hardship, shown in Figure 13 below.

Figure 13: Prevalence and Degree of Urban Hardship in 1970



NOTE: Categories are based on standard deviations from the median hardship score of all fifty-five cities. Thus, "very low" includes hardship scores from 19.1 to 32.39, "low" are scores from 32.4 to 45.69, "moderate" are from 45.7 to 58.99, "high" are from 59.0 to 72.29, and "very high" have scores over 72.3 (more than two standard deviations from the median).

The level of hardship in 1970 and the location of each of the 55 cities are shown on the map below.

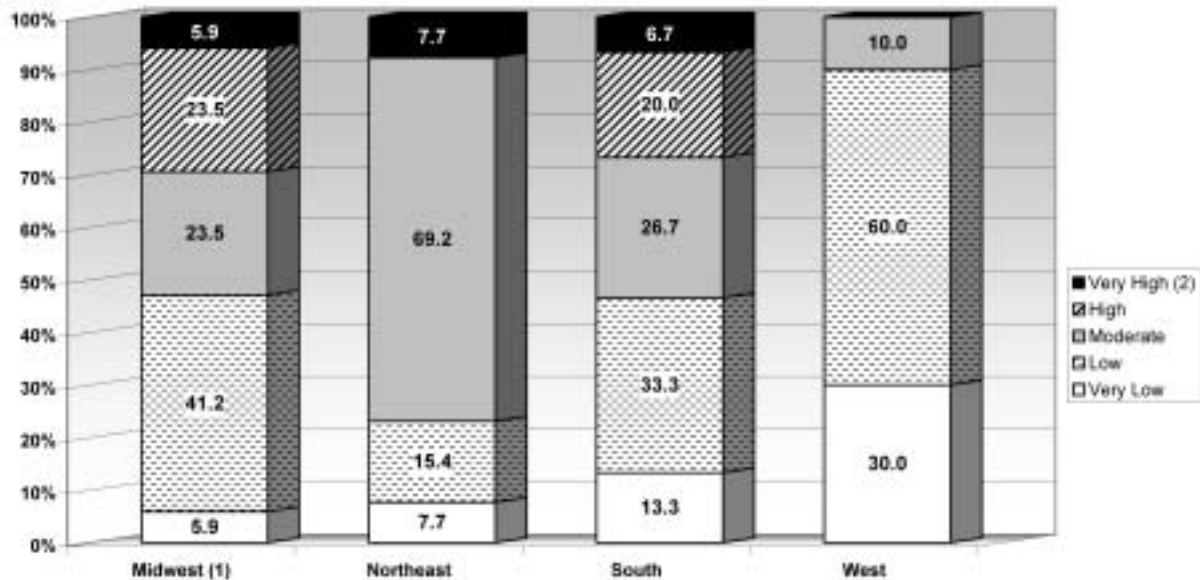


## B. Urban Hardship in 1970 Varied by Region

As was the case for 2000 and 1990, substantial variation in urban hardship levels in 1970 varied by region.

- ❖ The West fared best among the four regions in 1970. Nearly all — 90 percent — of the cities in the West had very low or low levels of hardship in 1970, and no cities in the study from that region had high or very high hardship in 1970. This pattern is strikingly different from what was observed in the West for 1990 and 2000.
- ❖ Cities in the South and the Midwest had similar patterns on hardship, with those in the South having a slightly higher tendency than those in the Midwest to concentrate toward the extremes — either very high or very low hardship — and in the moderate category, and less in the low and high hardship categories.
- ❖ Nearly seven-in-ten cities in the Northeast had moderate hardship in 1970, at least twice the proportion of any other region. An equal share of cities in the Northeast had very high and very low levels of hardship. Nearly a quarter of those cities studied in the Northeast had low or very low hardship in 1970, compared to a little more than 15 percent of such cities in 1990 and to 7.7 percent of such cities in 2000.

Figure 15: Composition of Cities in 1970 by Degree of Hardship and Region



NOTES: 1. Regions are defined by The Geographic Areas Reference Manual, Bureau of the Census, 1934, and comprise the following groupings of states: Midwest-Michigan, Ohio, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas; Northeast-Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania; South-Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas; West-Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, Hawaii.  
 2. Categories are based on standard deviations from the median hardship score of all fifty-five cities. Thus, "very low" includes hardship scores from 19.1 to 32.35, "low" are scores from 32.4 to 45.69, "moderate" are from 45.7 to 58.95, "high" are from 59.0 to 72.29, and "very high" have scores over 72.3 (more than two standard deviations from the median)."

### C. The Ten Most-Troubled Cities in 1970 Concentrated in the Midwest and South

Those cities with the ten highest levels of hardship in 1970 are, in order: Newark, St. Louis, New Orleans, Gary, Miami, Baltimore, Youngstown, Birmingham, Cleveland, and Detroit.

In 1990 and 2000, the cities with highest hardship were distributed nearly evenly among the Northeast, Midwest and South. But back in 1970, by contrast, half of the cities with the most substantial levels of urban hardship were found in the Midwest, and the South had a nearly equally high portion. Newark, with the highest level of hardship among the 55 cities studied in 1970, was the only place among the highest-hardship cities from the Northeast. None were from the West.

**Table 9: Ten Highest Hardship Cities in 1970**

| <i>City</i> | <i>Region</i> | <i>1970 Hardship Index Score</i> |
|-------------|---------------|----------------------------------|
| Newark      | Northeast     | 86.9                             |
| St. Louis   | Midwest       | 77.2                             |
| New Orleans | South         | 73.9                             |
| Gary        | Midwest       | 70.3                             |
| Miami       | South         | 61.9                             |
| Baltimore   | South         | 61.9                             |
| Youngstown  | Midwest       | 61.6                             |
| Birmingham  | South         | 61.6                             |
| Cleveland   | Midwest       | 61.4                             |
| Detroit     | Midwest       | 59.0                             |

**D. Most Cities with the Lowest Levels of Urban Hardship in 1970 Are in the West and South**

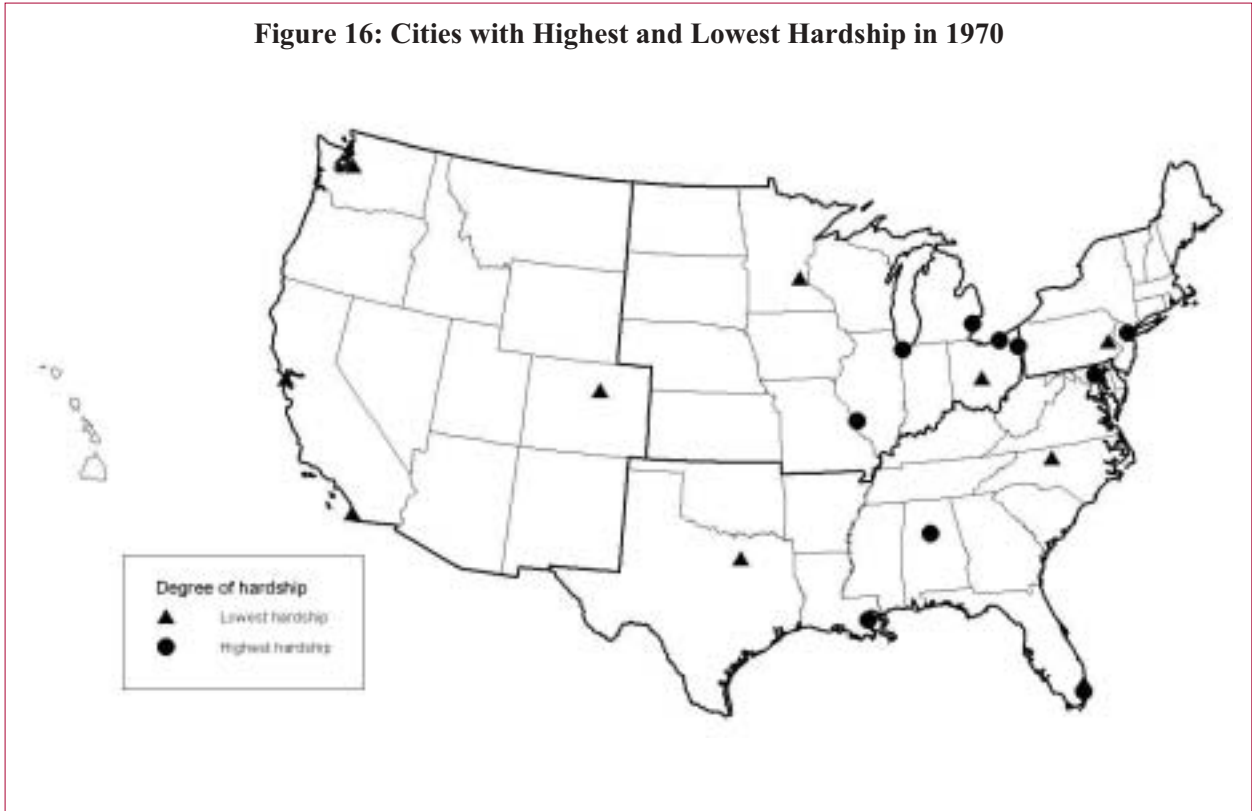
Those cities with the ten lowest levels of hardship in 1970 are, in order: Fort Lauderdale, Seattle, Greensboro, San Francisco, Allentown, Denver, Minneapolis, San Diego, Dallas, and Columbus. Intercity Hardship Index scores and regions for these cities are included in Table 10, below. Four of these ten cities are in the West, three in the South, two in the Midwest, and one in the Northeast.

**Table 10: Ten Lowest Hardship Cities in 1970**

| <i>City</i>     | <i>Region</i> | <i>1970 Hardship Index Score</i> |
|-----------------|---------------|----------------------------------|
| Fort Lauderdale | South         | 23.0                             |
| Seattle         | West          | 28.1                             |
| Greensboro      | South         | 28.4                             |
| San Francisco   | West          | 28.5                             |
| Allentown       | Northeast     | 29.2                             |
| Denver          | West          | 29.7                             |
| Minneapolis     | Midwest       | 29.8                             |
| San Diego       | West          | 32.8                             |
| Dallas          | South         | 33.1                             |
| Columbus        | Midwest       | 34.8                             |

The ten highest-hardship and ten least-troubled cities in 1970 are shown on the map below.

Figure 16: Cities with Highest and Lowest Hardship in 1970



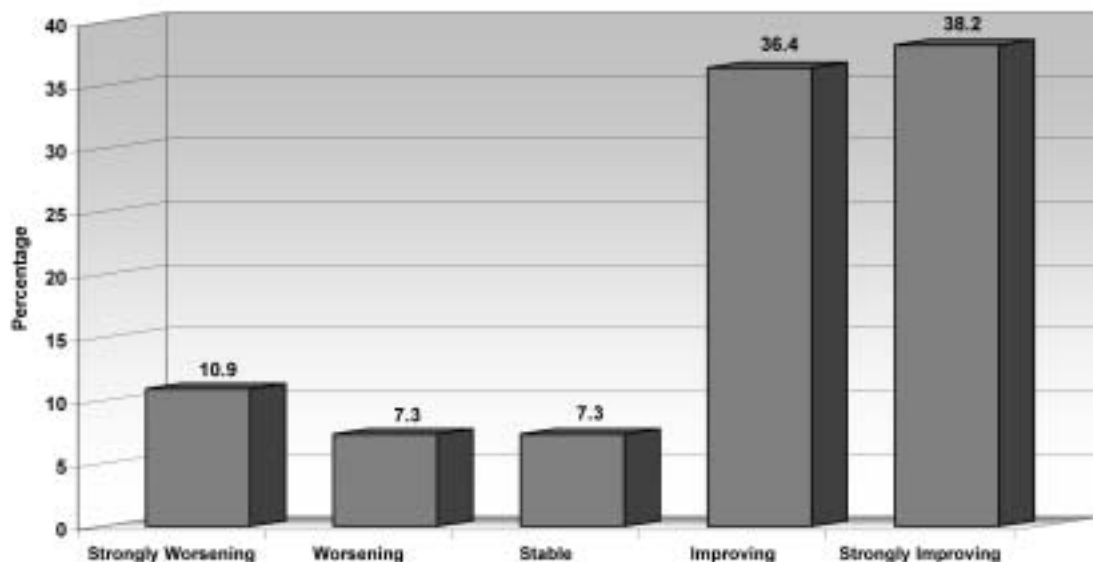
## V. CHANGES IN URBAN HARDSHIP, 1970-2000<sup>4</sup>

### A. Hardship Declined in Nearly Three-Quarters of the Cities, 1970-2000

Between 1970 and 2000, levels of hardship improved strongly for the plurality of cities in the study, which encompass the largest cities in the most-populated metropolitan areas in the country. As shown in Figure 17:

- ❖ Nearly three quarters — 74.6 percent — of the cities had a decline in hardship score from 1970 to 2000 of 4 percent or more.
- ❖ More than 38 percent of cities *strongly improved* on hardship levels from 1970 to 2000 (meaning they had a reduction in hardship score of 20 percent or more).
- ❖ Another 36.4 percent improved on hardship over this period, meaning they had a reduction in hardship score of between 4 percent and 20 percent.
- ❖ Fewer than one in five — 18.2 percent — of cities in the study declined from 1970 to 2000, defined as having an increase in hardship score of 4 percent or greater.

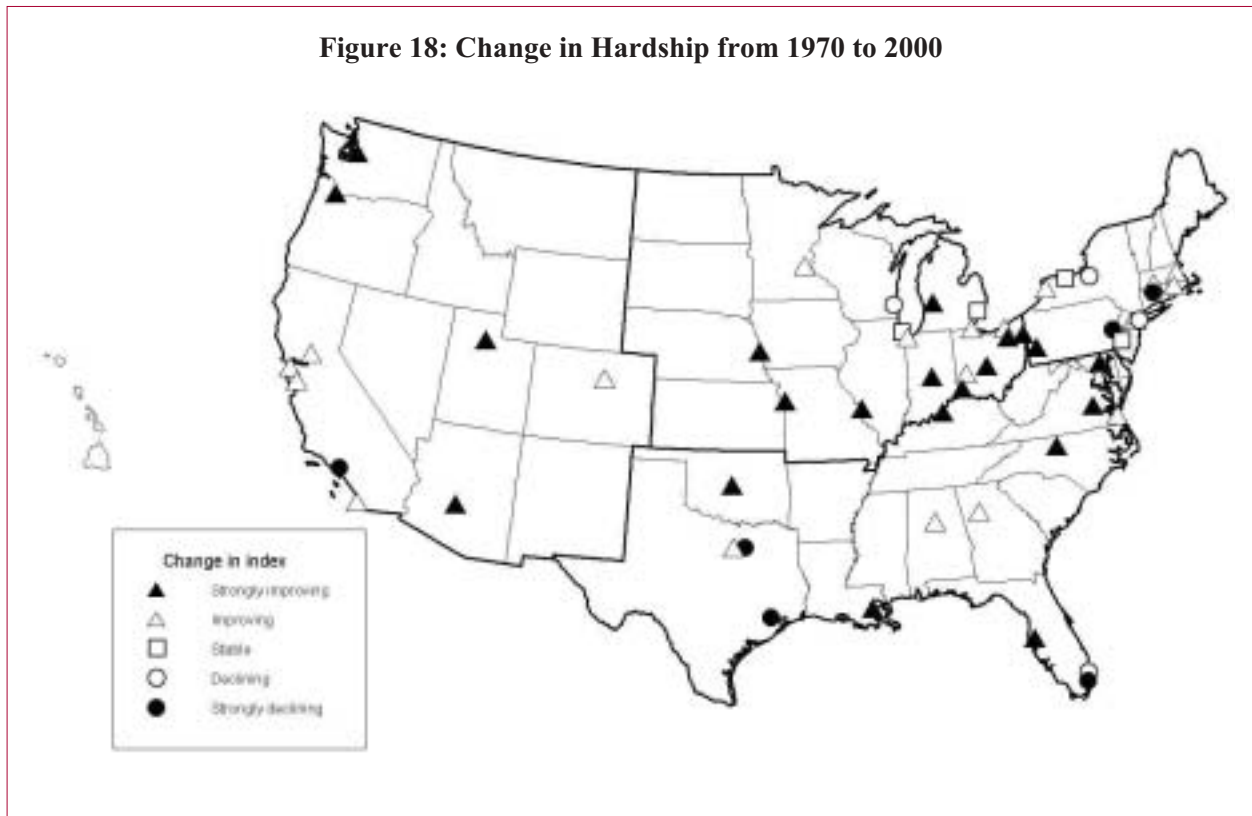
Figure 17: Change in Urban Hardship — 1970 to 2000



NOTE: Categories are based on the percent change in the hardship indices for 1970 and 2000. Cities are categorized as "strongly declining" if their percent change increases by more than 20%; "declining" if the percent change increases by 4.0% to 19.9%; "stable" if the percent change is between an increase of 3.9% and a decrease of 3.9%; "improving" if the percent change decreases by 4.0% to 19.9%; and "strongly improving" if the percent change decreases by more than 20%.



The location of each of the 55 cities and their change in level of hardship between 1970 and 2000 are shown on the map below.

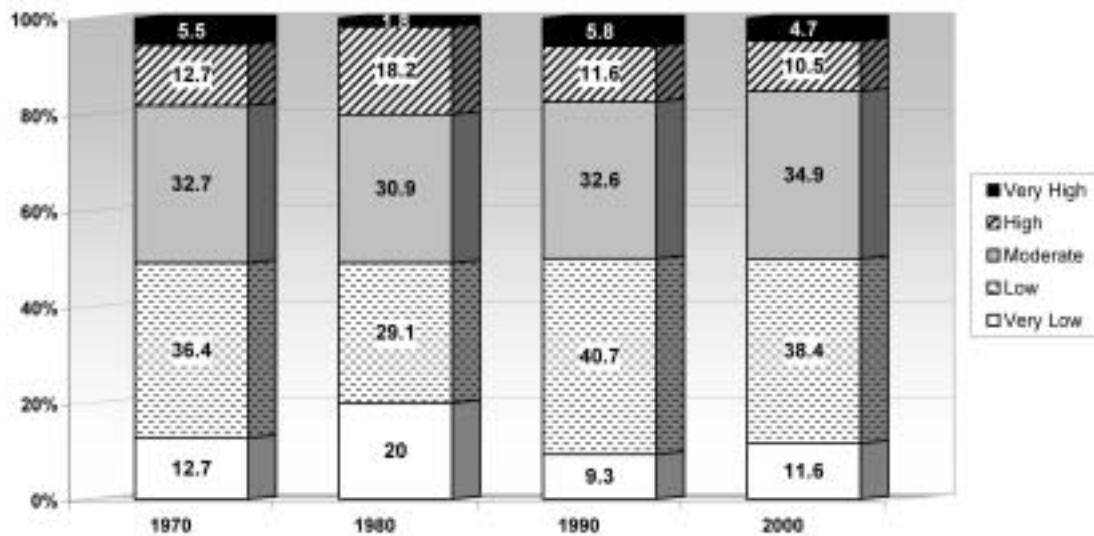


## B. Hardship Composition of Cities Shows Slight Improvement Decade by Decade from 1970 to 2000

Figure 19 presents the total distribution of cities by their levels of hardship for each decade, 1970 to 2000.

- ❖ The proportion of cities with high or very high levels of hardship generally declines from 1970 to 2000, except in 1980, which exceeded the share of cities with worse hardship in all other years.
- ❖ The proportion of cities with low or very low hardship increases somewhat, from 49 percent in 1970 and 1980 to 50 percent in 1990 and 2000.

Figure 19: Urban Hardship Levels 1970 to 2000



NOTE: Categories are based on standard deviations from the median hardship score of all eighty-six cities. Thus, in 2000, "very low" includes hardship scores from 9.2 to 19.39, "low" are scores from 19.4 to 33.19, "moderate" are from 33.2 to 46.99, "high" are from 47.0 to 60.8, and "very high" have scores over 60.8 (more than two standard deviations from the median). In 1990 "very low" includes hardship scores from 8.0 to 22.39, "low" are scores from 22.4 to 36.49, "moderate" are from 36.5 to 50.89, "high" are from 50.9 to 65.29, and "very high" have scores over 65.3 (more than two standard deviations from the median). In 1980 "very low" includes hardship scores from 4.69 to 20.89, "low" are scores from 20.9 to 37.19, "moderate" are from 37.2 to 53.49, "high" are from 53.5 to 69.79, and "very high" have scores over 69.8 (more than two standard deviations from the median). In 1970 "very low" includes hardship scores from 19.1 to 32.39, "low" are scores from 32.4 to 45.69, "moderate" are from 45.7 to 59.99, "high" are from 59.0 to 72.29, and "very high" have scores over 72.3 (more than two standard deviations from the median).

### C. The Degree and Direction of Change in Hardship Levels from 1970-2000 Varies by Region

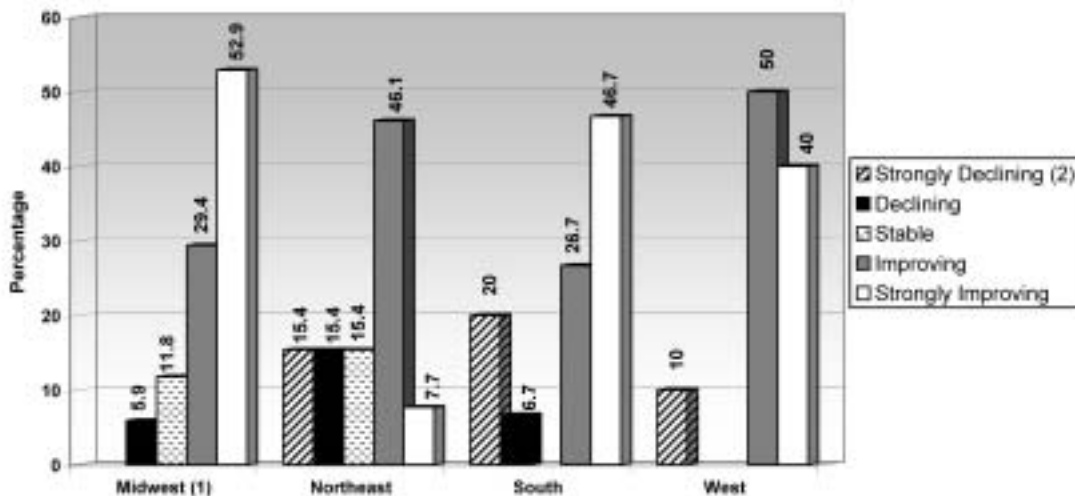
Figure 20 reports the regional breakdown on the share of cities that strongly declined, declined, were stable, improved, or improved strongly from 1970 to 2000. The picture varied considerably by region.

- ❖ Cities in the Midwest generally marked a significant level of improvement in hardship conditions from 1970 to 2000. Better than half of the cities in the region — 52.9 percent — registered strong improvement in their hardship score, meaning a decline of 20 percent or more, and another three-in-ten (29.4 percent) had improvement in hardship from 1970 to 2000. About one in eight Midwestern cities had stable levels of hardship, while about 6 percent declined, experiencing an increase in hardship levels of between 4 and 20 percent. The Midwest was the only one of the four regions that did not have a city in the study that declined strongly over the thirty-year period reviewed.
- ❖ Nine-in-ten cities in the West either improved or improved strongly from 1970 to 2000. However, the remaining 10 percent of cities from the region declined strongly.
- ❖ Nearly half the cities from the South also had strong improvement in hardship levels from 1970 to 2000 (46.7 percent). But, the region had a bipolar pattern: while the

strong majority of cities in the South either improved or improved strongly, more than a quarter declined or declined strongly. The South had the highest share of cities experiencing significant increases in hardship levels. Like the West, no cities in the region were categorized as stable.

- ❖ The Northeast had the least favorable pattern of change among the four regions. In good news, there too did the majority of cities show improvement in hardship scores between 1970 and 2000, but this majority was slim compared to other regions. The Northeast had, by far, the smallest share among the regions of cities showing strong improvement in hardship — 7.7 percent in the Northeast, compared with the next-lowest being the West’s 40 percent. A markedly higher share of Northeastern cities was stable compared to other regions. While a much higher share of Northeastern cities than those in other regions had some or strong decline, this still amounted to about three-in-ten cities — meaning almost 70 percent of the largest cities in the most populated parts of the Northeast were stable or improved from 1970 to 2000.

Figure 20: Change in Hardship — 1970 to 2000 by Region



NOTES: 1. Regions are defined by The Geographic Areas Reference Manual, Bureau of the Census, 1994, and comprise the following groupings of states: Midwest-Michigan, Ohio, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas; Northeast-Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania; South-Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas; West-Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, Hawaii.

2. Categories are based on the percent change in the hardship indices for 1970 and 2000. Cities are categorized as "strongly declining" if their percent change increases by more than 20%, "declining" if the percent change increases by 4.0% to 19.9%, "stable" if the percent change is between an increase of 3.9% and a decrease of 3.9%, "improving" if the percent change decreases by 4.0% to 19.9%, and "strongly improving" if the percent change decreases by more than 20%.

## D. Cities with the Greatest Increases in Urban Hardship from 1970 to 2000 Concentrate in the Northeast and South

We return to the two methods used above to examine increases in hardship at the city level over time. The first method looks at change in hardship relative to a city’s own past, by calculating a change in hardship score over time. The second method looks at change in hardship both over time and relative to hardship levels in other cities, based on changes in hardship ranking in 1970 and 2000.

Table 11 reports those cities that had the largest proportional increase in their own hardship score between 1970 and 2000. Cities with the largest increase in their level of hardship are, in order: Los Angeles, Miami, Hartford, Dallas, Allentown, Milwaukee, Houston, New York, Fort Lauderdale, and Syracuse. Four of these ten cities are in the Northeast, and an equal number are in the South. The West has one city among those most troubled — Los Angeles, ranked worst overall — as does the Midwest.

| <i>City</i>     | <i>Region</i> | <i>1970 Index</i> | <i>2000 Index</i> | <i>Change in Index 1970-2000</i> |
|-----------------|---------------|-------------------|-------------------|----------------------------------|
| Los Angeles     | West          | 38.4              | 61.0              | 22.6                             |
| Miami           | South         | 61.9              | 83.5              | 21.6                             |
| Hartford        | Northeast     | 56.5              | 73.1              | 16.6                             |
| Dallas          | South         | 33.1              | 44.7              | 11.6                             |
| Allentown       | Northeast     | 29.2              | 39.1              | 9.9                              |
| Milwaukee       | Midwest       | 43.8              | 51.6              | 7.8                              |
| Houston         | South         | 37.8              | 45.5              | 7.7                              |
| New York        | Northeast     | 45.7              | 51.3              | 5.6                              |
| Fort Lauderdale | South         | 23.0              | 27.1              | 4.1                              |
| Syracuse        | Northeast     | 41.4              | 43.4              | 2.0                              |

Table 12 presents the ten cities ranking with the highest levels of hardship in 1970, and shows the ranking of these cities on hardship in each of 1980, 1990, and 2000. Five central cities — Newark, Gary, Miami, Cleveland and Detroit — remained in the highest ten cities on hardship for this thirty-year time span indicating continuous socioeconomic hardship. St. Louis steadily improved its socioeconomic hardship conditions to move from a rank of “2” in 1970 to a rank of “19” in 2000. Baltimore has also steadily improved its ranking through the years.

**Table 12: Rank Order of Highest Hardship Cities, 1970 to 2000**

| <i>City</i> | <i>Region</i> | <i>Ranks</i> |             |             |             |
|-------------|---------------|--------------|-------------|-------------|-------------|
|             |               | <i>1970</i>  | <i>1980</i> | <i>1990</i> | <i>2000</i> |
| Newark      | Northeast     | <b>1</b>     | 1           | 2           | 2           |
| St. Louis   | Midwest       | <b>2</b>     | 7           | 10          | 19          |
| New Orleans | South         | <b>3</b>     | 15          | 6           | 16          |
| Gary        | Midwest       | <b>4</b>     | 2           | 4           | 4           |
| Miami       | South         | <b>5</b>     | 6           | 1           | 1           |
| Baltimore   | South         | <b>6</b>     | 9           | 15          | 17          |
| Youngstown  | Midwest       | <b>7</b>     | 11          | 7           | 22          |
| Birmingham  | South         | <b>8</b>     | 12          | 23          | 13          |
| Cleveland   | Midwest       | <b>9</b>     | 8           | 8           | 7           |
| Detroit     | Midwest       | <b>10</b>    | 3           | 3           | 6           |

Those cities with the most negative change in rank are shown in Table 13, below. Ten cities significantly worsened, moving 10 places or more in higher hardship ranking from 1970-2000. Los Angeles had the most negative change in its ranking on hardship, with a move of 35 places, followed by Dallas with a move of 24 and Milwaukee with 23 places. Allentown and Houston each had a relative decline in their hardship ranking of 21 places. The other cities that significantly worsened in rank are New York, Fort Lauderdale, Chicago, Hartford, and Syracuse.

Four of the ten cities with most negative change in rank are in the Northeast. Three are found in the South. Two are from the Midwest, while one is from the West.

Los Angeles experienced most of its relative decline in the 1980s. Both Dallas and Houston continued to decline from 1980-2000. Milwaukee and New York had progressive increases in hardship, joining the most-troubled-ten in 2000.

**Table 13: Cities Where Intercity Hardship Ranking Worsened the Most from 1970 to 2000**

| <i>City</i>     | <i>Region</i> | <i>1970 Rank</i> | <i>2000 Rank</i> | <i>Change in Rank 1970-2000</i> |
|-----------------|---------------|------------------|------------------|---------------------------------|
| Los Angeles     | West          | 40               | 5                | 35                              |
| Dallas          | South         | 47               | 23               | 24                              |
| Milwaukee       | Midwest       | 32               | 9                | 23                              |
| Houston         | South         | 42               | 21               | 21                              |
| Allentown       | Northeast     | 51               | 30               | 21                              |
| New York        | Northeast     | 28               | 10               | 18                              |
| Fort Lauderdale | South         | 55               | 43               | 12                              |
| Chicago         | Midwest       | 22               | 11               | 11                              |
| Hartford        | Northeast     | 14               | 3                | 11                              |
| Syracuse        | Northeast     | 34               | 24               | 10                              |

### E. Cities with the Greatest Improvement in Urban Hardship Between 1970 and 2000 Are Found in the Midwest

Table 14 reports the ten cities with the most significant improvement in hardship score between 1970 and 2000. Cities with the largest decrease in their hardship score are, in order: St. Louis, New Orleans, Louisville, Cincinnati, Seattle, Grand Rapids, Indianapolis, Columbus, Youngstown, and Omaha.

The Midwest region dominates as the location for most significantly improved cities over the thirty-year period. Seven of the top ten cities are in the Midwest.

| <i>City</i>  | <i>Region</i> | <i>1970 Index</i> | <i>2000 Index</i> | <i>Change in Index 1970-2000</i> |
|--------------|---------------|-------------------|-------------------|----------------------------------|
| St. Louis    | Midwest       | 77.2              | 46.9              | -30.3                            |
| New Orleans  | South         | 73.9              | 48.8              | -25.1                            |
| Louisville   | South         | 56.6              | 32.0              | -24.6                            |
| Cincinnati   | Midwest       | 54.1              | 33.3              | -20.8                            |
| Seattle      | West          | 28.1              | 9.1               | -19.0                            |
| Grand Rapids | Midwest       | 50.1              | 32.2              | -17.9                            |
| Indianapolis | Midwest       | 40.4              | 22.7              | -17.7                            |
| Columbus     | Midwest       | 34.8              | 18.5              | -16.3                            |
| Youngstown   | Midwest       | 61.6              | 45.3              | -16.3                            |
| Omaha        | Midwest       | 35.0              | 19.1              | -15.9                            |

Table 15 reports those ten cities with the most significant improvement in hardship ranking between 1970 and 2000. Each of the cities improved in comparison with others in the study by 11 or more positions over the 30 years. As shown, the most improved city was Louisville, Kentucky, which improved in hardship rank by 26 positions from 1970 to 2000. The second most improved city was Cincinnati, which improved its hardship ranking by 21 positions from 1970 to 2000. St. Louis and Grand Rapids tied for third-best, improving in hardship rank by 17 positions from 1970 to 2000. Rounding out the list of most-improved cities in hardship rankings between 1970 and 2000 are Youngstown (15 positions), Indianapolis (14 positions), New Orleans and Tampa (at 13 positions), as well as Baltimore and Pittsburgh (each improving by 11 positions).

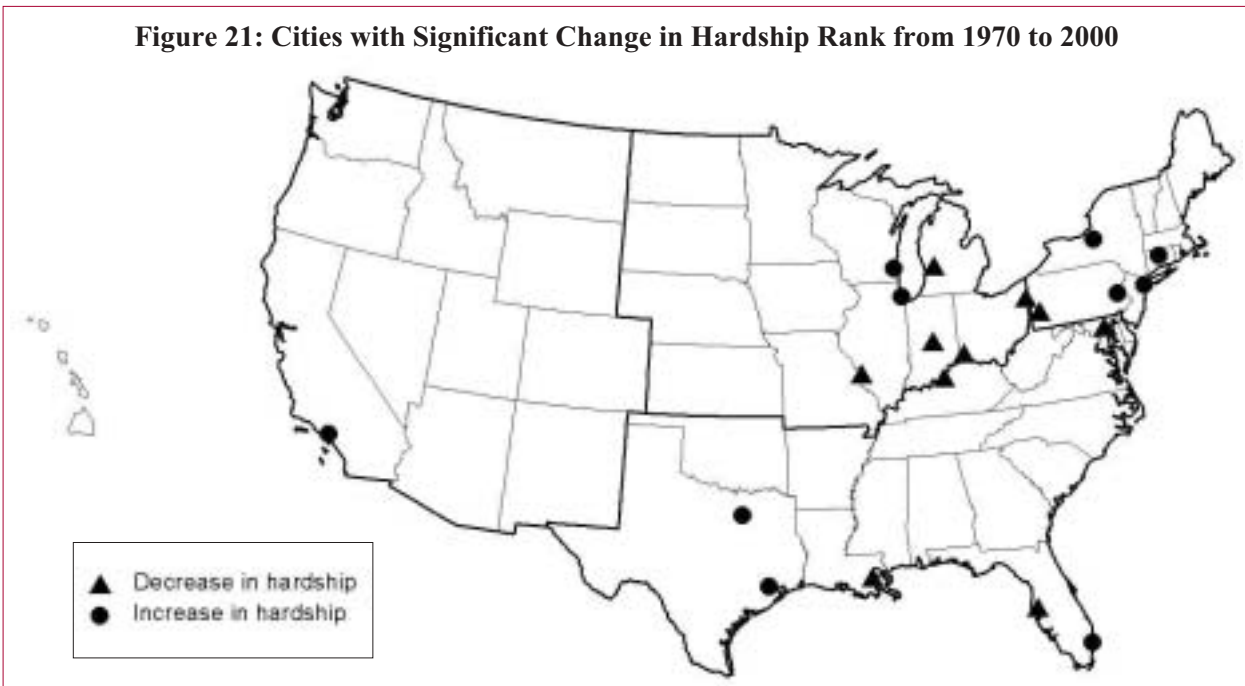
**Table 15: Cities Where Intercity Hardship Ranking Improved the Most from 1970 to 2000**

| <i>City</i>  | <i>Region</i> | <i>1970 Rank</i> | <i>2000 Rank</i> | <i>Change in Rank<br/>1970-2000</i> |
|--------------|---------------|------------------|------------------|-------------------------------------|
| Louisville   | South         | 13               | 39               | -26                                 |
| Cincinnati   | Midwest       | 15               | 36               | -21                                 |
| St. Louis    | Midwest       | 2                | 19               | -17                                 |
| Grand Rapids | Midwest       | 21               | 38               | -17                                 |
| Youngstown   | Midwest       | 7                | 22               | -15                                 |
| Indianapolis | Midwest       | 37               | 51               | -14                                 |
| New Orleans  | South         | 3                | 16               | -13                                 |
| Tampa        | South         | 20               | 33               | -13                                 |
| Baltimore    | South         | 6                | 17               | -11                                 |
| Pittsburgh   | Northeast     | 26               | 37               | -11                                 |

Based on a comparison of changes in rankings, the Midwest again emerges as the region with most improvement in hardship conditions from 1970 to 2000. Five of the ten cities with most improvement in their hardship ranking are in the Midwest. The South is close behind, contributing four cities to the top-ten. Pittsburgh is the lone city from the Northeast to make this list. No Western city is among the top-ten on improved hardship rank 1970-2000.

The location of the cities with most significant change in hardship rank between 1970 and 2000 are shown on the map below.

**Figure 21: Cities with Significant Change in Hardship Rank from 1970 to 2000**



## VI. FACTORS ASSOCIATED WITH HARDSHIP

The preceding sections have described patterns of variation in urban hardship in cities across the nation and over time. But what factors are associated with these patterns? Why do certain cities and regions have worse conditions of urban hardship than do others?

Among the number of items tested, several stand out, while others have a somewhat lesser though observable degree of association with hardship. These include the elasticity of city boundaries over time, concentration of the metro area population within rather than outside central cities, and the proportion of old vs. new housing. Other aspects examined included the age and population size of cities, residential segregation, and the extent of reported violent crime.

### A. Static City Boundaries

A sizeable literature has grown around the idea that cities with flexible boundaries, those able to expand over time to capture growth on their periphery, tend to fare better than others that are locked in and static.<sup>5</sup> Our findings on the Intercity Hardship Index are consistent with this idea of the advantage of city elasticity.

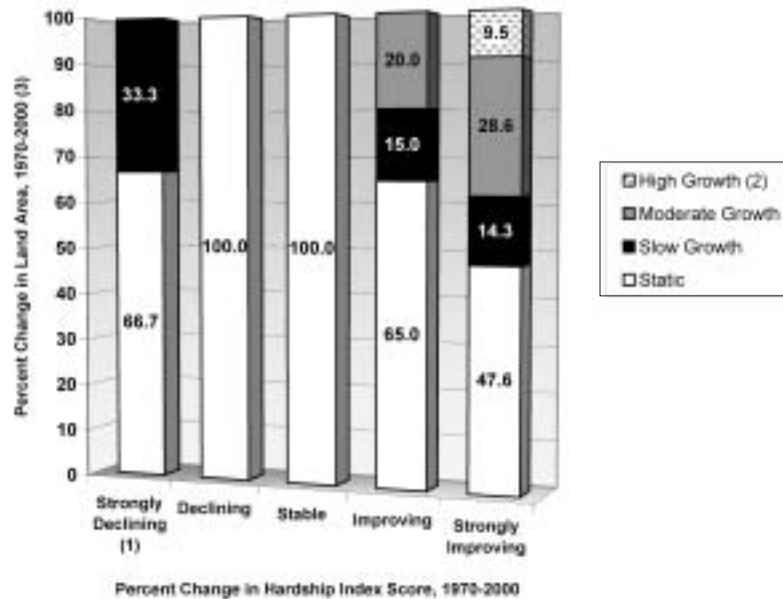
Figure 22, below, illustrates this relationship between city land area and hardship. We used percentage change in the land area of cities from 1970 to 2000 as a measure of their boundary elasticity. Cities are categorized as *static* if change in their land area was less than 10 percent, *slow growth* if their land area increased by 10.0 percent to 49.9 percent, *moderate growth* if their land area increased by 50.0 percent to 99.9 percent, and *high growth* if their change in land area was over 100 percent from 1970 to 2000.

- ❖ There is a statistically significant, negative relationship between city elasticity and hardship.
- ❖ Cities that have expansive boundaries, and thereby grow in city land area from 1970 to 2000, have a greater tendency to show improvement in Intercity Hardship Score.<sup>6</sup>
- ❖ Cities with static, inflexible boundaries tend to have worsening hardship conditions from 1970 to 2000.

Striking patterns emerge in looking at city elasticity by region, shown in Figure 23.



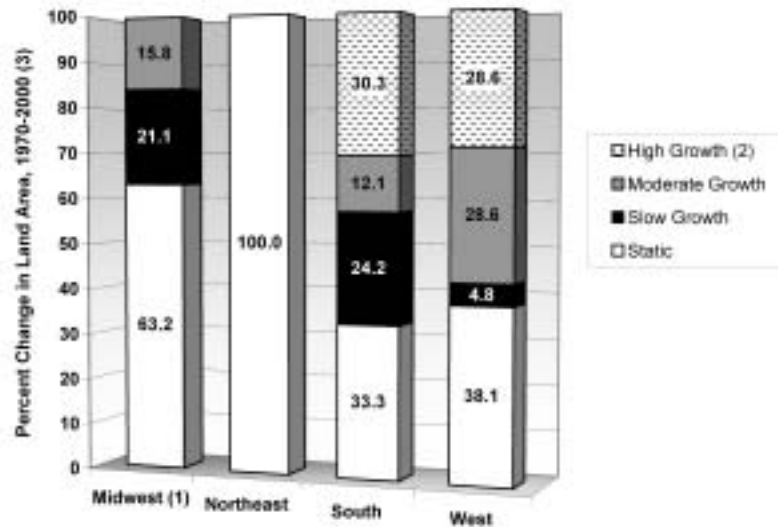
Figure 22: Growth Cities have Lower Hardship



NOTES: 1. Categories are based on the percent change in the hardship index for 1970 and 2000. Cities are categorized as "strongly declining" if their percent change increases by more than 20%, "declining" if the percent change increases by 4.0% to 19.9%, "stable" if the percent change is between an increase of 3.0% and a decrease of 3.0%, "improving" if the percent change decreases by 4.0% to 19.9%, and "strongly improving" if the percent change decreases by more than 20%.  
 2. Categories are based on the percent change in land area (square miles) for each city between 1970 and 2000. Cities are categorized as "static" if change in their land area was less than 10%, "slow growth" if their land area increased by 10.0% to 49.9%, "moderate growth" if their land area increased by 50.0% to 99.9%, and "high growth" if their change in land area was over 100% from 1970 to 2000.  
 3. Sources used for land area data: 1970 Census of Population, Volume 1, Part 1, Table 20: Population and Land Area of Urbanized Areas: 1970 and 1990 (U.S. Census Bureau, 1973); 2000 Census of Population and Housing, Summary File 1, table GCT-PH1: Population, Housing Units, Area, and Density: 2000 (U.S. Census Bureau, 2001); 1970 data for Arlington, Mesa, and Virginia Beach was obtained from each city's Department of Planning.

- ❖ Every city studied in the Northeast, a region populated by long-established cities typically surrounded by incorporated suburban towns with firm boundaries, is categorized as *static*, having a change in land area over the thirty years of less than 10 percent. The Northeast as a region fared worst on increasing hardship over the three decades from 1970 to 2000.
- ❖ More than three-fifths of the cities in the Midwest had limited or no growth in their city boundaries from 1970 to 2000.
- ❖ Considerably greater shares of cities in the growth regions of the South and West had expansive city boundaries. Better than half the cities in the West had moderate or high growth from 1970 to 2000. Only a third of the cities in the South had static boundaries over this period. In both, high growth cities — those doubling or more in size over the 30 years — represented about three-in-ten of those studied. Both regions fared generally better than the Midwest and Northeast on Intercity Hardship.

Figure 23: Growth Regions have Expanding Cities



NOTES: 1. Regions are defined by The Geographic Areas Reference Manual, Bureau of the Census, 1994, and comprise the following groupings of states: Midwest-Michigan, Ohio, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas; Northeast-Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania; South-Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Kentucky, Tennessee, Alabama, Mississippi, Arkansas, Louisiana, Oklahoma, Texas; West-Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Washington, Oregon, California, Alaska, Hawaii.

2. Categories are based on the percent change in land area (square miles) for each city between 1970 and 2000. Cities are categorized as "static" if change in their land area was less than 10%, "slow growth" if their land area increased by 10.0% to 49.9%, "moderate growth" if their land area increased by 50.0% to 99.9%, and "high growth" if their change in land area was over 100% from 1970 to 2000.

3. Sources used for land area data: 1970 Census of Population, Volume 1, Part 1, Table 20: Population and Land Area of Urbanized Areas: 1970 and 1960 (U.S. Census Bureau, 1973); 2000 Census of Population and Housing, Summary File 1, table GCT-PH1: Population, Housing Units, Area, and Density: 2000 (U.S. Census Bureau, 2001). 1970 data for Arlington, Mesa, and Virginia Beach was obtained from each city's Department of Planning.

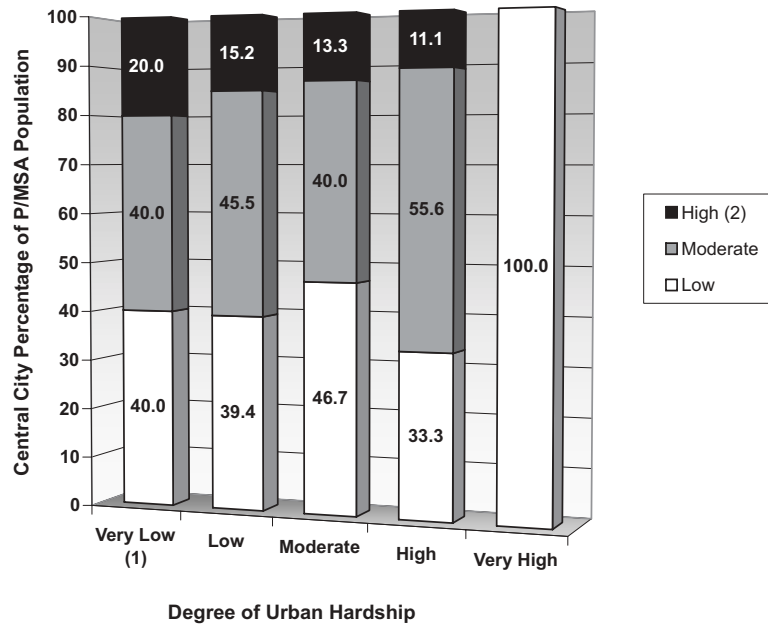
## B. Metro Population Dispersion

A related measure looks at the share of population in a metropolitan region that resides within the central city:

- ❖ There is a statistically significant, inverse relationship between metro population concentration and Intercity Hardship Index score.
- ❖ Cities representing a higher proportion of the total population of the metropolitan area are associated with a lower level of urban hardship in 2000.
- ❖ As the percentage of metro population living in the central city increases, Intercity Hardship Score decreases.<sup>7</sup>

These results, illustrated by Figure 24, indicate that cities with less separation between their residents and surrounding suburban populations — those able to incorporate higher shares of the total population from the metropolitan area within the central city itself — have less socioeconomic hardship than do places where higher shares of the people in the metropolitan area live outside the city's boundaries.

Figure 24: Metro Area Population Concentrations and Hardship in 2000



NOTES: 1. Categories are based on standard deviations from the median hardship score of all eighty-six cities. Thus, "very low" includes hardship scores from 9.2 to 19.39, "low" are scores from 19.4 to 33.19, "moderate" are from 33.2 to 46.99, "high" are from 47.0 to 60.8, and "very high" have scores over 60.8 (more than two standard deviations from the median).  
 2. Central City Population as percent of P/MSA: "low" are less than 25 percent; "moderate" are 25 to 50 percent; and "high" is over 50 percent.

### C. Residential Segregation

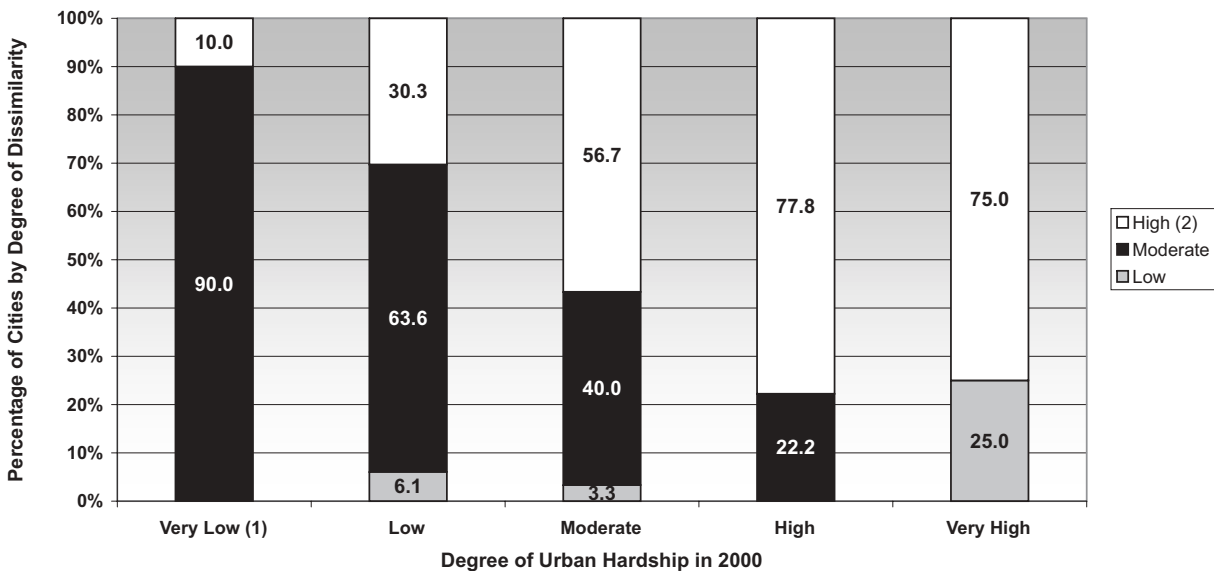
Residential segregation by race has been posited as a leading cause of inner-city poverty, and is the topic of an extensive literature built on such foundational work as Douglas Massey and Nancy Denton’s *American Apartheid*. Relationships between racial composition and spatial concentrations of poverty, limited educational and employment opportunities, and the like, are depressingly well-established.

Figure 25 illustrates the relationship we found between residential segregation — measured by the Index of Dissimilarity, a gauge of the evenness with which African Americans and Whites are spread across each of our study cities — and Intercity Hardship Index scores for 2000.

- ❖ There is a statistically significant positive relationship between degree of urban hardship and degree of African American with White dissimilarity in 2000. In short, cities with higher levels of urban hardship tend to have higher levels of residential segregation.
- ❖ About one in ten of those cities categorized as having very low levels of urban hardship in 2000 — and about three in ten of those with low levels — have high levels of residential segregation, compared to three-quarters or more of those cities with high or very high levels of hardship.<sup>8</sup>

We also found a statistically significant positive relationship between Intercity Hardship Index scores and African American with White dissimilarity index scores for 1990.<sup>9</sup>

**Figure 25: Residential Segregation (African American with White Dissimilarity Index) and Urban Hardship in 2000**

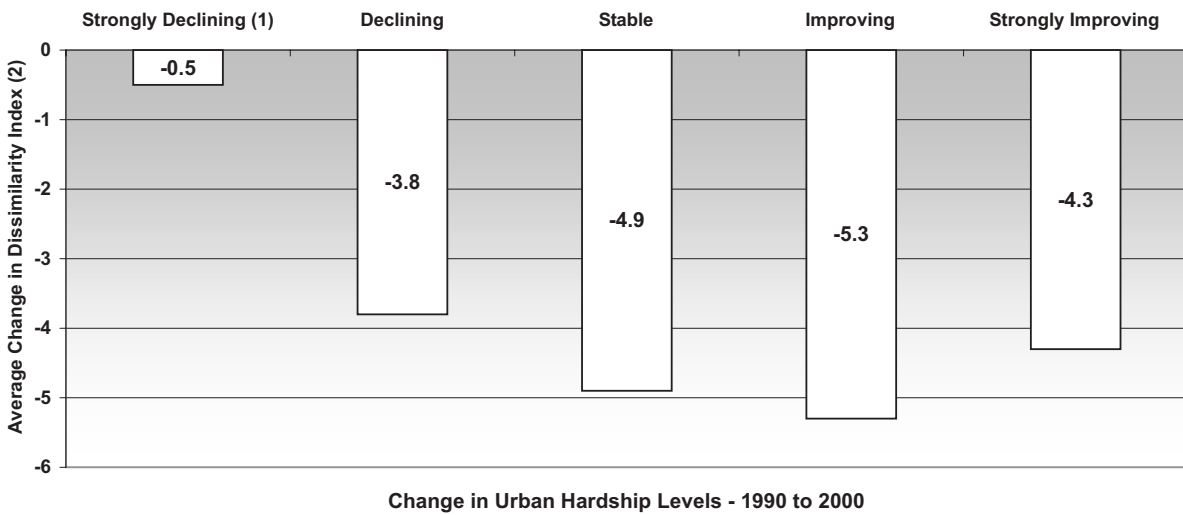


NOTE: 1. Categories for degree of urban hardship are based on standard deviations from the median hardship score of all eighty-six cities. Thus, "very low" includes hardship scores from 9.2 to 19.39, "low" are scores from 19.4 to 33.19, "moderate" are from 33.2 to 46.99, "high" are from 47.0 to 60.8, and "very high" have scores over 60.8 (more than two standard deviations from the median).  
 2. Degree of residential segregation is measured by the Index of Dissimilarity, a statistic that measures the evenness or unevenness with which African Americans and Whites are distributed across census tracts comprising each of the cities in the study. Cities are categorized as "low" if their African American with white dissimilarity index is under 30.0, "moderate" if it is between 30.0 and 59.9, and "high" if it is over 60.0. Indices are drawn from the Lewis Mumford Center of the University at Albany, State University of New York; data can be found at <http://mumford1.dyndns.org/cen2000/WholePop/WPsegdata.htm>.

Figure 26, drawing from data regarding racial segregation and urban hardship in 1990 and 2000, serves to illustrate two significant findings:

- ❖ Though racial segregation in American cities remains all too high, there was notable improvement among the study cities over the decade of the 1990s — measured by lowered African American with White dissimilarity scores.
  - Over 80 percent of the cities had a dissimilarity index score that *decreased* from 1990 to 2000.
  - The average dissimilarity index score for the 86 cities was 61.5 in 1990, and by 2000 it had improved to 57.0.
- ❖ Lower levels of racial segregation are associated with lower levels of urban hardship: cities showing improvement in their hardship index scores from 1990 to 2000 tended to have considerably larger reduction in their levels of racial segregation than cities that declined over the 1990s.

**Figure 26: Changes in Residential Segregation (African American with White Dissimilarity Index) and Urban Hardship, 1990 to 2000**



NOTE: 1. Categories for change in urban hardship levels from 1990 to 2000 are based on the percent change in the hardship indices for 1990 and 2000. Cities are categorized as "strongly declining" if their percent change increases by more than 20%, "declining" if the percent change increases by 4.0% to 19.9%, "stable" if the percent change is between an increase of 3.9% and a decrease of 3.9%, "improving" if the percent change decreases by 4.0% to 19.9%, and "strongly improving" if the percent change decreases by more than 20%.  
 2. Degree of residential segregation is measured by the Index of Dissimilarity, a statistic that measures the evenness or unevenness with which African Americans and Whites are distributed across census tracts comprising each of the cities in the study. Indices are drawn from the Lewis Mumford Center of the University at Albany, State University of New York; data can be found at <http://mumford1.dyndns.org/cen2000/WholePop/WPsegdata.htm>.

## D. Older Versus Newer Housing

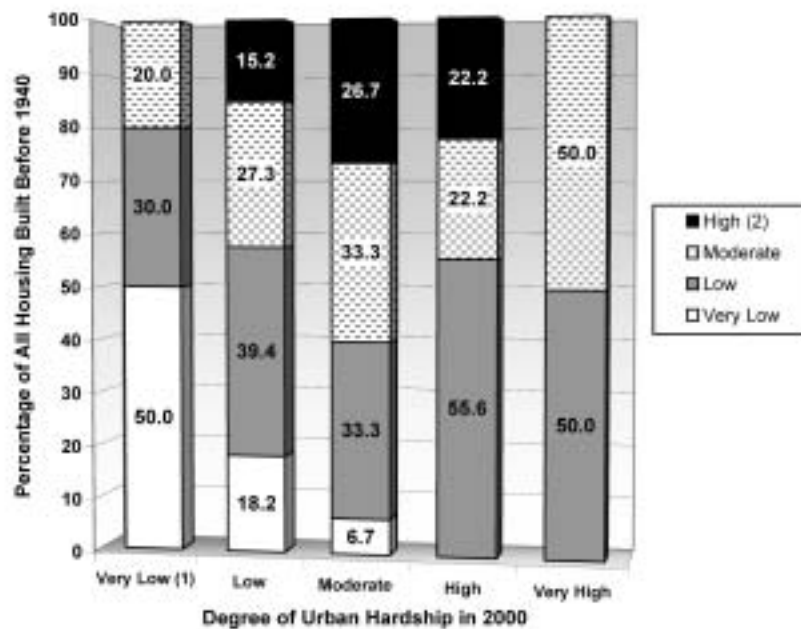
We expected the proportions of old and new homes within a city’s housing stock to relate to urban hardship conditions for several reasons. Older buildings would likely be more prevalent in cities that were themselves older and more static. One would expect newer buildings to prevail in high-growth areas. Cities with lower rates of home building — those with relatively higher shares of older to newer buildings — might also be expected to have higher levels of crowded housing, which was a defining factor in the Intercity Hardship Index.

Older housing was defined as units built before 1940. Newer housing was defined as units built after 1990. Each was measured as a percentage of all housing units in each city. For 2000, we found that (Figure 27):<sup>10</sup>

- ❖ Age of housing has a statistically significant relationship to hardship.
- ❖ Higher shares of older housing is associated with higher levels of socioeconomic hardship.<sup>11</sup> Low percentages of older housing are associated with lower levels of hardship. This is to say, cities with higher shares of their housing built before 1940 have a significantly greater tendency to have higher levels of hardship than cities with lower shares of older housing, which tend to have lower levels of hardship.

- ❖ By contrast, a higher share of newer housing is significantly and negatively associated with socioeconomic hardship.<sup>12</sup> Cities with a higher proportion of housing built after 1990 have a significantly greater tendency to have lower levels of hardship than do cities that have comparatively less new housing.

Figure 27: Older Housing and Urban Hardship



NOTE: 1. Categories of Urban Hardship in 2000 are based on standard deviations from the median hardship score of the 86 cities. Thus "very low" includes cities with hardship scores from 9.2 to 19.39, "low" are between 19.4 and 33.19, "moderate" are from 33.2 to 46.99, "high" are from 47.0 to 60.8, and "very high" have scores over 60.8 (more than two standard deviations from the median).  
 2. Categories of Older Housing are based on standard deviations from the mean of the percentage of city housing stock that was built before 1940 for all 86 cities. Cities are categorized as "very low" if they have 5% or less of their city's housing stock built before 1940, "low" if they have 5.01 to 21.8 percent, "moderate" if they have 21.81 to 38.57 percent, and "high" if 38.58 percent or more of their total housing stock was built before 1940.

## E. Less Reduction in Crime

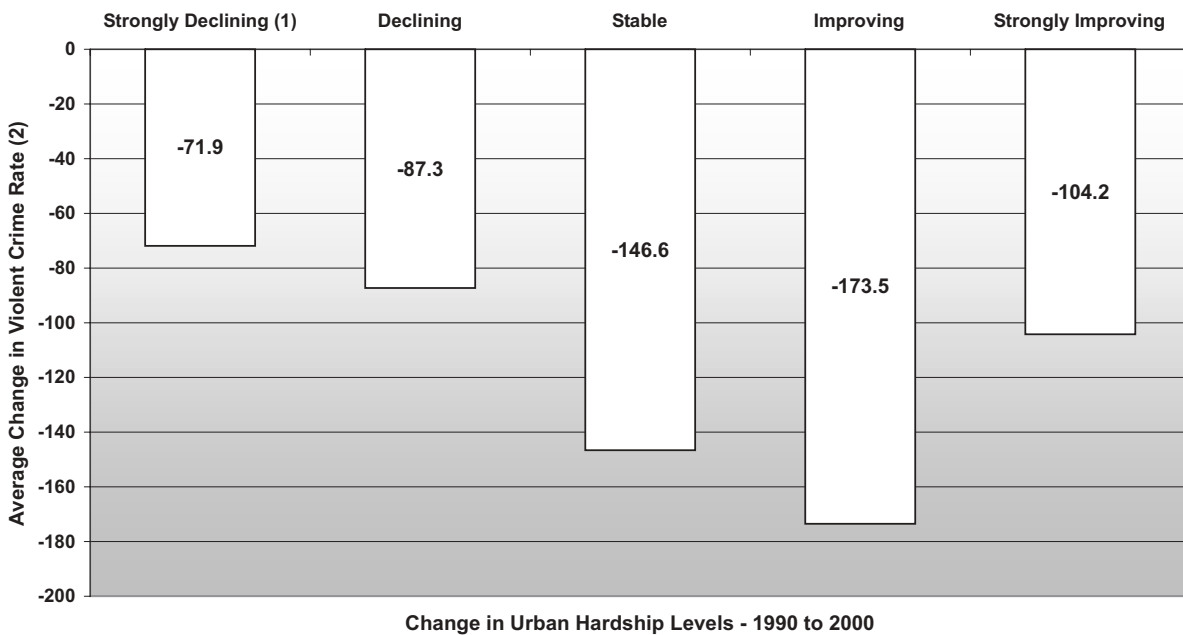
For the typical resident of a major city during the 1970s, 1980s, and early 1990s, falling rates of violent crime might have been at best a distant dream. It is striking — and strongly counter to the view of cities that too often still prevails in the media — that in our examination of changes in reported violent crime from 1990 to 2000 for the 86 cities in the study, nearly 90 percent differed only in degree of reduction in such crime.

When grouped according to degree of change in hardship levels between 1990 and 2000, each category — from those cities with deterioration in socioeconomic conditions and greater hardship, to those showing stability and improvement in hardship conditions — showed an average reduction in levels of violent crime.

Moreover, the degree of average reduction in violent crime appeared to follow improvement in hardship. The group of cities with strong deterioration in socioeconomic conditions had less of an

average decline in reported violent crime than did the group of cities with less decline; which as a group had less of an average reduction in reported violent crime than the group of cities with stable hardship conditions; which had, in turn, less of an average reduction in reported violent crime than the group of cities with improved hardship conditions over the 1990s. The exception was the group of cities with the greatest improvement in hardship over this period, which had a somewhat lower average reduction than cities categorized as stable or improving in hardship over the 1990s (Figure 28).

**Figure 28: Changes in Violent Crime Rate by Change in Urban Hardship Levels in the 1990s**



NOTE: 1. Categories for change in urban hardship levels from 1990 to 2000 are based on the percent change in the hardship indices for 1990 and 2000. Cities are categorized as "strongly declining" if their percent change increases by more than 20%, "declining" if the percent change increases by 4.0% to 19.9%, "stable" if the percent change is between an increase of 3.9% and a decrease of 3.9%, "improving" if the percent change decreases by 4.0% to 19.9%, and "strongly improving" if the percent change decreases by more than 20%.  
 2. Crime data was obtained from the Department of Housing and Urban Development's State of the Cities Data Systems found online at <http://socds.huduser.org>.

Other characteristics of cities that we explored included their age and population size, as well as the extent of change in population over time. We did find that those cities with very high levels of urban hardship in 2000 tend to fall among smaller cities — those with populations under 250,000, or between 250,000 and 500,000, while none are found among the larger cities. The largest cities — those with one million or more residents in 2000 — tended to have moderate or low levels of hardship. But beyond this, no linear or statistically significant relationship was found between the strength and direction of change in city hardship from 1970 to 2000 and the age of cities, the population size of cities, or the extent of population growth among the cities studied.

## VII. A FINAL WORD

The cities at each end of the Intercity Hardship Index, the most- and least-troubled, have largely remained there for over thirty years. Factors contributing to socioeconomic hardship are complex and cities with the most severe hardship have had great difficulty overcoming these conditions. Older, larger cities have in a number of cases been making notable improvements on several of the key elements comprising the Index. Several among the smaller cities, by contrast, are among those more negatively affected. Factors such as population growth, residential segregation, lack of jobs or transportation to jobs, stagnant residential construction/renovation, and lack of preparation for influxes of immigrants are all serious concerns for central cities of the 21st century.

Western cities are beginning to experience similar socioeconomic hardship conditions that older cities in the Northeast and Midwest regions have already had to confront. There is a significant need to address crowded housing in the central cities of the West.

Cities in the Northeast have a number of factors fueling hardship conditions. Our analysis demonstrates the particular significance of improving levels of education. In addition to the low rate in the Northeast of adults with a high school education or better, the region has comparatively a high number of residents, especially children, living below the poverty level.

This analysis also demonstrates — consistent with a robust though not always empirical literature — that regionalism matters. Cities able to connect with, and capture, engines of growth frequently at or beyond their established periphery tend to fare better over time, as measured by our Intercity Hardship Index. Future papers will take up the question of metropolitan hardship directly, comparing those areas that have greater versus lower disparity between their central city and surrounding suburbs. But first, in the next paper of this series, we will investigate how cities in the most populated metropolitan areas in America have been impacted by poverty concentration.



## Appendix A: Selected Characteristics of Cities

| <i>Central City</i> | <i>Year City Incorporated</i> | <i>1970-2000 Percent Change in Central City Population</i> | <i>2000 African American with White Dissimilarity<sup>2</sup></i> | <i>Percent of Population in 2000 older than 25 with less than a High School Education</i> | <i>Percent of Families in 2000 Living Below Poverty</i> |
|---------------------|-------------------------------|--|---|---|---|
| Akron               | 1836                          | -21.2%   | 55.4  | 20.0  | 14.0  |
| Albuquerque         | 1885                          | 84.1%  | 31.7  | 14.1  | 10.0  |
| Allentown           | 1838                          | -2.6%  | 31.2  | 27.3  | 14.6  |
| Anaheim             | 1876                          | 96.4%  | 26.9  | 30.7  | 10.4  |
| Arlington TX        | 1884                          | 267.0%   | 32.8  | 15.1  | 7.3   |
| Atlanta             | 1847                          | -16.2%   | 81.6  | 23.1  | 21.3  |
| Austin              | 1839                          | 160.6%   | 58.0  | 16.6  | 9.1   |
| Bakersfield         | 1873                          | 255.9%   | 43.3  | 24.1  | 14.6  |
| Baltimore           | 1796                          | -28.1%   | 71.2  | 31.6  | 18.8  |
| Baton Rouge         | 1822                          | 37.3%  | 72.3  | 19.9  | 18.0  |
| Birmingham          | 1822                          | -19.2%   | 61.9  | 24.5  | 20.9  |
| Boston              | 1822                          | -8.1%  | 70.4  | 21.1  | 15.3  |
| Buffalo             | 1832                          | -36.8%   | 69.5  | 25.4  | 23.0  |
| Charlotte           | 1768                          | 124.8%   | 56.9  | 15.1  | 7.8   |
| Chicago             | 1837                          | -14.0%   | 85.2  | 28.2  | 16.6  |
| Cincinnati          | 1819                          | -26.9%   | 59.7  | 23.3  | 18.2  |
| Cleveland           | 1836                          | -36.3%   | 78.0  | 31.0  | 22.9  |
| Columbus            | 1834                          | 31.9%  | 57.6  | 16.2  | 10.8  |

## An Update on Urban Hardship

|                 |      |        |      |      |      |
|-----------------|------|--------|------|------|------|
| Dallas          | 1872 | 40.7%  | 66.1 | 29.6 | 14.9 |
| Dayton          | 1841 | -31.8% | 76.2 | 24.9 | 18.2 |
| Denver          | 1861 | 7.8%   | 63.0 | 21.1 | 10.6 |
| Detroit         | 1815 | -37.1% | 60.1 | 30.4 | 21.7 |
| El Paso         | 1873 | 75.1%  | 34.4 | 31.4 | 19.0 |
| Fort Lauderdale | 1911 | 9.0%   | 77.7 | 21.0 | 13.8 |
| Fort Worth      | 1873 | 36.1%  | 57.9 | 27.2 | 12.7 |
| Fresno          | 1885 | 157.4% | 42.8 | 30.9 | 20.5 |
| Gary            | 1909 | -41.4% | 60.8 | 27.3 | 22.2 |
| Grand Rapids    | 1850 | 0.1%   | 52.1 | 22.0 | 11.9 |
| Greensboro      | 1808 | 55.0%  | 57.4 | 15.7 | 8.6  |
| Hartford        | 1784 | -23.1% | 61.1 | 39.2 | 28.2 |
| Honolulu        | 1907 | 14.4%  | 40.3 | 16.6 | 7.9  |
| Houston         | 1837 | 58.6%  | 71.4 | 29.6 | 16.0 |
| Indianapolis    | 1825 | 5.1%   | 62.1 | 18.7 | 9.1  |
| Jacksonville    | 1822 | 42.0%  | 50.4 | 17.7 | 9.4  |
| Jersey City     | 1838 | -7.9%  | 56.7 | 27.4 | 16.4 |
| Kansas City MO  | 1853 | -13.0% | 66.7 | 17.5 | 11.1 |
| Knoxville       | 1815 | -0.5%  | 55.0 | 21.6 | 14.4 |
| Las Vegas       | 1905 | 280.7% | 38.3 | 21.5 | 8.6  |
| Little Rock     | 1835 | 38.6%  | 58.9 | 14.1 | 11.1 |
| Los Angeles     | 1835 | 31.2%  | 71.5 | 33.4 | 18.3 |
| Louisville      | 1828 | -29.1% | 70.0 | 23.9 | 17.9 |
| Memphis         | 1826 | 4.2%   | 65.1 | 23.6 | 17.2 |

|                    |                   |        |      |      |      |
|--------------------|-------------------|--------|------|------|------|
| Mesa               | 1883              | 532.0% | 28.2 | 15.3 | 6.2  |
| Miami              | 1896              | 8.3%   | 75.1 | 47.3 | 23.5 |
| Milwaukee          | 1846              | -16.8% | 69.0 | 25.2 | 17.4 |
| Minneapolis        | 1867              | -12.0% | 54.0 | 15.0 | 11.9 |
| Nashville-Davidson | 1848              | 21.8%  | 54.0 | 18.9 | 10.2 |
| New Orleans        | 1852              | -18.3% | 65.9 | 25.3 | 23.7 |
| New York City      | 1898 <sup>1</sup> | 1.4%   | 83.5 | 27.7 | 18.5 |
| Newark             | 1836              | -28.5% | 77.8 | 42.1 | 25.5 |
| Newport News       | 1886              | 30.4%  | 42.4 | 15.5 | 11.3 |
| Norfolk            | 1845              | -23.9% | 52.8 | 21.6 | 15.5 |
| Oakland            | 1852              | 10.5%  | 57.2 | 26.1 | 16.2 |
| Oklahoma City      | 1889              | 38.1%  | 53.9 | 18.7 | 12.4 |
| Omaha              | 1857              | 12.3%  | 65.4 | 14.0 | 7.8  |
| Orlando            | 1875              | 87.9%  | 70.6 | 17.8 | 13.3 |
| Philadelphia       | 1789              | -22.1% | 76.7 | 28.8 | 18.4 |
| Phoenix            | 1881              | 127.1% | 49.4 | 23.4 | 11.5 |
| Pittsburgh         | 1816              | -35.7% | 66.5 | 18.7 | 15.0 |
| Portland           | 1851              | 38.3%  | 51.8 | 14.3 | 8.5  |
| Providence         | 1832              | -3.1%  | 41.7 | 34.2 | 23.9 |
| Raleigh            | 1792              | 127.5% | 53.8 | 11.5 | 7.1  |
| Richmond           | 1782              | -20.8% | 63.5 | 24.8 | 17.1 |
| Rochester          | 1834              | -25.8% | 53.8 | 27.0 | 23.4 |
| Sacramento         | 1850              | 60.0%  | 44.9 | 22.7 | 15.3 |
| Salt Lake City     | 1851              | 3.2%   | 38.4 | 16.6 | 10.4 |

## An Update on Urban Hardship

|                |      |        |      |      |      |
|----------------|------|--------|------|------|------|
| San Antonio    | 1852 | 75.0%  | 48.0 | 24.9 | 14.0 |
| San Diego      | 1850 | 75.6%  | 60.7 | 17.2 | 10.6 |
| San Francisco  | 1856 | 8.5%   | 57.0 | 18.8 | 7.8  |
| San Jose       | 1850 | 100.5% | 39.4 | 21.7 | 6.0  |
| Santa Ana      | 1886 | 115.5% | 27.2 | 56.8 | 16.1 |
| Seattle        | 1865 | 6.1%   | 57.7 | 10.5 | 6.9  |
| Springfield    | 1852 | -7.2%  | 46.5 | 26.6 | 19.3 |
| St. Louis      | 1823 | -44.0% | 68.5 | 28.7 | 20.8 |
| St. Paul       | 1849 | -7.4%  | 43.1 | 16.2 | 11.7 |
| St. Petersburg | 1903 | 14.6%  | 73.4 | 18.1 | 9.2  |
| Syracuse       | 1848 | -25.3% | 54.3 | 23.8 | 21.7 |
| Tacoma         | 1884 | 25.0%  | 33.9 | 16.4 | 11.4 |
| Tampa          | 1855 | 9.3%   | 61.0 | 22.9 | 14.0 |
| Toledo         | 1837 | -18.3% | 63.2 | 20.3 | 14.2 |
| Tucson         | 1929 | 85.1%  | 29.4 | 19.6 | 13.7 |
| Tulsa          | 1898 | 18.5%  | 56.0 | 15.6 | 10.9 |
| Virginia Beach | 1963 | 147.1% | 35.5 | 9.6  | 5.1  |
| Washington     | 1802 | -24.4% | 79.9 | 22.2 | 16.7 |
| Wichita        | 1886 | 24.4%  | 54.2 | 16.2 | 8.4  |
| Youngstown     | 1867 | -41.3% | 62.4 | 26.8 | 20.4 |

<sup>1</sup> Year NYC incorporated with boroughs.

<sup>2</sup> The dissimilarity index is a measure of the evenness or unevenness with which African Americans and Whites are spread across census tracts comprising a city. It reflects the percentage of African Americans who would have to move to another census tract so that their share of population in each census tract comprising a given city would be the same as that for the city as a whole. Dissimilarity index values range from 0, indicating complete residential integration, to 100, indicating complete residential segregation. Indices are drawn from the Lewis Mumford Center of the University at Albany, State University of New York; data can be found at <http://mumford1.dyndns.org/cen2000/WholePop/Wpsegdata.htm>.

**Appendix B: Intercity Hardship Scores and Rankings, 1970-2000**

| <i>Central City</i> | <i>1970 Index</i> | <i>1980 Index</i> | <i>1990 Index</i> | <i>2000 Index</i> | <i>1970 Rank</i> | <i>1980 Rank</i> | <i>1990 Rank</i> | <i>2000 Rank</i> |
|---------------------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|------------------|------------------|
| Akron               | 44.3              | 40.2              | 33.5              | 31.6              | 30               | 25               | 33               | 40               |
| Allentown           | 29.2              | 33.4              | 29.5              | 39.1              | 51               | 34               | 40               | 30               |
| Atlanta             | 49.1              | 46.3              | 42.3              | 42.5              | 23               | 21               | 21               | 25               |
| Baltimore           | 61.9              | 55.6              | 46.2              | 47.3              | 6                | 9                | 15               | 17               |
| Birmingham          | 61.6              | 51.4              | 39.9              | 49.9              | 8                | 12               | 23               | 13               |
| Boston              | 45.4              | 34.8              | 37.9              | 38.5              | 29               | 31               | 24               | 31               |
| Buffalo             | 58.6              | 54.4              | 45.4              | 51.8              | 11               | 10               | 17               | 8                |
| Chicago             | 49.3              | 50.3              | 53.1              | 51.0              | 22               | 14               | 9                | 11               |
| Cincinnati          | 54.1              | 44.5              | 37.4              | 33.3              | 15               | 22               | 25               | 36               |
| Cleveland           | 61.4              | 55.9              | 55.3              | 58.1              | 9                | 8                | 8                | 7                |
| Columbus            | 34.8              | 24.2              | 17.2              | 18.5              | 46               | 42               | 52               | 53               |
| Dallas              | 33.1              | 20.6              | 32.1              | 44.7              | 47               | 46               | 35               | 23               |
| Dayton              | 47.6              | 47.8              | 41.6              | 40.6              | 24               | 18               | 22               | 27               |
| Denver              | 29.7              | 17.1              | 22.3              | 26.1              | 50               | 53               | 49               | 45               |
| Detroit             | 59.0              | 65.1              | 69.8              | 60.4              | 10               | 3                | 3                | 6                |
| Fort Lauderdale     | 23.0              | 17.8              | 28.9              | 27.1              | 55               | 51               | 41               | 43               |
| Fort Worth          | 43.4              | 31.7              | 34.4              | 39.4              | 33               | 37               | 30               | 29               |
| Gary                | 70.3              | 66.7              | 68.0              | 62.9              | 4                | 2                | 4                | 4                |
| Grand Rapids        | 50.1              | 38.6              | 32.8              | 32.2              | 21               | 26               | 34               | 38               |
| Greensboro          | 28.4              | 20.0              | 6.8               | 17.7              | 53               | 47               | 54               | 54               |

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|               |      |      |      |      |    |    |    |    |
|---------------|------|------|------|------|----|----|----|----|
| Hartford      | 56.5 | 63.0 | 62.4 | 73.1 | 14 | 4  | 5  | 3  |
| Houston       | 37.8 | 19.8 | 31.9 | 45.5 | 42 | 48 | 36 | 21 |
| Indianapolis  | 40.4 | 30.5 | 18.8 | 22.7 | 37 | 38 | 51 | 51 |
| Jersey City   | 57.2 | 62.9 | 48.9 | 49.5 | 12 | 5  | 13 | 14 |
| Kansas City   | 38.9 | 28.2 | 24.5 | 26.5 | 39 | 39 | 47 | 44 |
| Los Angeles   | 38.4 | 34.7 | 50.9 | 61.0 | 40 | 32 | 11 | 5  |
| Louisville    | 56.6 | 46.9 | 35.0 | 32.0 | 13 | 20 | 29 | 39 |
| Miami         | 61.9 | 61.5 | 80.9 | 83.5 | 5  | 6  | 1  | 1  |
| Milwaukee     | 43.8 | 35.5 | 42.4 | 51.6 | 32 | 29 | 20 | 9  |
| Minneapolis   | 29.8 | 16.3 | 23.1 | 25.5 | 49 | 54 | 48 | 47 |
| New Orleans   | 73.9 | 49.3 | 56.5 | 48.8 | 3  | 15 | 6  | 16 |
| New York City | 45.7 | 48.5 | 42.9 | 51.3 | 28 | 17 | 19 | 10 |
| Newark        | 86.9 | 86.1 | 76.9 | 73.9 | 1  | 1  | 2  | 2  |
| Norfolk       | 44.0 | 35.4 | 29.8 | 41.7 | 31 | 30 | 39 | 26 |
| Oklahoma City | 35.0 | 19.0 | 27.2 | 23.9 | 44 | 49 | 44 | 48 |
| Omaha         | 35.0 | 23.8 | 16.6 | 19.1 | 45 | 43 | 53 | 52 |
| Philadelphia  | 51.0 | 49.1 | 46.1 | 49.4 | 18 | 16 | 16 | 15 |
| Phoenix       | 40.2 | 25.7 | 30.5 | 27.5 | 38 | 41 | 37 | 42 |
| Pittsburgh    | 47.3 | 33.0 | 28.3 | 32.9 | 26 | 36 | 42 | 37 |
| Portland      | 37.9 | 21.6 | 19.5 | 22.7 | 41 | 45 | 50 | 50 |
| Providence    | 53.0 | 50.7 | 48.7 | 50.4 | 16 | 13 | 14 | 12 |
| Richmond      | 46.2 | 33.5 | 28.0 | 34.4 | 27 | 33 | 43 | 34 |
| Rochester     | 47.5 | 44.0 | 43.9 | 47.2 | 25 | 23 | 18 | 18 |
| Sacramento    | 50.4 | 33.2 | 35.4 | 40.4 | 19 | 35 | 27 | 28 |

|                            |      |      |      |      |    |    |    |    |
|----------------------------|------|------|------|------|----|----|----|----|
| Salt Lake City             | 37.2 | 26.8 | 25.4 | 26.0 | 43 | 40 | 46 | 46 |
| San Diego                  | 32.8 | 17.7 | 26.8 | 30.3 | 48 | 52 | 45 | 41 |
| San Francisco              | 28.5 | 18.2 | 30.5 | 23.9 | 52 | 50 | 38 | 49 |
| San Jose                   | 41.2 | 21.9 | 35.2 | 37.0 | 35 | 44 | 28 | 32 |
| Seattle                    | 28.1 | 7.5  | 6.2  | 9.1  | 54 | 55 | 55 | 55 |
| Springfield                | 51.8 | 47.3 | 49.5 | 46.3 | 17 | 19 | 12 | 20 |
| St. Louis                  | 77.2 | 60.1 | 51.6 | 46.9 | 2  | 7  | 10 | 19 |
| Syracuse                   | 41.4 | 37.2 | 34.0 | 43.4 | 34 | 28 | 31 | 24 |
| Tampa                      | 50.3 | 38.0 | 33.7 | 36.9 | 20 | 27 | 32 | 33 |
| Toledo                     | 41.1 | 40.3 | 37.3 | 34.2 | 36 | 24 | 26 | 35 |
| Youngstown                 | 61.6 | 53.8 | 55.6 | 45.3 | 7  | 11 | 7  | 22 |
| <b>Average Index Score</b> | 46.9 | 38.9 | 38.4 | 40.5 |    |    |    |    |

<sup>1</sup> The Intercity Hardship Index — based on the methodology used by Richard P. Nathan and Charles F. Adams, Jr. in “Understanding Urban Hardship,” *Political Science Quarterly* 91 (Spring 1976): 47-62 — calculated an overall measure of hardship based on the average of six, equally-weighted, component variables: unemployment, dependency, education, income level, crowded housing, and poverty. Standardized values for each of these component variables are calculated by use of a formula that computes ratios of where each city falls on a given variable compared to the highest and lowest values on that same variable from among those cities included in the analysis. Hardship scores and rankings are therefore *relative*, applying to a specific group of cities studied for a given period. The analysis of city scores and rankings on hardship from 1970 to 2000, which is shown in this Appendix and is discussed in Sections IV and V of the paper, is based only on those 55 cities that were in the original study by Nathan and Adams. Values for another 31 cities that met the criteria for inclusion as of 1990, but which were not part of the original study, are not included. Consequently, the index values and rankings for individual cities that are shown on this table for 1990 and 2000 are different from the index scores and rankings of cities shown in Appendix C and in Sections I, II, and III of the paper, which are based on values among the full sample of 86 cities we have analyzed for 1990 and 2000.

## Appendix C: Rankings and Components of Intercity Hardship Index Scores, 1990-2000<sup>1</sup>

|              | 1990  | 1990 | 1990 Standardized Subcomponents |         |            |        |         |           | 2000  | 2000 | 2000 Standardized Subcomponents |         |            |        |         |           |
|--------------|-------|------|---------------------------------|---------|------------|--------|---------|-----------|-------|------|---------------------------------|---------|------------|--------|---------|-----------|
| Central City | Index | Rank | Unemployment                    | Housing | Dependents | Income | Poverty | Education | Index | Rank | Unemployment                    | Housing | Dependents | Income | Poverty | Education |
| Akron        | 37.1  | 40   | 39.0                            | 0.0     | 67.7       | 43.5   | 35.2    | 37.5      | 31.4  | 51   | 32.5                            | 0.0     | 73.0       | 49.0   | 11.5    | 22.1      |
| Albuquerque  | 26.9  | 68   | 27.1                            | 8.8     | 48.0       | 45.3   | 22.1    | 10.1      | 21.7  | 72   | 18.2                            | 7.2     | 56.2       | 33.1   | 6.0     | 9.5       |
| Allentown    | 33.5  | 50   | 23.1                            | 4.4     | 64.6       | 46.8   | 16.1    | 45.9      | 37.2  | 35   | 26.8                            | 5.0     | 78.5       | 59.3   | 16.4    | 37.5      |
| Anaheim      | 38.7  | 35   | 24.7                            | 37.7    | 35.0       | 75.4   | 28.1    | 31.2      | 46.4  | 16   | 21.1                            | 49.6    | 68.8       | 79.2   | 15.1    | 44.8      |
| Arlington TX | 12.9  | 84   | 22.7                            | 8.9     | 22.4       | 19.0   | 3.9     | 0.5       | 19.2  | 78   | 8.0                             | 14.6    | 43.1       | 30.1   | 7.8     | 11.6      |
| Atlanta      | 44.6  | 25   | 42.9                            | 13.5    | 43.7       | 42.8   | 79.5    | 44.9      | 39.7  | 31   | 98.0                            | 11.0    | 29.5       | 31.6   | 39.6    | 28.6      |
| Austin       | 22.7  | 77   | 29.7                            | 13.7    | 13.3       | 40.3   | 25.3    | 14.0      | 16.1  | 83   | 8.2                             | 14.4    | 9.9        | 36.7   | 12.4    | 14.8      |
| Bakersfield  | 38.7  | 34   | 31.9                            | 16.5    | 71.7       | 52.9   | 34.1    | 25.3      | 41.1  | 29   | 42.8                            | 20.2    | 88.4       | 37.2   | 27.3    | 30.8      |
| Baltimore    | 48.5  | 19   | 41.1                            | 7.9     | 60.3       | 62.4   | 51.7    | 67.7      | 44.7  | 21   | 53.1                            | 5.6     | 66.7       | 61.3   | 34.7    | 46.7      |
| Baton Rouge  | 38.3  | 37   | 43.8                            | 9.8     | 49.0       | 47.9   | 51.7    | 27.8      | 33.3  | 43   | 38.8                            | 7.4     | 53.6       | 21.4   | 56.9    | 21.7      |
| Birmingham   | 42.6  | 28   | 40.2                            | 6.7     | 73.1       | 48.1   | 41.0    | 46.3      | 48.0  | 13   | 57.6                            | 5.0     | 71.1       | 49.8   | 73.0    | 31.6      |
| Boston       | 40.8  | 29   | 40.7                            | 13.6    | 14.0       | 74.8   | 71.0    | 30.5      | 35.9  | 37   | 30.6                            | 11.3    | 16.3       | 66.2   | 66.9    | 24.3      |
| Buffalo      | 47.8  | 22   | 54.1                            | 1.5     | 66.9       | 59.6   | 53.4    | 51.3      | 50.1  | 10   | 72.2                            | 2.6     | 79.0       | 52.2   | 61.0    | 33.4      |
| Charlotte    | 13.3  | 81   | 12.8                            | 4.3     | 35.1       | 0.0    | 10.1    | 17.4      | 17.4  | 81   | 21.0                            | 6.9     | 37.2       | 15.8   | 11.7    | 11.6      |
| Chicago      | 53.8  | 10   | 59.7                            | 19.4    | 58.5       | 67.3   | 63.6    | 54.3      | 46.7  | 14   | 55.4                            | 17.0    | 57.2       | 61.1   | 50.2    | 39.4      |
| Cincinnati   | 40.4  | 31   | 32.8                            | 6.6     | 65.3       | 42.4   | 49.9    | 45.5      | 32.5  | 48   | 31.0                            | 2.2     | 59.5       | 30.1   | 43.0    | 29.0      |
| Cleveland    | 56.6  | 9    | 66.1                            | 4.0     | 77.3       | 62.2   | 57.8    | 72.4      | 55.8  | 7    | 59.1                            | 2.4     | 86.6       | 71.3   | 69.9    | 45.4      |
| Columbus     | 22.5  | 78   | 24.9                            | 2.0     | 27.6       | 34.4   | 23.3    | 23.0      | 18.6  | 79   | 13.2                            | 1.8     | 34.5       | 37.5   | 10.6    | 14.1      |
| Dallas       | 34.7  | 45   | 37.8                            | 22.3    | 38.7       | 33.4   | 40.0    | 36.0      | 38.9  | 34   | 26.6                            | 27.3    | 48.2       | 51.5   | 37.4    | 42.4      |



|                 |      |    |       |      |      |      |       |      |      |    |      |      |      |      |       |      |
|-----------------|------|----|-------|------|------|------|-------|------|------|----|------|------|------|------|-------|------|
| Dayton          | 44.3 | 26 | 45.9  | 4.2  | 66.3 | 53.8 | 46.9  | 48.7 | 39.4 | 33 | 44.6 | 1.3  | 60.9 | 55.5 | 41.9  | 32.4 |
| Denver          | 26.7 | 69 | 30.1  | 6.8  | 44.6 | 27.5 | 29.3  | 21.8 | 23.9 | 65 | 19.0 | 12.0 | 34.9 | 40.9 | 12.3  | 24.4 |
| Detroit         | 69.0 | 4  | 100.0 | 10.3 | 81.3 | 73.7 | 84.3  | 64.0 | 56.6 | 6  | 79.9 | 11.2 | 90.0 | 72.7 | 41.8  | 44.0 |
| El Paso         | 51.7 | 13 | 46.4  | 33.4 | 74.7 | 55.8 | 43.7  | 56.1 | 49.5 | 11 | 38.7 | 22.9 | 90.7 | 58.7 | 39.6  | 46.3 |
| Fort Lauderdale | 32.2 | 57 | 25.8  | 16.9 | 51.4 | 24.6 | 40.1  | 34.2 | 24.9 | 61 | 19.6 | 13.5 | 45.2 | 22.3 | 24.7  | 24.2 |
| Fort Worth      | 37.0 | 41 | 34.5  | 16.9 | 57.9 | 42.5 | 29.7  | 40.5 | 35.6 | 38 | 19.0 | 17.8 | 65.3 | 48.2 | 26.3  | 37.2 |
| Fresno          | 52.6 | 12 | 36.9  | 31.6 | 82.3 | 62.7 | 54.8  | 47.0 | 54.4 | 8  | 62.7 | 31.0 | 92.6 | 51.4 | 43.7  | 45.2 |
| Gary            | 67.1 | 5  | 84.6  | 14.6 | 90.7 | 78.1 | 77.0  | 57.5 | 59.4 | 5  | 88.0 | 10.7 | 97.1 | 73.0 | 49.8  | 37.5 |
| Grand Rapids    | 36.2 | 44 | 32.9  | 3.0  | 75.4 | 50.6 | 26.5  | 28.6 | 30.8 | 54 | 24.2 | 6.0  | 71.2 | 46.7 | 10.6  | 26.4 |
| Greensboro      | 13.2 | 82 | 14.6  | 1.9  | 30.9 | 2.0  | 8.0   | 21.7 | 17.5 | 80 | 28.5 | 4.4  | 42.6 | 15.3 | 1.6   | 12.9 |
| Hartford        | 62.6 | 6  | 51.6  | 19.2 | 53.3 | 80.8 | 100.0 | 70.7 | 67.1 | 3  | 99.3 | 17.4 | 78.4 | 82.9 | 61.8  | 62.6 |
| Honolulu        | 25.7 | 71 | 0.0   | 39.8 | 41.0 | 41.7 | 10.5  | 21.1 | 32.7 | 45 | 13.2 | 29.2 | 61.3 | 55.1 | 22.6  | 14.9 |
| Houston         | 34.1 | 47 | 42.4  | 28.0 | 40.6 | 16.7 | 33.7  | 43.4 | 39.6 | 32 | 33.7 | 28.4 | 52.5 | 43.0 | 37.5  | 42.4 |
| Indianapolis    | 23.8 | 75 | 22.6  | 2.4  | 53.9 | 21.2 | 14.1  | 28.7 | 22.6 | 69 | 18.6 | 2.6  | 58.0 | 22.5 | 14.4  | 19.4 |
| Jacksonville    | 27.0 | 67 | 19.9  | 7.7  | 51.8 | 36.9 | 17.1  | 28.7 | 25.8 | 60 | 10.2 | 6.2  | 60.1 | 33.5 | 27.9  | 17.2 |
| Jersey City     | 49.6 | 18 | 58.7  | 27.3 | 42.8 | 61.5 | 51.9  | 55.2 | 44.4 | 23 | 54.4 | 22.6 | 43.8 | 67.9 | 39.8  | 37.8 |
| Kansas City     | 28.6 | 65 | 33.7  | 4.0  | 57.5 | 32.1 | 21.7  | 22.8 | 26.1 | 58 | 24.2 | 4.3  | 60.8 | 31.7 | 18.7  | 16.8 |
| Knoxville       | 28.8 | 64 | 26.3  | 1.2  | 42.5 | 32.7 | 27.3  | 42.6 | 22.3 | 70 | 20.7 | 0.3  | 41.7 | 24.3 | 21.2  | 25.4 |
| Las Vegas       | 33.0 | 52 | 30.8  | 17.7 | 41.7 | 58.2 | 20.9  | 29.0 | 30.6 | 55 | 27.9 | 16.6 | 62.2 | 46.0 | 5.6   | 25.3 |
| Little Rock     | 21.1 | 80 | 18.6  | 3.6  | 55.6 | 16.3 | 17.7  | 15.0 | 17.1 | 82 | 20.8 | 3.1  | 57.0 | 0.0  | 11.9  | 9.6  |
| Los Angeles     | 49.9 | 17 | 28.1  | 56.8 | 38.9 | 62.8 | 60.7  | 52.0 | 51.0 | 9  | 45.7 | 48.9 | 55.2 | 59.5 | 46.5  | 50.3 |
| Louisville      | 38.3 | 36 | 33.5  | 4.9  | 72.0 | 33.8 | 34.3  | 51.5 | 31.1 | 52 | 29.1 | 2.7  | 69.2 | 31.2 | 24.0  | 30.4 |
| Memphis         | 40.7 | 30 | 40.8  | 10.9 | 66.0 | 43.0 | 39.9  | 43.5 | 43.4 | 26 | 43.0 | 8.9  | 72.2 | 39.8 | 66.6  | 29.8 |
| Mesa            | 30.5 | 60 | 17.5  | 10.9 | 77.3 | 57.1 | 12.2  | 7.9  | 19.8 | 76 | 1.8  | 11.4 | 83.6 | 10.0 | 0.0   | 12.2 |
| Miami           | 76.5 | 1  | 52.7  | 65.7 | 69.9 | 81.9 | 88.8  | 99.9 | 71.6 | 2  | 50.5 | 50.3 | 72.1 | 76.9 | 100.0 | 79.9 |

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|                    |      |    |      |      |      |      |      |      |      |    |      |      |      |      |      |      |
|--------------------|------|----|------|------|------|------|------|------|------|----|------|------|------|------|------|------|
| Milwaukee          | 44.7 | 24 | 42.5 | 7.5  | 71.1 | 59.3 | 46.8 | 40.9 | 49.1 | 12 | 52.3 | 8.3  | 76.9 | 62.1 | 61.8 | 33.0 |
| Minneapolis        | 27.6 | 66 | 30.4 | 5.0  | 31.8 | 45.7 | 38.9 | 13.4 | 24.2 | 63 | 24.2 | 10.3 | 22.0 | 40.8 | 36.1 | 11.5 |
| Nashville-Davidson | 23.3 | 76 | 17.9 | 2.5  | 36.6 | 32.4 | 19.3 | 31.3 | 19.8 | 75 | 15.0 | 4.0  | 35.4 | 35.4 | 9.7  | 19.6 |
| New Orleans        | 56.8 | 8  | 59.5 | 17.8 | 75.2 | 59.9 | 79.0 | 49.2 | 45.9 | 18 | 44.0 | 11.5 | 69.5 | 40.9 | 76.2 | 33.3 |
| New York City      | 44.1 | 27 | 40.9 | 28.9 | 47.3 | 45.7 | 53.5 | 48.7 | 45.6 | 19 | 45.0 | 26.2 | 53.1 | 67.5 | 43.2 | 38.4 |
| Newark             | 74.6 | 2  | 78.5 | 33.9 | 58.8 | 92.8 | 92.8 | 91.1 | 66.6 | 4  | 90.5 | 22.8 | 61.6 | 94.7 | 61.0 | 68.8 |
| Newport News       | 30.2 | 61 | 25.4 | 5.7  | 52.0 | 50.1 | 26.9 | 21.4 | 31.9 | 50 | 12.3 | 4.4  | 64.0 | 48.0 | 50.0 | 12.5 |
| Norfolk            | 33.6 | 48 | 25.8 | 11.0 | 31.8 | 57.9 | 37.0 | 37.9 | 39.8 | 30 | 32.2 | 7.9  | 47.3 | 50.5 | 75.2 | 25.5 |
| Oakland            | 50.9 | 15 | 44.9 | 29.0 | 53.4 | 72.3 | 72.2 | 33.7 | 42.6 | 27 | 39.2 | 29.5 | 49.9 | 69.1 | 32.9 | 34.9 |
| Oklahoma City      | 31.0 | 59 | 32.1 | 7.1  | 57.8 | 39.9 | 24.7 | 24.2 | 23.3 | 67 | 11.4 | 6.4  | 60.9 | 17.8 | 23.8 | 19.2 |
| Omaha              | 21.7 | 79 | 14.6 | 1.3  | 61.7 | 25.8 | 13.7 | 13.4 | 19.3 | 77 | 5.8  | 3.6  | 62.9 | 28.6 | 5.8  | 9.4  |
| Orlando            | 24.9 | 72 | 15.9 | 10.2 | 24.8 | 45.2 | 28.6 | 24.5 | 23.7 | 66 | 12.6 | 12.4 | 37.5 | 47.0 | 15.1 | 17.4 |
| Philadelphia       | 48.2 | 21 | 41.8 | 8.4  | 66.5 | 65.8 | 48.3 | 58.6 | 46.6 | 15 | 53.7 | 7.2  | 75.7 | 73.5 | 29.0 | 40.6 |
| Phoenix            | 33.5 | 49 | 30.5 | 15.5 | 51.9 | 53.3 | 26.7 | 23.0 | 24.0 | 64 | 17.2 | 21.8 | 60.2 | 0.6  | 14.7 | 29.2 |
| Pittsburgh         | 32.5 | 53 | 35.5 | 0.9  | 58.3 | 30.2 | 31.6 | 38.5 | 32.7 | 46 | 50.7 | 0.0  | 55.9 | 39.1 | 31.1 | 19.3 |
| Portland           | 24.1 | 74 | 24.8 | 4.7  | 50.1 | 34.8 | 17.8 | 12.6 | 22.0 | 71 | 29.3 | 7.0  | 32.3 | 43.5 | 10.0 | 10.0 |
| Providence         | 50.5 | 16 | 41.1 | 11.9 | 56.8 | 70.6 | 60.1 | 62.5 | 46.1 | 17 | 42.7 | 13.4 | 58.2 | 70.8 | 39.7 | 52.2 |
| Raleigh            | 6.3  | 86 | 10.7 | 3.4  | 0.0  | 10.9 | 9.7  | 3.6  | 10.9 | 85 | 19.0 | 4.8  | 9.8  | 24.0 | 3.8  | 3.9  |
| Richmond           | 32.4 | 55 | 23.8 | 3.6  | 48.1 | 30.1 | 39.3 | 49.3 | 33.0 | 44 | 37.0 | 3.8  | 49.4 | 42.7 | 33.1 | 32.2 |
| Rochester          | 46.6 | 23 | 41.3 | 3.4  | 59.4 | 64.0 | 63.7 | 47.5 | 45.2 | 20 | 58.2 | 3.5  | 67.1 | 63.7 | 42.1 | 36.8 |
| Sacramento         | 37.7 | 38 | 32.2 | 18.2 | 61.0 | 49.9 | 37.4 | 27.4 | 36.7 | 36 | 32.7 | 18.9 | 71.2 | 51.4 | 18.3 | 27.7 |
| Salt Lake City     | 29.3 | 63 | 19.6 | 7.2  | 69.2 | 42.4 | 25.0 | 12.3 | 24.2 | 62 | 21.2 | 12.8 | 44.5 | 44.1 | 7.5  | 14.9 |
| San Antonio        | 48.5 | 20 | 43.0 | 24.2 | 68.4 | 60.9 | 47.6 | 46.7 | 33.9 | 40 | 18.4 | 17.4 | 72.9 | 45.8 | 16.4 | 32.5 |
| San Diego          | 29.8 | 62 | 23.1 | 23.9 | 30.7 | 55.7 | 31.1 | 14.2 | 26.9 | 57 | 18.3 | 21.9 | 43.1 | 52.4 | 9.3  | 16.1 |
| San Francisco      | 33.4 | 51 | 25.4 | 24.8 | 14.5 | 64.3 | 46.3 | 24.7 | 20.2 | 74 | 6.9  | 21.7 | 3.8  | 64.4 | 5.0  | 19.5 |

|                |      |    |      |      |       |       |      |      |      |    |      |       |       |       |      |      |
|----------------|------|----|------|------|-------|-------|------|------|------|----|------|-------|-------|-------|------|------|
| San Jose       | 36.8 | 43 | 23.9 | 35.7 | 33.8  | 74.8  | 25.5 | 26.8 | 31.0 | 53 | 4.1  | 33.9  | 44.4  | 75.0  | 2.8  | 25.6 |
| Santa Ana      | 74.6 | 3  | 47.7 | 99.9 | 46.7  | 100.0 | 58.4 | 94.7 | 73.7 | 1  | 32.8 | 100.0 | 76.6  | 100.0 | 32.9 | 99.9 |
| Seattle        | 12.3 | 85 | 16.1 | 6.3  | 20.1  | 15.8  | 11.6 | 3.9  | 9.2  | 86 | 15.0 | 6.1   | 0.0   | 22.3  | 10.3 | 2.0  |
| Springfield    | 51.2 | 14 | 42.4 | 7.0  | 76.4  | 74.9  | 60.9 | 45.5 | 44.0 | 25 | 36.5 | 6.8   | 87.8  | 70.7  | 26.2 | 36.1 |
| St. Louis      | 52.9 | 11 | 51.5 | 10.2 | 83.7  | 58.4  | 51.0 | 62.4 | 44.5 | 22 | 64.8 | 6.0   | 76.2  | 45.6  | 34.0 | 40.5 |
| St. Paul       | 32.5 | 54 | 24.3 | 7.1  | 61.1  | 52.9  | 32.5 | 17.0 | 32.7 | 47 | 20.1 | 11.4  | 63.5  | 51.7  | 35.3 | 14.1 |
| St. Petersburg | 32.1 | 58 | 13.2 | 4.8  | 83.9  | 40.8  | 18.0 | 32.0 | 26.0 | 59 | 9.4  | 4.4   | 73.8  | 39.7  | 10.8 | 18.1 |
| Syracuse       | 37.6 | 39 | 32.7 | 3.2  | 55.1  | 53.6  | 39.5 | 41.7 | 42.0 | 28 | 44.1 | 2.8   | 65.9  | 60.9  | 48.3 | 30.1 |
| Tacoma         | 32.3 | 56 | 28.5 | 8.6  | 69.4  | 42.4  | 23.5 | 21.6 | 32.1 | 49 | 35.8 | 8.7   | 64.4  | 46.7  | 22.3 | 14.4 |
| Tampa          | 36.9 | 42 | 25.9 | 11.4 | 56.5  | 47.0  | 37.2 | 43.0 | 34.4 | 39 | 43.9 | 11.8  | 61.3  | 35.7  | 25.6 | 28.3 |
| Toledo         | 40.3 | 32 | 47.4 | 1.0  | 70.2  | 51.4  | 35.4 | 36.7 | 33.9 | 41 | 35.4 | 0.6   | 75.8  | 42.8  | 25.8 | 22.7 |
| Tucson         | 40.0 | 33 | 36.7 | 15.4 | 53.5  | 70.4  | 40.7 | 23.2 | 28.3 | 56 | 15.3 | 14.2  | 56.5  | 34.3  | 28.5 | 21.2 |
| Tulsa          | 24.4 | 73 | 24.4 | 3.6  | 53.3  | 27.2  | 23.5 | 14.2 | 20.5 | 73 | 15.1 | 5.4   | 63.4  | 16.0  | 10.6 | 12.6 |
| Virginia Beach | 13.1 | 83 | 11.9 | 1.6  | 33.3  | 31.7  | 0.0  | 0.1  | 15.3 | 84 | 0.0  | 2.1   | 53.0  | 24.4  | 12.9 | 0.0  |
| Washington     | 34.3 | 46 | 31.0 | 17.6 | 22.8  | 46.7  | 50.7 | 36.8 | 33.5 | 42 | 64.4 | 14.4  | 29.9  | 37.9  | 27.7 | 26.6 |
| Wichita        | 26.2 | 70 | 24.1 | 5.8  | 65.6  | 30.5  | 15.8 | 15.2 | 22.7 | 68 | 14.8 | 4.8   | 72.9  | 22.5  | 7.2  | 14.0 |
| Youngstown     | 56.8 | 7  | 63.9 | 0.4  | 100.0 | 67.1  | 54.0 | 55.4 | 44.2 | 24 | 48.7 | 0.1   | 100.0 | 50.8  | 29.3 | 36.4 |
| AVERAGE        | 37.7 |    | 34.8 | 13.9 | 53.7  | 48.7  | 38.9 | 36.4 | 35.0 |    | 34.0 | 13.1  | 58.4  | 46.3  | 30.0 | 28.4 |

1 The Intercity Hardship Index — based on the methodology used by Richard P. Nathan and Charles F. Adams, Jr. in “Understanding Urban Hardship,” *Political Science Quarterly* 91 (Spring 1976): 47-62 — calculates an overall measure of hardship based on the average of six, equally-weighted, component variables: unemployment, dependency, education, income level, crowded housing, and poverty. Standardized values for each of these component variables are calculated by use of a formula that computes ratios of where each city falls on a given variable compared to the highest and lowest values on that same variable from among those cities included in the analysis. Hardship scores and rankings are therefore *relative*, applying to a specific group of cities studied for a given period. The scores and rankings on hardship shown in this Appendix are based on values among the full sample of 86 cities we have analyzed for 1990 and 2000. Consequently, they are different from the index scores and rankings of cities shown in Appendix B and in Sections IV and V of the paper, which are based only on those 55 cities that were in the original study by Nathan and Adams.

NOTES

1 The selection of cities involved two decision rules. Only cities within metropolitan areas with populations greater than 480,000 in 1990 were included. Only cities comprising more than 11 percent and less than 89 percent of their metropolitan area’s population were included. The result of these decision rules yielded a group including all 55 cities from the original analysis by Nathan and Adams on urban hardship in 1970 and 1980, plus 31 other cities for which we offer data for 1990 and 2000. For the underlying work by Nathan and Adams see: Richard P. Nathan and Charles F. Adams, Jr., “Four Perspectives on Urban Hardship,” *Political Science Quarterly* 104 (Number 3, 1989): 483-508, and “Understanding Central City Hardship,” *Political Science Quarterly* 91 (Spring 1976): 47-62. See also Richard P. Nathan, *A New Agenda For Cities*, Ohio Municipal League, 1992.

2 The same formulation as the original study was used to calculate the Intercity Hardship Index (see Appendix 1 in Nathan and Adams 1989):

$$X = ((Y - Y_{\min}) / (Y_{\max} - Y_{\min})) * 100$$

where: X = standardized value of component variable (for example, unemployment rate) for each city to be computed.

Y = unstandardized value of component variable for each city.

$Y_{\min}$  = the minimum value for Y across all cities.

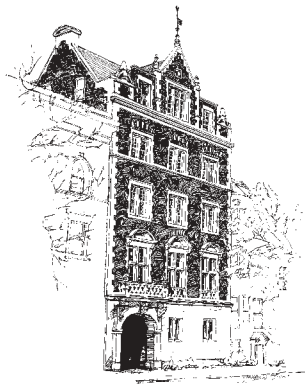
$Y_{\max}$  = the maximum value for Y across all cities.

The ( $Y_{\max} - Y_{\min}$ ) part of the formula was reversed to ( $Y_{\min} - Y_{\max}$ ) for the calculation of Income Level so that the resulting ratio would be interpreted consistently with the other ratios — a higher value indicating higher hardship. The formula standardizes each of the component variables so that they are all given equal weight in the composite Intercity Hardship Index. The Index represents the average of the standardized ratios of all six component variables. The Intercity Hardship Index ranges from 0 to 100 with a higher number indicating greater hardship. Adjustments were made to reflect regional cost-of-living differences in order to compare economic conditions between cities in different parts of the country. Because the Bureau of Labor Statistics discontinued the Family Budget Index Nathan and Adams used for this purpose in their original analysis, adjustments were made using the Department of Housing and Urban Development’s Fair Market Rents (FMR), defined as the 40<sup>th</sup> percentile rent for a two bedroom home, and established for each of the cities in the study. The FMRs were indexed and the index was applied at 100 percent as an adjustment to the income variable (which Nathan and Adams adjusted by the “intermediate level of living” of the BLS Family Budget Index), and at 67 percent as the poverty adjustment (which Nathan and Adams adjusted by the “lower level of living” of the BLS Family Budget Index).

3 This section, and the one that follows which tracks changes in hardship from 1970 to 2000, encompasses analyses and comparisons among 55 cities from Nathan and Adams, for which new data is added for 1990 and 2000. Not included are 31 cities that meet population-size criteria for inclusion as of 1990, but which were not incorporated in the original analysis.

4 The Intercity Hardship Index — based on the methodology originated by Nathan and Adams — employs standardized values for component variables in a formula, shown in footnote 2 above, that computes ratios of where each city falls on a given variable compared to the highest and lowest values on that same variable from among a given set of cities included in the analysis. Hardship scores and rankings are therefore *relative*, applying to a specific group of cities studied for a given period. The analysis of city scores and rankings on hardship from 1970 to 2000, which is discussed in this Section and shown in Appendix B, is based only on those 55 cities that were in the original study by Nathan and Adams. Values for another 31 cities that met the criteria for inclusion as of 1990, but which were not part of the original study, are not included in this set of calculations. Consequently, the index values and rankings for individual cities in 2000 that are shown in this Section and Appendix B are different (since they are based on analysis of the 55 cities meeting criteria for study) from the index scores and rankings of cities in 2000 shown in Appendix C and in Sections I, II, and III of the paper (which are based on calculations and analysis of the full set of 86 cities meeting the criteria for study in 1990 and 2000).

- 5 See particularly David Rusk's *Cities Without Suburbs* (Washington: Woodrow Wilson Center, 1993), and his *Inside Game/Outside Game* (Washington: Brookings Institution Press, 1999). For a discussion of the values of regionalism, the implications of fragmented governance, and practical lessons for regional approaches, see Gerald Benjamin and Richard P. Nathan, *Regionalism and Realism: A Study of Governments in the New York Metropolitan Area* (Washington: Brookings Institution Press, 2001).
- 6 Pearson  $r = -0.277$  with the correlation significant at the 0.05 level.
- 7 Pearson  $r = -0.22$  with the correlation significant at the 0.05 level.
- 8 Spearman's  $\rho = 0.373$ , significant at the 0.01 level.
- 9 Pearson's  $r = 0.240$  with the correlation significant at the 0.05 level.
- 10 The city of Las Vegas represented an extreme outlier. Almost half (48.9 percent) of the housing in Las Vegas was built since 1990, with the next highest city in the study being 28.9 percent). Consequently, we omitted Las Vegas from the calculation of median values used to construct the distribution of cities on age of housing, but include it among the cities shown in this distribution.
- 11 Pearson  $r = 0.284$  with the correlation significant at the 0.01 level.
- 12 Pearson  $r = -0.451$  with the correlation significant at the 0.01 level.



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