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Regional Economic Indicators: Affordability and Quality of Life

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REGIONAL ECONOMIC INDICATORS:

AFFORDABILITY AND QUALITY OF LIFE

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EXECUTIVE SUMMARY

- This study aims to contrast affordability and quality of life as factors of attraction and retention of workforce and businesses in Northeast Ohio's metro areas with comparable regions across the country. The study is limited to reliable and available data for 36 metropolitan areas from 27 states. As presented, this study serves two purposes: it allows us to compare Cleveland to other metro areas in selected indicators,[1] and it creates a valuable database of variables and indicators on affordability and quality of life in 36 metro areas.

- We included three major components of affordability and quality of life in the methodological framework of this study: affordability of housing and cost of living in the area, environment and lifestyle, and education and healthcare availability and quality. Data are not available on the acreages of green space and the length of bike paths for all metro areas. In addition, data on specific amenities, such as marinas, the acreage of beaches, and the capacity of ski resorts are also unavailable; moreover, these amenities are not universal for all regions. The limited number of indicators and incomplete picture of quality of life factors that these indicators represent do not allow us to create a single score to pick the winners among our comparable MSAs, therefore, 33 comparable metro areas[2] are ranked by each indicator.

- The Midwest remains the most affordable place to live; the Southwest and South have better recreational possibilities, but are hardly affordable. Examining how many times a metro area ranks among the top five in each of the 10 indicators, Pittsburgh and Buffalo appeared among the top five six times – the most of any other regions. They are followed by the Cleveland (4), Milwaukee (3), and Minneapolis (3) metro areas. Riverside (6) and San Diego (5) lead in a number of occurrences among the five lowest ranks in each category, followed by Memphis (4), Sacramento (4), Jacksonville (3), and Las Vegas (3).

- Overall, the Cleveland metro area scored well in mobility (#1), crime (#2), healthcare access (#3), and school quality (#4). The indicators illustrate that Cleveland is a fairly affordable, high-quality place to live. It has exceptional mobility conditions (scored 10.00), very low crime (9.35),

[1] All indicators are scaled from 1.00 (the worst) to 10.00 (the best).
[2] Comparability of the 33 ranked metro areas is based on several criteria. To be included, the area had to be similar in size (by population and labor force), and to meet one of the following three criteria: similar industry structure, location in Midwest states, or being a high-growth region. The smaller metropolitan areas of northeast Ohio – Akron, Youngstown, and Canton – were not included in the ranking, as they do not meet the criteria of size comparability with other regions.

a good healthcare system (8.47), and affordable housing (8.10). The scores of the indicators also illustrate that the Cleveland metro area has a relative lack of recreational amenities (3.45), as measured by selected indicators, can improve policies to stimulate increase in home ownership (6.98), and enforce better air quality regulations (7.05).

- The Akron metro area has very good traffic conditions (10.0), high home ownership (7.96), and a low cost of living (8.65). It is about median in affordability of housing (8.47) and environmental quality (8.99), and average in health insurance coverage (6.35) and healthcare access (6.12). The Youngstown metro area has more extreme scores in its indicators; it is equal to the best in cost of living (10.0), home ownership (9.57), and healthcare access (9.26), but it is very weak in recreation and leisure (2.70). The Canton metro area ranks between Akron and Youngstown, with the exception of higher health insurance coverage (8.11), much better air and water quality (9.67) and lower-quality schools (4.64).

- Cleveland's traditional rivals, with the exception of Pittsburgh and Buffalo, scored lower overall, but had some high individual rankings. The Milwaukee metro area is ranked #3 in school quality (7.61) and #4 in health insurance coverage (8.19) and healthcare access (8.43). The Indianapolis MSA ranked #3 in affordable housing (9.24) and #4 in cost of living (9.04), but scored poorly in air and water quality (#31 with a score of 5.38). The Minneapolis area has the best health insurance coverage (#1), ranks second in home ownership (8.88), and is fifth in crime (8.93), however, it ranked among the bottom five in affordable housing (3.55) and cost of living (5.28).

- Other Ohio metro areas ranked in the middle, as neither Columbus nor Cincinnati had a single score among either the five best or the five worst in any indicator.

- Three California metro areas scored very low in affordability, having very expensive houses and rental properties and an extremely high cost of living index. Riverside scored the worst in air and water quality, recreation and leisure, and healthcare access; #32 in mobility; and #29 in school quality and affordable housing. San Diego, besides affordable housing, was the worst in cost of living and home ownership rate, #31 in mobility, and #29 in health insurance coverage. Memphis has extremely high numbers of violent and property crimes (#33), has a low school quality (#30), weak health insurance coverage (#30), and poor recreation (#32).

INTRODUCTION

This report continues a series of studies that compare northeast Ohio metropolitan areas with similar regions across the U.S. The report was prepared by the Center for Economic Development at Cleveland State University's Maxine Goodman Levin College of Urban Affairs as a part of the regional economic indicators project, an initiative supported by the university president and the Northeast Ohio Research Consortium of the Ohio Urban University Program.

This study aims to contrast affordability and quality of life as factors of attraction and retention of workforce and businesses in northeast Ohio's metro areas with comparable regions across the country. By comparing the Cleveland, Akron, Canton, and Youngstown metropolitan areas to other places, we hope to determine what factors attract and keep workers within the region and whether Northeast Ohio is comparable in quality of life factors with other regions of similar size and economic structure. As presented, this study serves two purposes: it compares Cleveland to other metro areas in selected indicators, and it creates a valuable database of variables and indicators on affordability and quality of life in 36 metro areas.

Many studies have used ranking methodologies on indicators of innovation and business climate at the state[3] and metropolitan area[4] levels. Some studies have considered overall economic outcomes and were based on the state[5] or MSA level.[6] A few studies have used quality of life indicators as the part of those that describe regional economies.[7] However, we were not able to find a single ranking methodology for quality of life indicators at the metropolitan area level that would benchmark the area of study to similar regions. Four reports[8]

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[3] DeVol,R. & Koepp, R. (2004) *State Technology and Science Index: Enduring Lessons for the Intangible Economy*. Milken Institute; *Maryland Innovation and Technology Index* (2003) John Hopkins Institute for Policy Studies; *The Maine Innovation Index 2002: Measuring Maine's Performance in the New Economy*, Maine: Maine Science and Technology Foundation.

[4] *The Metropolitan New Economy Index: Benchmarking Economic Transformation in the Nation's Metropolitan Areas.* Washington D.C., Progressive Policy Institute; *Innovation and Entrepreneurial Index of 2002,* Pennsylvania: Innovation Philadelphia, Inc.; *Joint Venture's 2003 Index of Silicon Valley: Measuring Progress Toward the Goals of Silicon Valley 2010*, California: Joint Venture Silicon Valley Network.

[5] *North American Living Costs: 2002 Edition* (2002) Pennsylvania: Economy.com, Inc.; *Massachusetts Benchmarks: The Quarterly Review of Economic News and Insight.* Vol.6, issues 2,3,4, Massachusetts; The Massachusetts Benchmarks Project. University of Massachusetts.

[6] *Metro Area and State Competitiveness Report* (2002), (2003). Massachusetts: The Beacon Hill Institute; *The 2002 Metropolitan Index*, Chicago: Chicago Metropolis; *United States Business Cost Review 2003 Edition,* Pennsylvania: Economy.com

[7] *Alaska Science and Technology Innovation Index* (2002) Anchorage: Alaska Science and Technology Foundation; *Benchmarks for the Next Michigan: Measuring Our Competitiveness* (2002) SRI International; *Index of Innovation and Technology: Washington State* (2001), (2003), (2004) Washington: Washington Technology Center.

[8] Tri-Cities, Washington Innovation and Technology Index (2001) Washington: Economic Development Office, Pacific Northwest National Laboratory; *2001 Potomac Index. Measuring Progress in the Greater Washington Region.* Washington D.C.: The Potomac Conference and Brookings Greater Washington Research Program; *Sustainable Pittsburgh*. Southwestern Pennsylvania Regional Indicator Report (2002),

had detailed sections on quality of life indicators, and we considered their methodologies and data sources in selecting and grouping variables for our study. None of these four studies compared regions across different states, and all of them used either special survey data or data from their state agencies. The latter data are not readily available, and the resources for this project prevented us from conducting special surveys or gathering data individually for each of the 27 states where our comparable metropolitan areas are located. Therefore, this study is limited to reliable and readily available data for all 36 metropolitan areas used in the analysis.

The main challenge of this study was creating a methodological framework that would include all aspects of affordability and quality of life and would satisfy what is often a personal choice. For the same reason, we found it impossible to assign a weight to each variable or to make them all of equal weight, thus an aggregated Affordability and Quality of Life Index was not calculated.

This report includes three sections. The first section describes the study methodology, including the framework and methods of calculating selected Affordability and Quality of Life indicators and the limitations due to data availability. The second section gives an overview of selected indicators ranked across all 33 comparable metro areas and three smaller metro areas of northeast Ohio. The third section provides a detailed description of each variable and indicator, explains the way the variables are integrated into indicators, and compares the position of Cleveland and Ohio's smaller metro areas among other regions. Appendices include the data source information, the detailed data tables of variables and indicators, their scaled scores, ranks of metro areas by each indicator, and some additional explanations.

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http://www.SustainablePittsburgh.org/SWPAIndicators/; *2002 Alaska Science and Technology Innovation Index* (2002) Anchorage: Alaska Science and Technology Foundation.

METHODOLOGY OF AFFORDABILITY AND QUALITY OF LIFE INDICATORS

We included three major components of affordability and quality of life in the methodological framework of this study: affordability of housing and cost of living in the area, environment and lifestyle, and education and healthcare availability and quality. Each of these three components is represented by a number of indicators (Table 1), and each indicator is calculated as an average of a number of variables.

Table 1. Affordability and Quality of Life Indicators

SUB-INDEX	INDICATOR	VARIABLES
AFFORDABILITY	Affordable Housing	- Housing price index weighted by home ownership rate - Fair market rent weighted by renter-occupied housing rate
	Cost of Living	- Cost of living
ENVIRONMENT AND LIFESTYLE	Home Ownership	- Home ownership rate
	Air & Water Quality	- Air quality index - Water Quality (Cumulative number of violations of the Maximum Contamination Level)
	Mobility and Traffic Congestion	- Travel time index - Annual Delay per Traveler (person/hr) - Congestion Cost per Traveler ($) - Congestion Cost per Traveler Change ($)
	Recreation and Leisure	- Employment in Arts & Recreation Industry (NAICS 711, 712, 713) per 100,000 population - Number of establishments in Arts & Recreation Industry (NAICS 711, 712, 713) per 100,000 population - Employment in Restaurants Industry (NAICS 7221) per 100,000 population - Number of Establishments in Restaurants Industry (NAICS 7221) per 100,000 population
	Crime	- Violent crime rate (number of violent crimes per 100,000 population) - Property crime rate (number of property crimes per 100,000 population)
EDUCATION AND HEALTH	Quality of Schools	- Total per-pupil expenditures - Pupil/teacher ratio
	Health Insurance Coverage	- Share of households with healthcare coverage - Change in share of households with healthcare coverage
	Healthcare Accessibility	- Employment in Ambulatory Healthcare Services & Hospitals Industry (NAICS 621,622) per 100,000 population - Number of establishments in Ambulatory Healthcare Services & Hospitals Industry (NAICS 621,622) per 100,000 population

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There is a broader list of indicators that can represent affordability and quality of life in the region, however, not all the indicators can be operationalized and the data for some indicators do not exist. For example, data are unavailable on the acreages of green space and the length of bike paths for all metro areas. The data on specific amenities, such as marinas, the acreage of beaches, and the capacity of ski resorts are also unavailable, and these amenities are not universal for all regions. As a result, our framework includes only the indicators and variables shown in Table 1.

In this study, we did not calculate an aggregated index for the 36 metro areas, as giving weights to individual indicators is highly subjective; it is impossible to give the same weight to such diverse indicators as Air and Water Quality and Quality of Schools. Within each sub-index, we have only presented indicators for which data were readily available and reliable. Each indicator is either presented by a single variable or calculated as a simple average of two or more standardized variables. We used the methodology of the median-score standardization,[9] which provides the distribution of a variable that is less skewed to the outliers compared to the traditional z-scores. We scaled the indicators from 1.00 (the worst) to 10.00 (the best) and ranked the metropolitan areas according to each indicator.

The smaller metropolitan areas of northeast Ohio – Akron, Youngstown, and Canton – were not included in the ranking, as they do not meet the criteria of size comparability with other regions. In addition, the data for smaller metro areas were not always available. We calculated indicators for smaller northeast Ohio metropolitan areas where data were available and included them at the end of each table. We scaled their indicators using the same scale applied to the ranking of the 33 larger metropolitan areas and, in parentheses, shown the rank where they fit on a scale from one to 33.

This methodology includes the Office of Management and Budget's (OMB) updated definition of Metropolitan Statistical Areas (MSAs) and is similar to one used in two previous reports in this series.[10] This study does not envision calculating sub-indices and an aggregated index; it provides the rankings of metro areas based on individual indicators.

We collected and based our calculations on the most recent available data estimates from 1999 to 2003 (The data sources are listed in Appendix A). We included a very limited number of change variables due to data availability. When possible, the data were aggregated from the county level to the MSA level to reflect the new definition of metro areas. If data at the county level were unavailable, we used data collected by the old-definition metro area and adjusted them by population.

[9] Edward W. (Ned) Hill, Harold Wolman, Kimberly Furdell and Iryna Lendel (2004) *The Median-Score and Index Creation*. (Forthcoming).

[10] *Regional Economic Indicators: Business and Innovation Climate*. Center for Economic Development. Cleveland State University. 2004; *Regional Economic Indicators: Traditional Indicators*. Center for Economic Development. Cleveland State University. 2005, http://urban.csuohio.edu/economicdevelopment. Instead of two levels of aggregation, (1) from variables to sub-indices and (2) from sub-indices to aggregated index, this study uses only one level.

OVERVIEW OF SELECTED AFFORDABILITY AND QUALITY OF LIFE INDICATORS

Many popular information sources and some scholarly literature suggest that the era in which residents followed jobs is over, and that workers now choose a desirable location in which to live and then find employment within their chosen region. Affordability plays less of a role for those workers in the knowledge economy and technology-based economic development as their wages are typically higher than average. At the same time, during periods of economic declines, job opportunities are more important to workers than some quality of life factors. Therefore, during recessionary periods, our indicators might better represent the retention of work force factors, and during periods of economic prosperity they might better reflect regional attraction for migrants.

In addition, the theoretical framework envisions additional variables for which data are not readily available. For example, we unsuccessfully tried to collect data on bike paths and parks for our group of comparable metro areas for inclusion in calculating lifestyle indicators. Methodologically, we were also unable to include data on characteristics that are typical only for a part of the comparison group, such as number of beaches, marinas, and ski resorts. These limitations make our study valid only with regard to the selected variables, which do not fully reflect affordability and especially quality of life assessments in their traditional meanings.

Table 2 presents the ranks of metro areas in selected affordability and quality of life indicators. The limited number of indicators and incomplete picture of quality of life factors that these indicators represent do not allow us to create a single score to pick the winners among our comparable MSAs. Speaking in a regional context, the Midwest remains the most affordable place to live; the Southwest and South have better recreational possibilities, but are hardly affordable.

Table 2 also provides the number of occurrences of each metro area within the five highest and the five lowest ranks in each indicator. The lighter shaded cells in the table highlight the scores of the five highest and darker shades highlight the scores of the five lowest rankings. The Pittsburgh and Buffalo metro areas appeared among the top five in each indicator six times – the most of any other regions. They are followed by Cleveland (4), Milwaukee (3), and Minneapolis (3). The Riverside (6) and San Diego (5) metro areas lead in a number of occurrences among the five lowest ranks in each category, followed by Memphis (4), Sacramento (4), Jacksonville (3), and Las Vegas (3).

Table 2. Ranks of Metropolitan Statistical Areas in Selected Affordability and Quality of Life Indicators

Metropolitan Statistical Area (in alphabetical order)	Affordability		Environment and Lifestyle Indicators					Education and health			Number of Occurrences within the Best 5	Number of Occurrences within the Worst 5
	Affordable Housing	Cost of Living	Home Ownership Rate	Air & Water Quality	Mobility & Traffic Congestion	Recreation & Leisure	Crime	School Quality	Health Insurance Coverage	Health Care Access		
Austin-Round Rock, TX	24	28	32	2	29	16	9	11	28	26	1	2
Buffalo-Cheektowaga-Tonawanda, NY	1	1	19	4	3	26	4	1	12	7	6	0
Charlotte-Gastonia-Concord, NC-SC	11	19	8	17	30	9	24	19	20	31	0	2
Cincinnati-Middletown, OH-KY-IN	10	8	18	26	19	11	8	14	7	20	0	0
Cleveland-Lorain-Elyria, OH	13	16	9	24	1	24	2	4	8	3	4	0
Columbus, OH	8	15	26	16	9	17	21	8	19	19	0	0
Denver-Aurora, CO	30	31	16	25	16	6	12	20	6	15	0	2
Grand Rapids-Wyoming, MI	15	6	1	7	7	28	7	16	2	23	2	0
Greensboro-High Point, NC	4	11	6	13	n/a	12	15	18	14	29	1	1
Indianapolis, IN	3	4	12	31	13	15	18	13	13	10	2	1
Jacksonville, FL	25	18	14	5	10	29	27	31	33	17	1	3
Kansas City, MO-KS	19	14	11	22	4	20	22	9	3	14	2	0
Las Vegas-Paradise, NV	20	26	30	21	11	3	20	32	27	32	1	3
Louisville, KY-IN	9	5	7	27	18	18	14	17	5	9	2	0
Memphis, TN-MS-AR	5	12	21	19	12	32	33	30	30	21	1	4
Milwaukee-Waukesha-West Allis, WI	14	17	29	11	8	25	19	3	4	4	3	1
Minneapolis-St. Paul-Bloomington, MN-WI	32	29	2	8	21	7	5	12	1	24	3	2
Nashville-Davidson-Murfreesboro, TN	12	21	20	18	20	5	26	21	16	6	1	0
Oklahoma City, OK	6	2	22	10	6	21	23	24	17	2	2	0
Orlando, FL	22	22	17	12	23	1	25	27	21	16	1	0
Phoenix-Mesa-Scottsdale, AZ	23	24	10	29	26	27	29	33	25	27	0	3
Pittsburgh, PA	7	3	4	28	2	30	1	5	22	1	6	1
Portland-Vancouver-Beaverton, OR-WA	21	27	25	1	25	14	13	28	11	25	1	0
Providence-New Bedford-Fall River, RI-MA	28	25	31	9	27	10	3	2	23	12	2	1
Richmond, VA	16	13	13	23	5	19	10	6	32	18	1	1
Riverside-San Bernardino-Ontario, CA	29	23	15	33	32	33	11	29	24	33	0	6
Sacramento-Arden-Arcade-Roseville, CA	31	30	27	30	24	23	17	23	31	28	0	4
San Antonio, TX	2	10	23	3	14	31	31	15	9	13	2	2
San Diego-Carlsbad-San Marcos, CA	33	33	33	20	31	13	6	22	29	22	0	5
Seattle-Tacoma-Bellevue, WA	27	32	28	15	28	4	16	26	18	11	1	2
St. Louis, MO-IL	17	7	3	32	17	2	30	10	15	8	2	2
Tampa-St. Petersburg-Clearwater, FL	26	20	5	14	22	8	28	25	10	5	2	0
Virginia Beach-Norfolk-Newport News, VA-NC	18	9	24	6	15	22	32	7	26	30	0	2
Akron, OH	(9-10)	(6)	(5-6)	(8)	(1)	(10-11)	(7-8)	(6-7)	(11-12)	(12-13)		
Canton-Massillon, OH	(7-8)	(4-5)	(1-2)	(2-3)	n/a	(13-14)	(7-8)	(15-16)	(5-6)	(11-12)		
Youngstown, OH	(5-6)	(1)	(1-2)	(12)	n/a	(29-30)	(8-9)	(10-11)	(10-11)	(1-2)		

Lighter shaded cells contain the scores within the five highest; darker shaded cells indicate the scores within the five lowest ranks in each indicator

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Overall, the Cleveland metro area scored well in mobility (#1), crime (#2), healthcare access (#3), and school quality (#4). Smaller metro areas of northeast Ohio fit at the average rankings, with the exception of indicators that are heavily dependent on the size of the area (both the size of the regional economy and population).

Table 3 shows indicators of affordability and quality of life scaled from 1.00 (best) to 10.00 (worst) in the selected MSAs. There are several outliers in a cluster of indicators and in individual ranks. Three California metro areas scored very low in affordability, having very expensive houses and rental properties and an extremely high cost of living index; they are also low in mobility and health insurance coverage. Orlando is a clear outlier in recreation and leisure, as Disneyland is well represented by our proxy employment variables. The Memphis metro area has extremely high numbers of violent and property crimes, has low school quality, weak healthcare coverage, and poor recreation. In many indicators, Grand Rapids resembles the smaller metro areas (like Akron, Canton, and Youngstown), and overall it did not fit well with the rest of the comparison group.

The indicators demonstrate that Cleveland is a fairly affordable, high-quality place to live. It has exceptional mobility conditions (scored 10.00), very low crime (9.35), a good healthcare system (8.47), and affordable housing (8.10). The scores of the indicators also illustrate that Cleveland lacks recreational amenities (3.45), as measured by selected indicators, can improve policies to stimulate increase in home ownership (6.98), and enforce better air quality regulations (7.05).

The Akron metro area has very good traffic conditions (10.0), high home ownership (7.96), and a low cost of living (8.65). It is about median in affordability of housing (8.47) and environmental quality (8.99), average in health insurance coverage (6.35) and healthcare access (6.12). The Youngstown metro area has more extreme scores in its indicators; it is equal to the best in cost of living (10.0), home ownership (9.57), and healthcare access (9.26), but it is very weak in recreation and leisure (2.70). The Canton metro area ranks between Akron and Youngstown, with the exception of higher health insurance coverage (8.11), much better air and water quality (9.67) and lower-quality schools (4.64).

Cleveland's traditional rivals, with the exception of Pittsburgh and Buffalo, scored lower overall, but had some high individual rankings. The Milwaukee metro area is ranked #3 in school quality (7.61) and #4 in health insurance coverage (8.19) and healthcare access (8.43). The Indianapolis MSA ranked #3 in affordable housing (9.24) and #4 in cost of living (9.04), but scored poorly in air and water quality (#31 with a score of 5.38). The Minneapolis area has the best health insurance coverage (#1), ranked second in home ownership (8.88), and fifth in crime (8.93), however, it ranked among the bottom five in affordable housing (3.55) and cost of living (5.28).

Other Ohio metro areas are ranked in the middle of the scale, as neither Columbus nor Cincinnati had a single score among either the five best or the five worst in any indicator.

Table 3. Scaled Indicators of Affordability and Quality of Life in Metropolitan Statistical Areas

Metropolitan Statistical Area (in alphabetical order)	Affordability		Environment and Lifestyle Indicators					Education and Health		
	Affordable Housing	Cost of Living	Home Ownership Rate	Air & Water Quality	Recreation & Leisure	Mobility & Traffic Congestion	Crime	School Quality	Health Insurance Coverage	Health Care Access
Austin-Round Rock, TX	6.26	5.55	2.29	9.91	3.98	3.12	8.14	5.23	3.30	4.54
Buffalo-Cheektowaga-Tonawanda, NY	10.00	10.00	5.97	9.22	3.43	9.43	9.02	10.00	6.33	7.50
Charlotte-Gastonia-Concord, NC-SC	8.27	7.14	7.00	7.91	4.89	2.53	6.05	4.36	4.39	3.19
Cincinnati-Middletown, OH-KY-IN	8.43	8.60	6.00	6.87	4.39	4.06	8.18	4.97	7.17	5.46
Cleveland-Lorain-Elyria, OH	**8.10**	**7.51**	**6.98**	**7.05**	**3.45**	**10.00**	**9.35**	**7.22**	**7.07**	**8.47**
Columbus, OH	8.54	7.57	4.19	8.06	3.97	6.55	6.38	5.89	4.49	5.53
Denver-Aurora, CO	4.26	4.07	6.12	7.03	5.44	4.71	8.04	4.32	8.07	5.88
Grand Rapids-Wyoming, MI	7.71	8.65	10.00	9.05	3.11	7.21	8.87	4.61	9.35	4.92
Greensboro-High Point, NC	9.20	8.17	7.14	8.22	4.19	n/a	7.76	4.56	5.65	3.72
Indianapolis, IN	9.24	9.04	6.74	5.38	3.98	5.29	7.56	4.97	6.17	6.97
Jacksonville, FL	6.23	7.32	6.50	9.14	2.93	5.59	5.88	2.07	1.00	5.85
Kansas City, MO-KS	7.20	7.69	6.79	7.29	3.63	9.08	6.09	5.37	8.46	5.95
Las Vegas-Paradise, NV	7.09	5.84	3.60	7.43	5.77	5.59	7.26	1.60	3.56	3.08
Louisville, KY-IN	8.51	8.86	7.09	6.67	3.92	4.07	7.82	4.61	8.18	7.00
Memphis, TN-MS-AR	8.98	7.97	5.61	7.73	1.52	5.53	1.00	2.34	2.11	5.23
Milwaukee-Waukesha-West Allis, WI	7.77	7.51	3.62	8.69	3.45	7.05	7.33	7.61	8.19	8.43
Minneapolis-St. Paul-Bloomington, MN-WI	3.55	5.28	8.88	8.99	5.38	3.89	8.93	5.18	10.00	4.79
Nashville-Davidson-Murfreesboro, TN	8.20	6.68	5.88	7.77	5.69	4.06	5.88	4.01	5.41	8.19
Oklahoma City, OK	8.89	9.39	5.29	8.70	3.50	7.67	6.07	3.22	5.40	8.78
Orlando, FL	6.45	6.31	6.03	8.53	10.00	3.84	6.04	2.82	4.16	5.86
Phoenix-Mesa-Scottsdale, AZ	6.32	6.13	6.82	6.58	3.13	3.43	5.64	1.00	3.65	3.93
Pittsburgh, PA	8.83	9.15	8.34	6.62	2.73	9.82	10.00	6.45	4.13	10.00
Portland-Vancouver-Beaverton, OR-WA	7.02	5.59	4.45	10.00	4.02	3.55	7.82	2.76	6.86	4.76
Providence-New Bedford-Fall River, RI-MA	5.28	6.10	3.00	8.90	4.47	3.24	9.22	8.02	4.09	6.35
Richmond, VA	7.50	7.83	6.66	7.17	3.81	7.75	8.13	6.11	1.07	5.79
Riverside-San Bernardino-Ontario, CA	5.19	6.27	6.18	1.00	1.00	1.00	8.07	2.43	3.83	1.00
Sacramento-Arden-Arcade-Roseville, CA	3.80	4.58	4.08	5.92	3.46	3.61	7.61	3.22	1.12	3.80
San Antonio, TX	9.25	8.21	4.67	9.30	2.69	4.94	5.42	4.88	7.01	6.08
San Diego-Carlsbad-San Marcos, CA	1.00	1.00	1.00	7.54	4.05	1.47	8.92	3.56	3.23	5.21
Seattle-Tacoma-Bellevue, WA	5.54	2.78	4.03	8.17	5.71	3.24	7.75	2.94	5.23	6.78
St. Louis, MO-IL	7.47	8.60	8.38	4.13	5.97	4.63	5.43	5.34	5.47	7.06
Tampa-St. Petersburg-Clearwater, FL	5.67	7.03	8.11	8.20	5.03	3.89	5.67	3.11	6.96	8.24
Virginia Beach-Norfolk-Newport News, VA-NC	7.42	8.32	4.49	9.14	3.47	4.83	5.21	5.92	3.62	3.43
Akron, OH	8.47	8.65	7.96	8.99	4.42	10.00	8.67	6.10	6.35	6.12
Canton-Massillon, OH	8.67	8.90	9.11	9.67	4.05	n/a	8.68	4.64	8.11	6.68
Youngstown, OH	8.90	10.00	9.57	8.53	2.70	n/a	8.30	5.30	6.91	9.26

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SELECTED AFFORDABILITY AND QUALITY OF LIFE INDICATORS

According to the framework presented in this report, Affordability and Quality of Life Indicators are grouped into three broad sections: Affordability, Environment and Lifestyle, and Education and Healthcare. Each section includes a number of indicators derived from a combination of variables that approximate particular characteristics of the region's affordability and quality of life.

AFFORDABILITY

Differences in regional costs of living are related to economic growth, standards of living, demographics, and migration patterns. Regions with higher affordability and lower living costs have a higher workforce retention level and are more attractive to migrants.

In this study, two indicators describe affordability: Affordable Housing and Cost of Living Indices. Both indicators help to compare expenses necessary for food and shelter in metropolitan areas across the nation. The Cost of Living Index overlaps the Affordable Housing Indicator, as housing is one of the expenditure categories included in the calculation of cost of living. However, the Affordable Housing Indicator includes variables that interest potential homeowners and tenants of rental property who want to compare the affordability of similar metro areas.

Affordable Housing

The Affordable Housing Indicator includes two variables: Housing Price Index (HPI) and Fair Market Rents (FMRs). Both indicators are well-known, and their data estimates are available at the metropolitan area level across the nation.

The HPI is a broad measure of the change of a single-family home price. Both Freddie Mac and Fannie Mae estimate the HPI for each geographic area using repeated observations of housing values for individual single-family residential properties on which at least two mortgages were originated and subsequently purchased since January 1975.[11]

Home prices play a dual role in affordability and quality of life. On one hand, the lower the price for a single-family home in a given metro area, the more affordable it is to the average

[11] Mortgage transactions on attached and multi-unit properties, properties financed by government insured loans, and properties financed by mortgages exceeding the conforming loan limits determining eligibility for purchase by Freddie Mac or Fannie Mae are excluded. Calhoun, C.A. (1996) *OFHEO House Price Indices: HTP Technical Description*. Office of Federal Housing Enterprise Oversight.

family. On the other hand, the larger increase in HPI indicates a higher appreciation of house values, resulting in an increase of a family asset and, therefore, of wealth.

In this section, we used HPI solely as a variable that characterizes affordability; therefore metro areas with lower HPI received higher rankings.

Fair Market Rents[12] (FMRs) is a variable developed and maintained by the U.S. Department of Housing and Urban Development. FMRs are gross rent estimates and include shelter rent plus the cost of all utilities, except telephones. FMRs determine the eligibility of rental housing units for the Section 8 Housing Assistance Payments Program. They also serve as the payment standard used to calculate subsidies under the Rental Voucher Program.

We included the FMRs variable in the calculation of housing affordability for this indicator to reflect those who rent a house. To estimate the share of housing price and the amount of rent in a regional market, we multiplied HPI by the rate of home ownership and multiplied FMRs by the rate of those who are not homeowners.[13] To create an Affordable Housing Indicator, we calculated a simple average of the median-scores of both variables and scaled it on a range from one to 10.

Figure 1 shows the five most expensive and the five most affordable regions in terms of housing, all metro areas in Ohio, and selected metro areas in the Midwest region.[14] Naturally, the variables of housing prices and rents are correlated and show four metro areas with the most expensive housing: San Diego (ranked #33), Minneapolis (#32), Sacramento (#31), and Denver (#30). San Diego not only ranks as the most expensive place to live, but reports the largest gap between it and its next-ranked rival, Denver. The difference between housing indices for San Diego (226.5) and Denver (198.5) is 15 percent, and the difference in fair market rents is 20 percent ($1,012 and $893, respectively). The Buffalo metro area has the lowest housing price index (125.6) and fairly inexpensive rent level ($608). The other most affordable metro areas are San Antonio (#2), Indianapolis (#3), Greensboro (#4), and Memphis (#5).

The Northeast Ohio region's metro areas are among the most affordable places to live, and they fall between #7 (Canton) and #13 (Cleveland). Table B1 in Appendix B presents the data on HPI and FMRs for all 36 metro areas.

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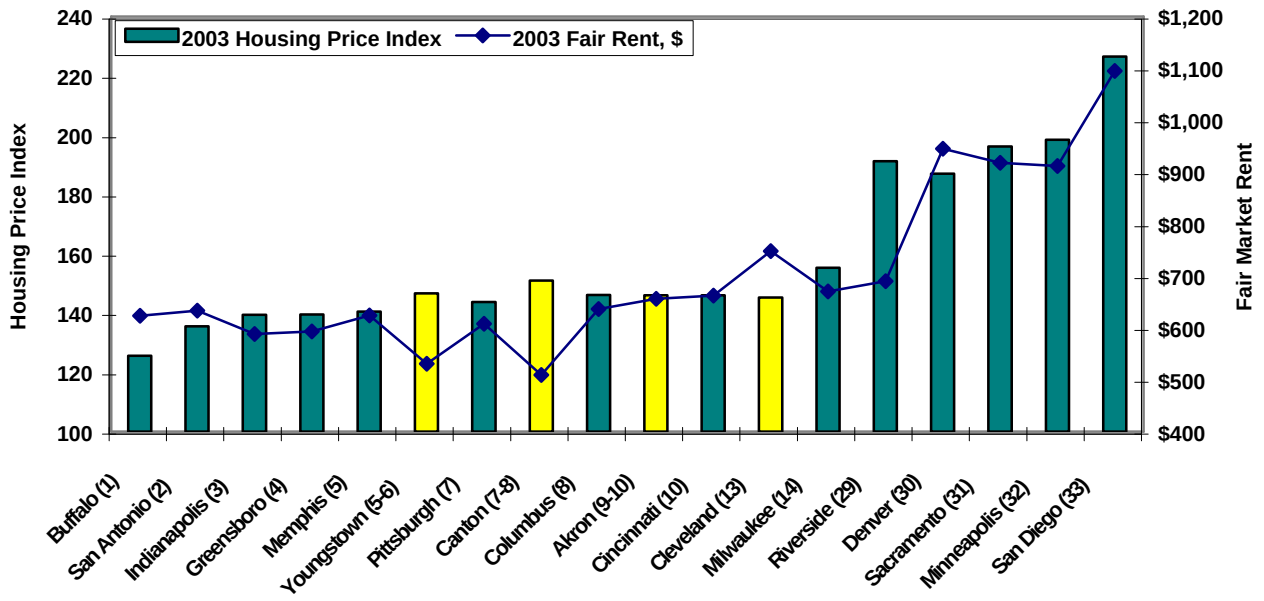
[12] The level at which FMRs are set is expressed as a 40th percentile point within the rent distribution of standard-quality rental housing units. The 40th percentile rent is drawn from the distribution of rents of all units occupied by recent movers (renter households who moved to their present residence within the past 15 months); public housing units and units less than two years old are excluded from the sample of calculation. To develop FMRs, HUD uses three sources of survey data: The Decennial Census, American Housing Survey, and Random Digit Dialing Survey.

[13] We assumed that all those who are not homeowners are renters. Therefore, the share of renters in a region is the difference between one and the rate of home ownership.

[14] All following graphs include metro areas selected by these criteria. Metro areas in each graph are ranked from the best to the worst in the corresponding indicator.

Figure 1. Affordable Housing



Cost of Living

The Cost of Living Index is calculated by Economy.com annually; it reflects the differences in living costs, which are determinants of regional economic growth patterns and demographics. The Cost of Living Index for each metro area is calculated as a weighted average of cost indices for various expenditure categories, including food and retail expenditures, housing, utilities, transportation, vehicle insurance, and all other expenditures. Household spending on each of these goods and services is estimated for all metro areas and then compared to the national average.[15]

Economy.com's Cost of Living Index is based on a variety of data sources published by federal agencies and national associations, such as the Census Bureau, the Department of Energy, the Energy Information Administration, the National Association of Realtors, Fannie Mae and Freddie Mac, and the Bureau of Economic Analysis.

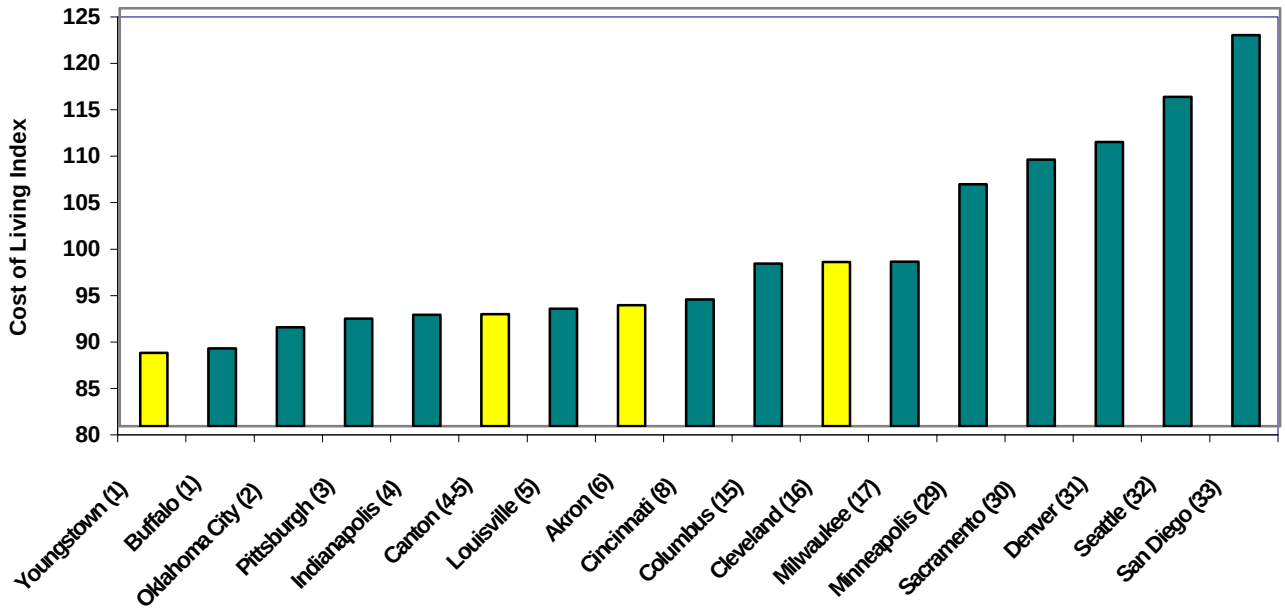
According to Figure 2, San Diego leads the list of the most expensive areas with Cost of Living Index of 122.1. It is followed by Seattle (115.4), Denver (110.6), Sacramento (108.7),

[15] National expenditures are derived from the Bureau of Labor Statistics' annual Consumer Expenditure Survey. The cost index for the relevant expenditure category is equal to national expenditures on these items adjusted for the difference between retail wages and salaries per employee in the metro area and in the nation. Housing and shelter expenditures are broken into two components: cost for owner-occupied housing and cost for rental units. Metro area home ownership rates are used to weight these expenditures to derive total housing outlays for each area.

and Minneapolis (106.1). Four of these metro areas (except Seattle) are also among the five most expensive housing markets among our comparable metro areas.

The five least expensive metro areas to live include Buffalo (#1 with Cost of Living Index of 88.4), Oklahoma City (90.7), Pittsburgh (91.6), Indianapolis (92.0), and Louisville (92.7). Youngstown, Canton, and Akron are also among the least expensive metro areas, fitting among ranks from #1 to #6. Columbus (97.5), Cleveland (97.7), and Milwaukee (97.7) are in the middle of the ranking, reflecting the very affordable cost of living in Midwestern metro areas.

Figure 2. Cost of Living, 2002



ENVIRONMENT AND LIFESTYLE

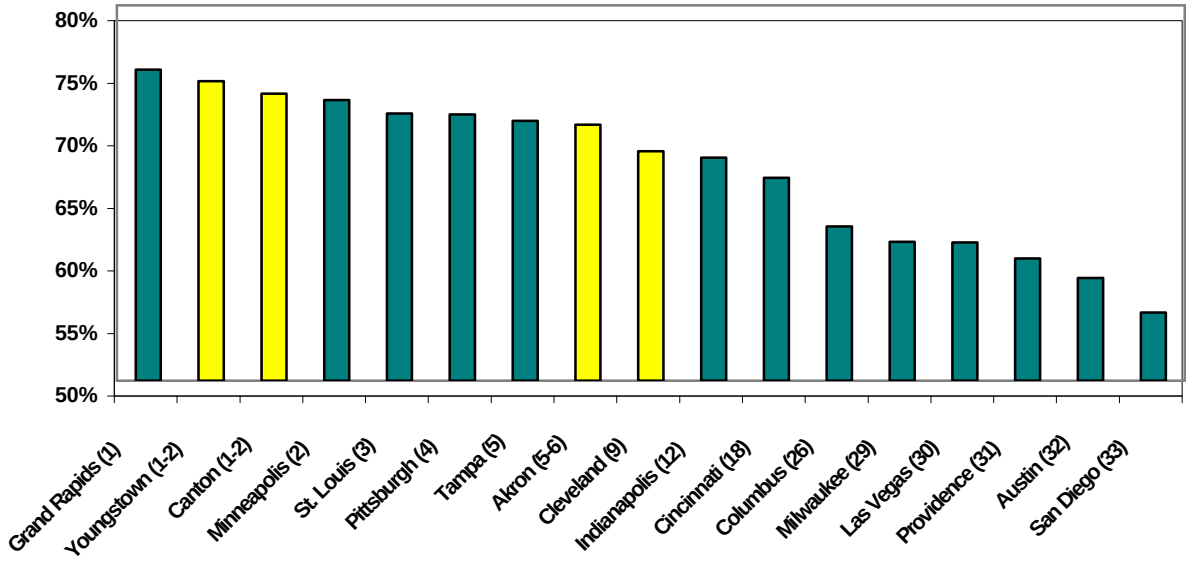
Clean air and water, choice of recreation activities, and high mobility are necessary to attract and retain businesses and residents. To be a desirable location to new economy businesses and to be able to appeal to high technology workers, areas need to have a clean environment, decent public transportation and low traffic congestion, a variety of recreation and leisure facilities, low crime rates, and a sense of community within its neighborhoods.

Home Ownership

We believe that home ownership rates indicate both the affordability of houses and the sense of community within metro area's neighborhoods. High home ownership rates suggest that people invest in the region, maintain their property, and want their neighborhoods to be safe and pleasant for living. To measure home ownership rate, we used the Census's percentage of owner-occupied houses in year 2000.

Figure 3 shows the rank of places with the highest and the lowest rates of home ownership, with an interval of variation from 74.9 percent in Grand Rapids to 55.4 percent in San Diego.

Figure 3. Percentage of Owner-Occupied Homes, 2000



The highest rates of home ownership among 33 metro areas besides Grand Rapids (ranked #1 with a home ownership rate of 74.9%) are in Minneapolis (72.4%), St. Louis (71.4%), Pittsburgh (71.3%), and Tampa (70.8%) (Table B2 in Appendix B presents the data for all 36 metro areas). The

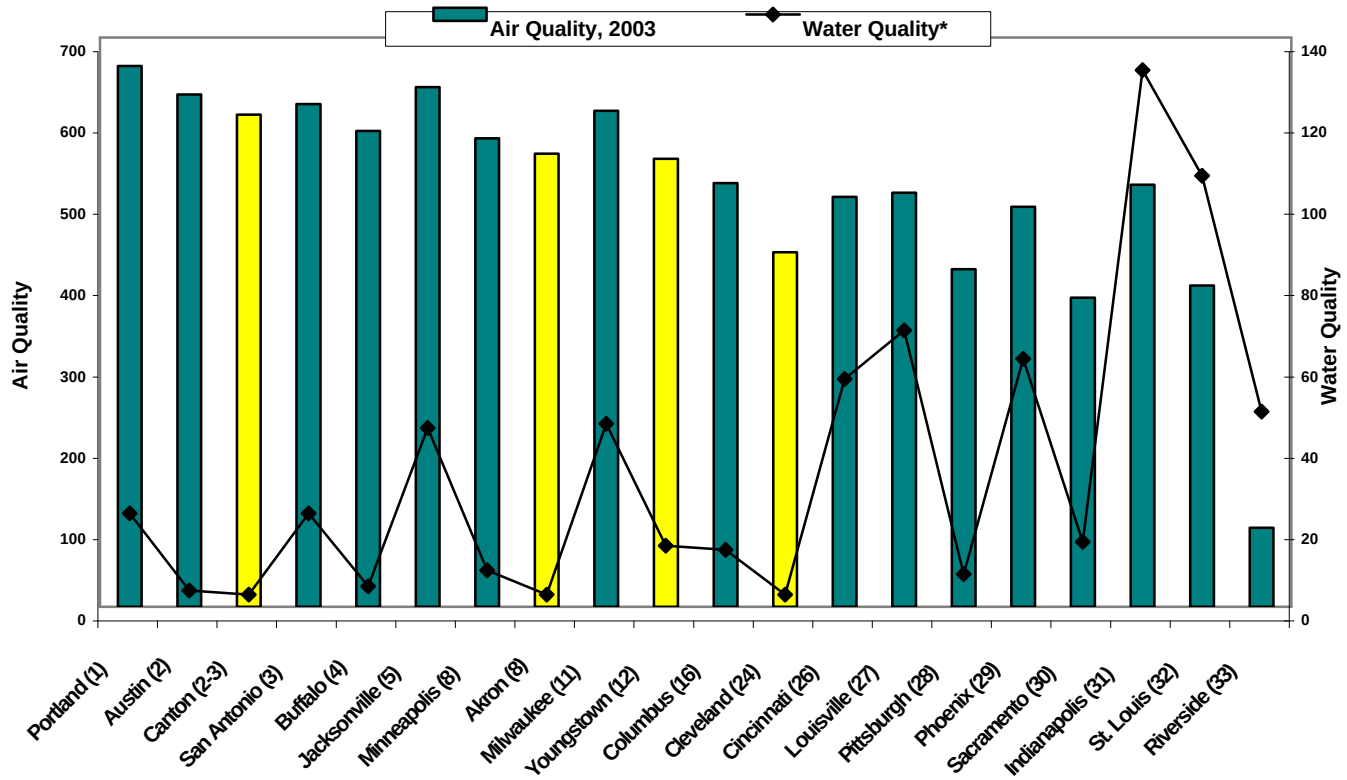
smaller northeast Ohio metro areas also have high percentages of homeownership rates that put them on a par with the five highest in home ownership places in our ranking.

The Cleveland metro area is ranked #9 with a home ownership rate of more than 68.4 percent; Cincinnati (#18) and Columbus (#26) are slightly lower at 66.2 percent and 62.3 percent, respectively. Among other metro areas in the Midwest region, Pittsburgh (#4) has a home ownership rate of 71.3 percent, while Indianapolis (#12) lags behind at 67.8 percent (scored #3 in Affordable Housing). Among the five metro areas with the lowest rates of home ownership were Milwaukee (#29), Las Vegas (#30), Providence (#31), Austin (#32), and San Diego (#33).

Air and Water Quality

The Air and Water Quality Indicator includes two variables, Air Quality Index and Water Quality, both of which are illustrated in Figure 4.[16] The metro areas are ranked by the average of these two variables. There is an important data limitation to creating the indicator of Air and Water Quality: the air quality data exist for 2003, the water quality data exist only in cumulative format through the overall number of quality violations that occurred between 1991-2002.

Figure 4. Air and Water Quality



* Water Quality is measured as number of violations of the Maximum Contaminant Level during 1991-2002.

[16] Figure 4 shows the five regions with the highest air and water quality and the five regions with the worst air and water quality, all metro areas in Ohio, and selected metro areas in the Midwest region. Metro areas on the graph and in the Table B2, Appendix B, are ranked from the best (#1) to the worst (#33) in the overall Air and Water Quality Indicator.

Air Quality Index

Air Quality Index (AQI) is a widely accepted indicator provided by the U.S. Environmental Protection Agency (EPA). It measures overall air quality, because it takes into account all of the criteria for air pollutants measured within a geographic area. The EPA releases Summary Reports that list AQI annual values for counties and metropolitan areas.[17] We used four mesures from this report to calculate a variable for our study:

- good – number of days in the year having an AQI value of zero through 50;
- moderate – number of days in the year having an AQI value of 51 through 100;
- unhealthy for sensitive groups – number of days in the year having an AQI value of 101 through 150;
- unhealthy – number of days in the year having an AQI value of 151 or higher. This includes the AQI categories *unhealthy, very unhealthy, and hazardous*.

We calculated the sum of the days in each these four categories using multipliers that likely reflect people's environmental preferences. The formula for the 2003 AQI index distribution used in our study is:

AQI = good *(2) + moderate * (1) + unhealthy for sensitive groups * (-1) + unhealthy * (-2) *(1)*

This variable was estimated in such a way that the higher aggregated AQI, the better the air quality in the metro area. As shown in Table B2 (Appendix B), the best quality of air among the 33 metro areas is in Orlando (666), Portland (665), and Jacksonville (639). The worst air quality in 2003 was in Riverside (97). This metro area is a clear outlier, as the next worst metro area, Sacramento scored 380. The Cleveland metro area is the worst compared to all other metro areas in Ohio; it scored 436 in AQI and in this indicator is ranked next to Pittsburgh (415).

Water Quality

To assess the quality of drinking water, we used the EPA's Safe Drinking Water Information System. It contains data on public water systems provided by states to the EPA; for this report we used the Maximum Contaminant Level[18] (MCL) data. This variable is available only as a cumulative number of violations registered during 1991-2002 for each metro area.

The range of violation registered during these 12 years is from zero to 132. Grand Rapids and Las Vegas were violation-free; Akron and Cleveland had the smallest number of violations (3 each). Columbus registered 14 violations, the Youngstown metro area listed 15, and Cincinnati was

[17] The EPA used an old (1995) definition of metro areas to calculate AQI.
[18] MSL is the maximum concentration of a chemical that is allowed in public drinking water systems. Currently, there are fewer than 100 chemicals for which an MCL has been established; however, these represent chemicals that are thought to pose the most serious risk.

the worst in Ohio with 56 MCL violations. The Indianapolis MSA had the largest number of violations (132), followed by St. Louis (106) and Orlando (89). Data for the Canton MSA were not available.

Based on the average of standardized air and water quality data, Portland scored #1 due to very good air quality and fair water quality, and Riverside ranked the lowest (#33) due to very poor air quality. Among the five best, beside Portland, were Austin (#2 with a score of 9.91), San Antonio (#3, 9.30), Buffalo (#4, 9.22), and Jacksonville (#5, 9.14). Among the five worst, besides Riverside, were St. Louis (#32, 4.13), Indianapolis, (#31, 5.38), Sacramento (#30, 5.92), and Phoenix (#29, 6.58). Data on air and water quality for all 36 metro areas are included in Appendix B, Table B2.

Mobility and Traffic Congestion

Mobility and traffic congestion have become an unavoidable part of metropolitan life. The mobility performance indicators prepared by the Texas Transportation Institute (TTI) in the 2004 Urban Mobility Report[19] show that traffic congestion is growing across the nation in regions of all sizes, but especially in large and medium size. Traffic congestion consumes more time and affects more people than ever through commuting to work, traveling, shipping goods, shopping, and driving children to activities. Traffic congestion affects people's choice of housing within their community and even their choice to live in a certain region or metro area.

TTI produces an annual report of urban mobility and traffic congestion; in 2004 it included data on 85 urban areas with populations that exceed 500,000. The report is based on data from federal, state, and local agencies and uses a consistent methodology, which makes the data comparable over time. The methodology primarily utilizes the Federal Highway Administration's Highway Performance Monitoring System (HPMS) database. Local transportation agencies' boundaries are redrawn over time to reflect urban growth. Redefinition of boundaries affects the change in an urban system's length, travel, and mobility estimates, therefore, the Annual Mobility Report is more applicable for comparisons of trends for individual regions than cross-sectional values of different regions for a particular year. However, the Annual Mobility Report was used as the data source for this report, as it was the only source with relevant data for all of our study's metro areas.

As suggested by the report's methodology, we used four measures to achieve comprehensive results: [20]

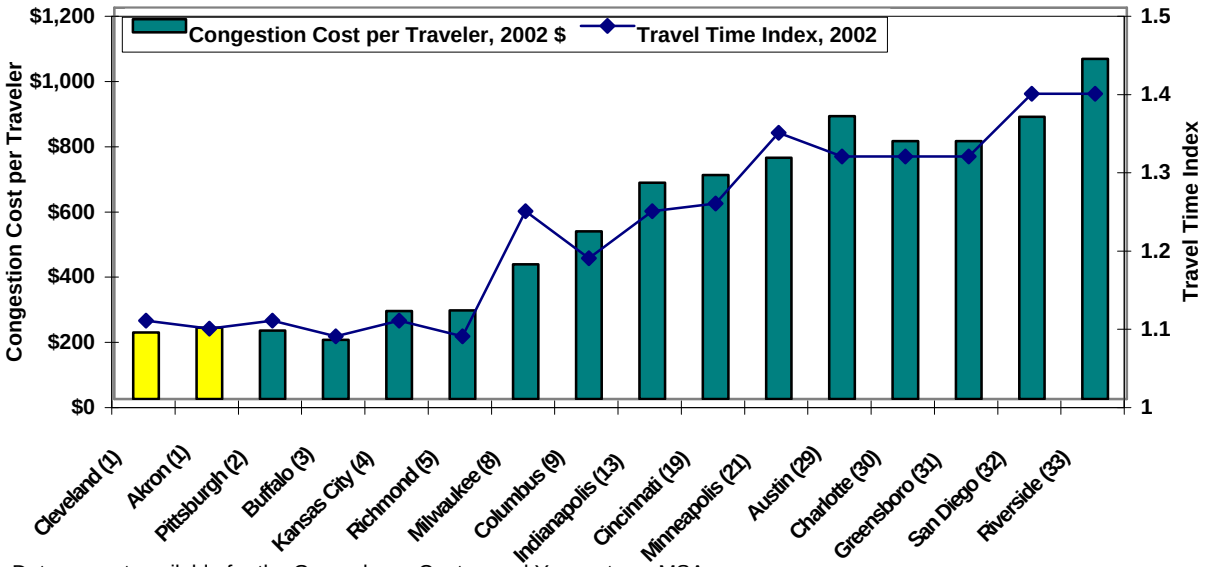
- Travel Time Index (TTI) – the ratio of peak period travel to free-flow travel time;
- Delay per Traveler (DPT) – the hours of extra travel time divided by the number of urban area peak period travelers;
- Cost of Congestion (COC) – the value of extra time and fuel that is consumed during congested travel;
- Change in Congestion (CIC) – congestion trend.

[19] Downloaded from http://mobility.tamu.edu September 8, 2004.
[20] The technical note on the measures of mobility and traffic congestion is in Appendix C

The first three measures reflect data for 2002; the CIC shows the congestion change for 2001-2002. This report provides the data for 33 metro areas; data on three smaller MSAs, Greensboro, Canton, and Youngstown are not available.

The rankings and the indices for the Mobility and Traffic Congestion Indicator presented in tables 2 and 3 at the beginning of this report are derived from all four variables (Appendix B, Table B2). Figure 5 shows two out of four variables included in the indicator. The range of variation in the 2002 Travel Time Index is from 1.1 in Cleveland (ranked #1) to 1.39 in Riverside (#33).

Figure 5. Mobility and Traffic Congestion



Data are not available for the Greensboro, Canton and Youngstown MSAs.

Besides Cleveland, the Pittsburgh (#2), Buffalo (#3), Kansas City (#4), and Richmond (#5) metro areas show the least traffic congestion and delays. Comparably good mobility are experienced in Milwaukee (#8) and Columbus (#9). Riverside and San Diego demonstrate the worst traffic conditions in our comparison group. Significant delays and high congestion costs also prevail in Greensboro, Charlotte, and Austin. The congestion costs per traveler vary from $182 in Buffalo to $1,043 in Riverside. The highest increase in the Percentage Change of Congestion Cost per Traveler during 2001-2002 happened in Providence (38%), Virginia Beach (22%), and Oklahoma City (16%). Among areas that decreased congestion costs the most are Denver (-28%), Orlando (-15%), and Cleveland (-13%).

Recreation and Leisure

The personal choices and recreation possibilities for people who live in different parts of the country are very diverse. To be objective, we intended to include data on parks and green space, theaters and other performing arts, museums, amusement, and restaurants. We were not able to find comparable data to characterize all these activities across 36 metro areas, and, in the case of parks and green space, uniform data at the county or metropolitan area level across the U.S. were not available.

Using County Business Patterns, we created four variables that we believe are acceptable proxies for recreational possibilities in metropolitan areas: employment in Arts and Recreation (NAICS 711 & 712), the number of establishments in Art and Recreation, employment in Full-Service Restaurants (NAICS 7221), and the number of establishments in Full-Service Restaurants. All variables are calculated per 100,000 of population.

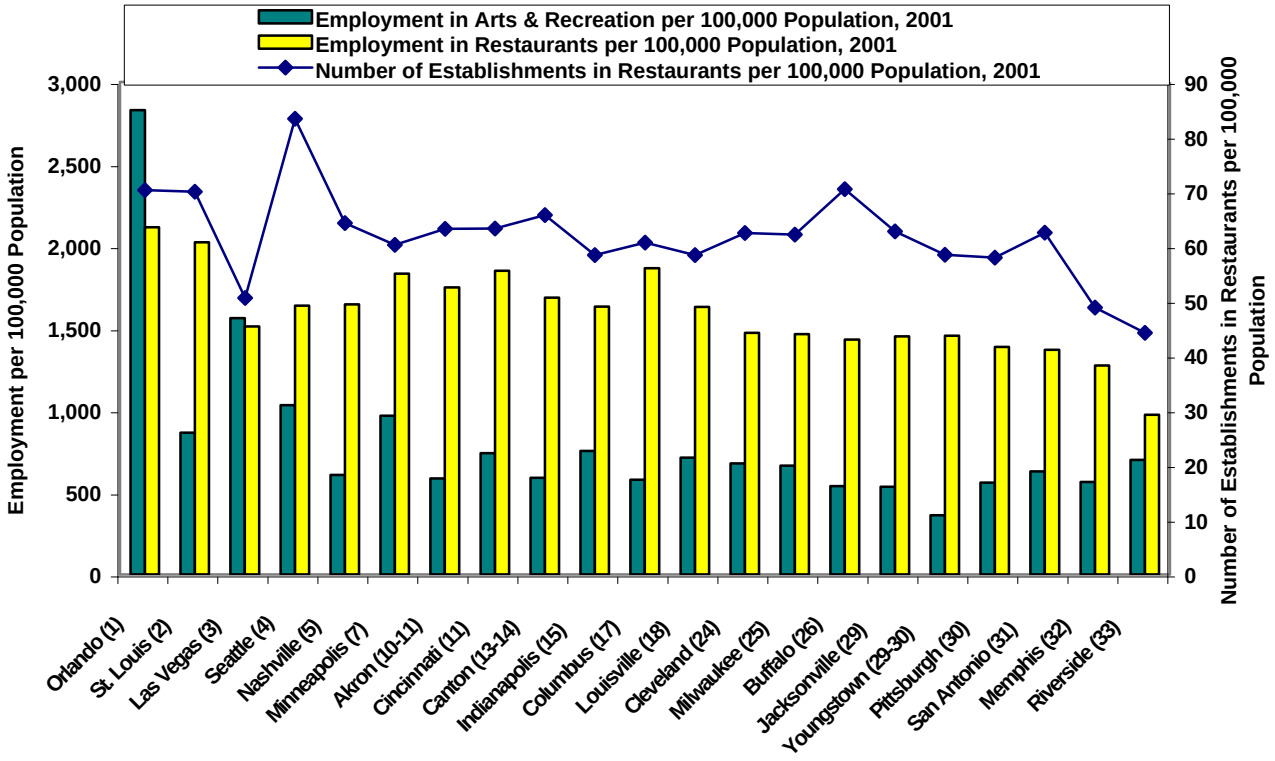
The first variable, employment in Arts and Recreation, calculated per 100,000 of population, approximates the scope of performing arts and amusement, gambling, and other recreation industries available in the area.[21] Normalizing this variable by population, we were able to compare the availability of recreation activities and services in different metro areas. However, merely the number of employees in recreational industries does not reflect the variety of choices available for leisure. The second variable, the number of establishments in Art and Recreation per 100,000 population, reflects the variety of choices for leisure. The third and fourth variables, employment and the number of establishments in Full-Service Restaurants (NAICS 7221) per 100,000 of population, approximate the availability and variety of dining in the area.

All variables were collected at the county level for 2001; suppressed data were estimated based on historical trends and the average of employment by establishments. The county data were aggregated to the level of metropolitan statistical area. We realized that neither of these variables reflect the quality of restaurants or recreational services, however, these were the closest proxies universal enough to be used for comparison across all 36 metro areas.

Figure 6 shows the best and the worst metro areas in terms of recreational capacity among metro areas. Table B3 in Appendix B contains data for all four variables of recreational capacity and diversity. Metro areas in Figure 6 are ranked by the Recreation and Leisure Indicator, which includes all four variables.

[21] To collect the data on these two variables, we summed the employment and number of establishments for the industries Performing Arts, Spectator Sports, and Related Industries (NAICS 711), Museums, Historical Sites, and Similar Institutions (NAICS 712), and Amusement, Gambling, and Recreation Industries (NAICS 713) (Detailed descriptions of these and other industries used in this report are in Appendix D).

Figure 6. Recreation and Leisure



Orlando, with Disneyland, has the greatest capacity and variety of establishments in the arts, recreation, and restaurants; and thus it significantly skews the distribution of variables and the overall scores in this ranking. Graded as a best place in recreation and leisure with a score 10.0 and rank #1, Orlando surpassed its closest competitor, St. Louis (#2), which earned a score of 5.97. However, the Seattle metro area, which also scored among the five best places (#4, 5.71), outpaced Orlando in variety of restaurants per 100,000 population and is a leader in this indicator, despite being the third largest by population in our list. The St. Louis (5.97), Las Vegas (5.77), and Nashville (5.69) metro areas have many restaurants per 100,000 population, but, as expected, are not even close to Orlando in Arts and Recreation employment and the number of establishments per 100,000 population. The five lowest scores in recreation belong to the Riverside (1.00), Memphis (1.52), San Antonio (2.69), Pittsburgh (2.73), and Jacksonville (2.93) metro areas.

The Canton metro area scored at the middle of ranking (between #13 and #14), followed by Indianapolis, which ranked #15 with the score of 3.98. The highest rank among Ohio metro areas belongs to Cincinnati (4.39, ranked #11), closely followed by Akron (4.42, ranked #10-11). Youngstown scored the lowest in Ohio 2.70 and could be placed among the five worst in recreation and leisure (#29-30). The Cleveland metro area scored 3.45 and was ranked #24, which confirms the fact that of our methodology is insensitive to quality of recreation, such as the uniqueness and prestige of the Cleveland Museum of Art, the Cleveland Orchestra, or the Rock and Roll Hall of Fame

and Museum[22]. Unfortunately, data that better correlates to the quality of this amenity, such as endowments to art institutions or size of collections and number of volumes, are difficult to collect for all 36 metro areas.

Among other Midwestern metro areas Minneapolis scored 5.38 and ranked 7th. The Milwaukee and Buffalo metro areas were behind Cleveland, scoring 3.45 and 3.43, respectively.

Crime

Safety is an important characteristic of the environment in which people want to live and raise children. High levels of violent and property crime can easily ruin any sense of security and stability in neighborhoods and communities. Even though the crime level differs dramatically from neighborhood to neighborhood within a metropolitan area, the average number of violent and property crimes per 100,000 residents characterize a metro area in comparison to its peers.

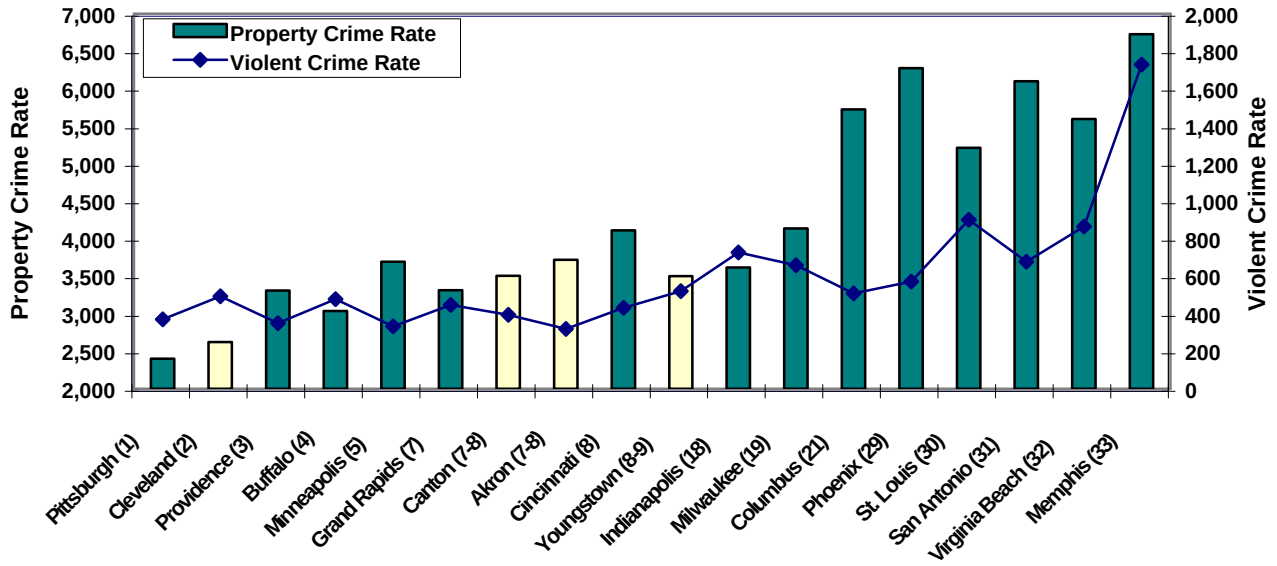
We used the Uniformed Crime Reporting (UCR) Program's crime statistics. The 2002 UCR data include only 25 metropolitan statistical areas[23] from our comparison group. Data on 11 metro areas[24] not included in the report were obtained from the special city extract out of County Business Patterns[25] and adjusted to metro area size by population.

The ranking by this indicator is distorted by extremely high numbers of violent and property crime rates in the Memphis MSA, with 1,729 and 6,727 per 100,000 population, respectively (See Figure 7). After Memphis, which has the highest violent and property crime rates in our group of comparable MSAs, the next highest number of violent crimes is experienced in Charlotte (962), even though its rate is half that of Memphis. The lowest violent crime rates were registered in Minneapolis (332), followed by Providence (350) and Seattle (353).

Two more metro areas join Memphis as places where the property crime rate exceeds 6,000, Phoenix (6,275) and San Antonio (6,098). The lowest property crime rates are recorded in Pittsburgh (2,401) and Cleveland (2,624), followed by Buffalo (3,035) and San Diego (3,131).

[22] According to *Travel Smart* (January 2004), Cleveland is named as one of the 10 culturally most fascinating cities to visit in the U.S.; named a 2003 Top 25 Arts Destination, according to www.americanstyle.com (October 2003); ranked #2 City of Recreation in North America by *Places Rated Almanac* (1999).
[23] The UCR Program publishes data only on participating MSAs, i.e., those that submit data to the Program for all 12 months of the year, and only if data are available for 75 percent of the agencies within the MSA.
[24] These metro areas are: Akron, Canton, Charlotte, Cleveland, Indianapolis, Kansas City, Memphis, Milwaukee, St. Louis, Virginia Beach, and Youngstown.
[25] http://socds.huduser.org/CBPSE/CBPSE_Home.htm

Figure 7. Crime



The safest metro area assessed by both variables is Pittsburgh (scored 10.0 and ranked #1), followed by Cleveland with the score of 9.35. Providence, Buffalo, and Minneapolis are also ranked among the safest places with overall scores 9.22, 9.02, and 8.93, respectively. The second and third highest overall crime rates after Memphis (#33) were experienced in Virginia Beach (#32), which has a violent crime rate of 865 and a property crime rate of 5,596, and San Antonio (#31), which has a violent crime rate of 677 and property crime rate of 6,098.

Canton, Akron, and Youngstown are ranked in the same range as Grand Rapids and Cincinnati (between #7 and #9). Indianapolis and Milwaukee are ranked #18 and #19, respectively, and their crime situation is better than in Columbus, which is ranked #21 due to its high property crime rate (5,724).

EDUCATION AND HEALTHCARE

A strong school system in the area is very important not only because it produces a better workforce, but because it is a key amenity to draw and retain knowledge workers. A region can successfully implement a long-run, technology-based development strategy only if it has a strong K-12 system and highly educated work force. Another component of quality of life, health insurance coverage and accessibility, is also very important for the retention and attraction of new knowledge workers.

Quality of Schools

To assess the quality of schools in a region, we used two variables, total per-pupil expenditures and pupil-teacher ratio. We had also intended to include school test results, such as SAT scores, but were discouraged by the absence of data for all metro areas and the strong recommendation of the College Board not to use the SAT scores as a comparison tool.[26]

Total per-pupil expenditure data were obtained from the U.S. Census Bureau's Federal, State, and Local Governments Public Elementary-Secondary Education Finance Data (2002). Data were obtained by school district and aggregated to the metropolitan statistical area level.

The pupil-teacher ratio was obtained from the National Center for Educational Statistics' Local Education Agency (School District) Universe Survey. These data were provided at the metropolitan statistical area level based on the 1995 definition of MSAs.[27]

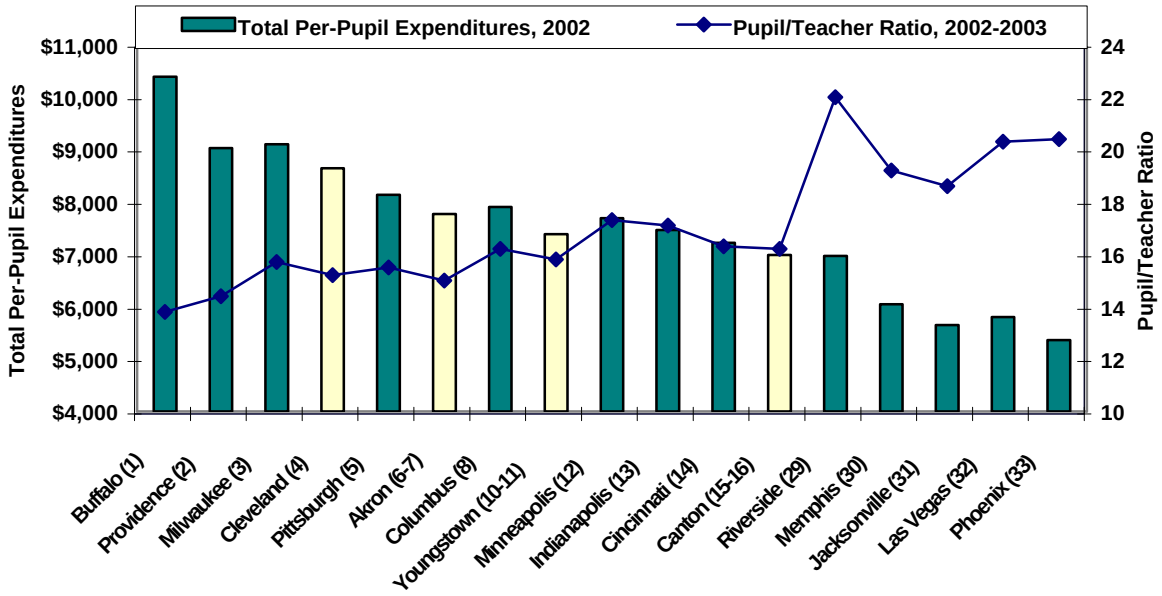
To calculate the Quality of Schools indicator, we normalized the two variables using the median-score technique and calculated their simple average for each MSA.

Figure 8 illustrates that the Buffalo metro area has the highest per-pupil expenditures in its public schools ($10,387). High per-pupil expenditures are also reported in the Milwaukee ($9,101), Providence ($9,025), Cleveland ($8,643), and Pittsburgh ($8,133) areas. Metro areas with the lowest per pupil expenditures were Phoenix ($5,363), Jacksonville ($5,650), Orlando ($5,784), and Oklahoma City ($5,880). On a per-student basis, these metro areas spend about half of what Buffalo school districts do.

[26] The College Board's statement on comparing states and school said: "Media and others often rank states, districts, and schools on the basis of SAT scores despite repeated warnings that such rankings are invalid. The SAT is a strong indicator of trends in the college-bound population, but it should never be used alone for such comparison, because demographics and other non-school factors can have a strong effect on scores. If ranked, schools and states that encourage students to apply to college may be penalized because scores tend to decline with a rise in the percentage of test takers." http://www.collegeboard.com, downloaded September 20, 2004.

[27] The data for the Providence-New Bedford-Fall River, RI-MA, and Nashville-Davidson-Murfreesboro, TN, MSAs were obtained from the site-selection web site, http://www.bestplaces.net, downloaded September 23, 2004.

Figure 8. Quality of Schools



In addition to having the highest per-pupil expenditures, Buffalo has the third lowest pupil-to-teacher ratio (13.8), surpassed only by Richmond (12.6) and Virginia Beach (13.2).

Looking at overall scores calculated based on both variables, the five metro areas with the highest per-pupil expenditures were also ranked the highest in the overall quality of school indicator. The metro areas with the lowest scores in the overall indicator were driven by lower measures of both variables. They have low per-pupil expenditures and high pupil-to-teacher ratios. Among the five lowest were the Phoenix (#33), Las Vegas (#32), Jacksonville (#31), Memphis (#30), and Riverside (#29) metro areas.

Smaller Ohio metro areas and the Midwest region's MSAs scored in the upper half of the quality of schools indicator, showing above-average per-pupil expenses and pupil-to-teacher ratios.

Health Insurance Coverage

To assess the health insurance coverage in our set of comparable metro areas, we combined two variables, the share of households with healthcare coverage in 2001 and the change in share from 2001 to 2003. We included 2001 healthcare coverage variable data[28] to make it comparable with other variables included in the calculation of healthcare indicators.

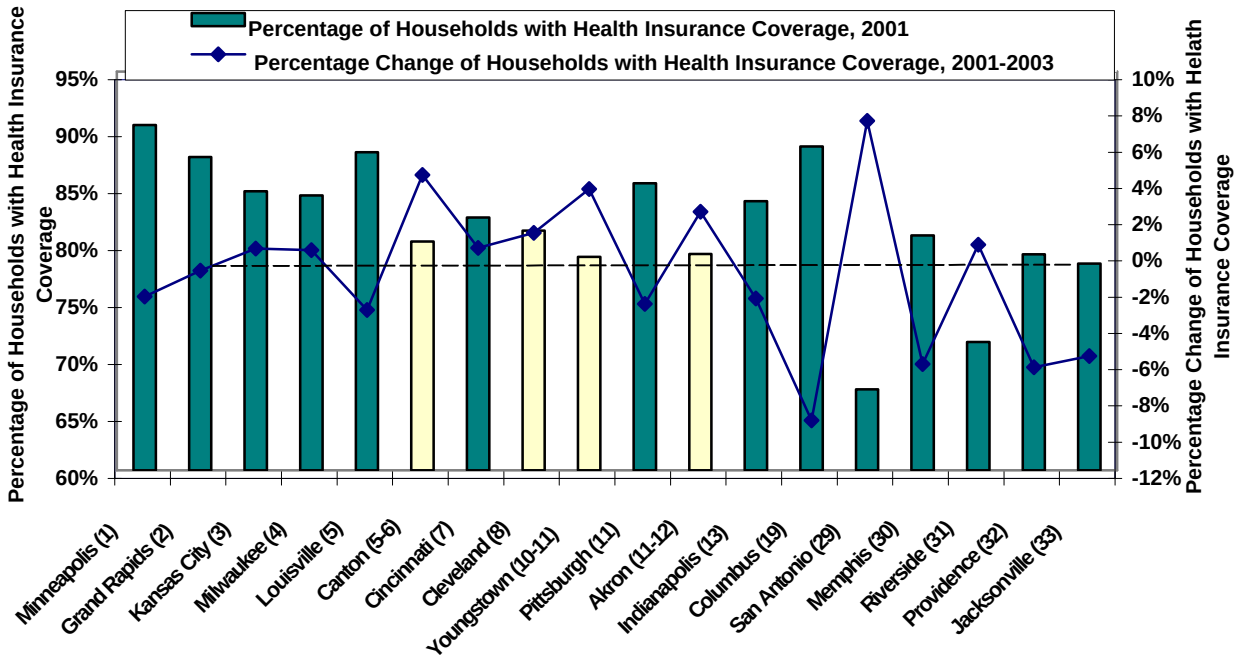
The Annual Social and Economic Supplement of the Current Population Survey was the data source of our variables. For the health insurance coverage assessment, we chose the variables that

[28] The latest data available are 2003 estimates of healthcare coverage

count the number of households covered by any healthcare plan and the change in this number over time.

Figure 9 shows that the percentage of households with health insurance coverage varies from 90.3 percent in Minneapolis to 67.1 percent in the San Antonio metro area. High health insurance coverage was also recorded in Columbus (88.4%), St. Louis (88.1%), Seattle (85.6%), and Pittsburgh (85.2%). Besides San Antonio, metro areas with a low percentage of households with health insurance were Virginia Beach (70.0%), Riverside (71.3%), and Tampa (73.9%).

Figure 9. Health Insurance Coverage



During 2001-2003, 21 of 33 metro areas experienced a decrease in the level of health insurance coverage. The highest drops were documented in Columbus (-9.3%), Providence (-6.3%), and Memphis (-6.1%). The biggest increases in healthcare coverage were noted in two areas with the lowest percentage of health insurance coverage in 2001, Virginia Beach (8.1%) and San Antonio (7.3%). Sacramento and Oklahoma City also performed well and increased their health insurance coverage by more than four percent each.

The Cleveland metro area has an insurance coverage of 81.1 percent, which grew over 2001-2003 by 1.1 percent. The same level of health insurance coverage was noted in Canton with a much higher increase, 4.3 percent. The Akron and Youngstown metro areas were almost at 79 percent of the coverage with increases of 6.4 and 6.9 percents, respectively, during 2001-2003.

Taking into account both variables, Minneapolis was ranked as the top metro area by health insurance coverage (scored 10.0), followed by Grand Rapids (9.35), Kansas City (8.46), Milwaukee

(8.19), and Louisville (8.18). The poorest performer was Jacksonville (1.00), followed by Providence (1.07), Riverside (1.12), Memphis (2.11), and San Antonio (3.23).

The Canton, Youngstown, and Akron metro areas fall within ranks from #5 to #12. Cincinnati and Cleveland scored 7.17 and 7.07 and were ranked #7 and #8, respectively. Despite the fact that it was ranked second highest in health insurance coverage in 2001, Columbus fell to #19 place overall, due to the high drop in coverage between 2001 and 2003.

Healthcare Accessibility

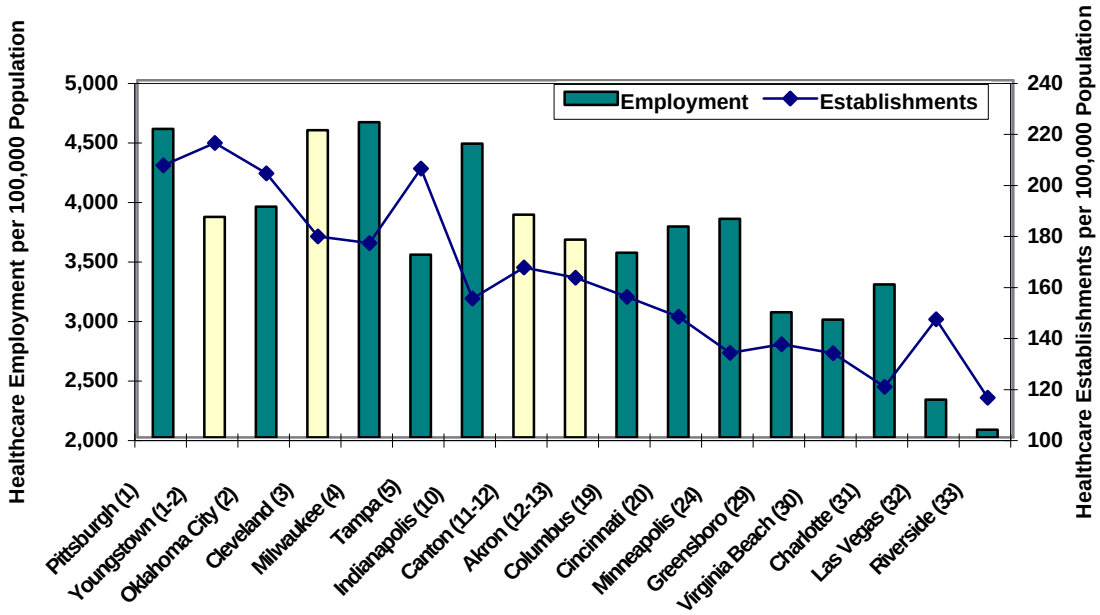
Healthcare accessibility represents the ability of residents to chose among healthcare services and providers. The assumption behind these variables is that a greater variety of healthcare facilities and specialists generates better choices and indicates higher quality of healthcare due to the agglomeration effect. We measured healthcare accessibility with two proxy variables created from County Business Patters data: Employment in Ambulatory Healthcare Services and Hospitals (NAICS 621 and 622) per 100,000 population and Number of Establishments in Ambulatory Healthcare Services and Hospitals (NAICS 621 and 622) per 100,000 population. Similar to the case with recreation and leisure, the employment figure approximates the scope of services available, and the number of establishments indicates the possibility of having an alternative choice, mainly for hospitals and doctors. Normalizing both variables by population, we make them comparable across regions.

Figure 10 shows that the highest employment levels in healthcare institutions per 100,000 population are in the Milwaukee (4,674), Pittsburgh (4,591), Cleveland (4, 581), Nashville (4,570), and Indianapolis (4,468) metro areas. The regions at the bottom end of the scale, Riverside (2,065), Las Vegas (2,318), and Phoenix (2,511), had about half that number.

The biggest variety of healthcare institutions per 100,000 population was represented in Pittsburgh (207), Tampa (205), and Oklahoma City (204). Interestingly, Youngstown (215) also has a high number of healthcare institutions per 100,000 population (above 200). The smallest variety of medical establishments is observed in Riverside (116), Charlotte (120), Minneapolis (133), and Greensboro (137).

Pittsburgh has the highest Healthcare Accessibility Indicator (scored 10.0), followed by Oklahoma City (8.78), Cleveland (8.47), and Milwaukee (8.43). The Riverside MSA scored 1.00 and is followed by Las Vegas (3.08), Charlotte (3.19), Virginia Beach (3.43), and Greensboro (3.72) at the low end of the scale.

Figure 10. Healthcare Institutions per 100,000 Population, 2001



Due to a high number of healthcare establishments, Youngstown's score puts it between the top two metro areas; Akron and Canton scored 6.12 and 6.68, respectively, and would rank between #11 and #13. Columbus and Cincinnati ranked #19 and #20, with respective scores of 5.53 and 5.46. Data for all 36 metro areas on quality of schools, health insurance coverage, and healthcare accessibility are presented in Table B4, Appendix B.

APPENDIX A:

DATA SOURCES INFORMATION

Data Sources Information

Housing price index

Office of Federal Housing Enterprise Oversight
http://www.ofheo.gov

Fair market rent

U.S. Department of Housing and Urban Development
http://www.huduser.org/datasets/FMR

Home ownership rate

U.S. Census Bureau
Census 2000 Summary File 1 (SF 1)
http://www.census.gov

Cost of living

Economy.com
http://www.economy.com/default.asp

Air quality index

U.S. Environmental Protection Agency
Air – Indoor Air Quality
http://www.epa.gov/iaq

Water Quality

U.S. Environmental Protection Agency
Safe Drinking Water Information System
http://www.epa.gov/safewater/sdwis_st/state.htm

Mobility and Traffic Congestion Variables

Texas Transportation Institute, Urban Mobility Report
http://mobility.tamu.edu/ums

Recreation and Leisure Variables

U.S. Census Bureau
County Business Patterns
http://www.census.gov/epcd/cbp/view/cbpview.html

Violent and Property Crime Rates

U.S. Department of Justice
Federal Bureau of Investigation
The Uniform Crime Reporting (UCR) Program
http://www.fbi.gov/ucr/cius_02/html/web/offreported/offreported.html

Pupil/Teacher Ratio

National Center for Education Statistics
Information on Public Schools and School Districts in the United States
http://nces.ed.gov/ccd/drpagency.asp

Total Per-Pupil Expenditures

U.S. Census Bureau
Federal, State, and Local Governments
Public Elementary-Secondary Education Finance Data
Individual Units Tables, http://www.census.gov/govs/ww/school02doc.html

Households with Healthcare Coverage

U.S. Census Bureau
The Current Population Survey and Economic Supplement
http://www.census.gov/hhes/hlthins/verif.html

Healthcare Services and Hospitals Industry

U.S. Census Bureau
County Business Patterns
http://www.census.gov/epcd/cbp/view/cbpview.html

APPENDIX B:
DETAILED DATA TABLES

Table B1. Affordability Indicators

Metropolitan Statistical Area (in alphabetical order)	Affordable Housing					Cost of Living		
				Affordable Housing			Cost of Living	
	Housing Price Index, 2003	Fair Rent, 2003 $	Share of owner-occupied houses, 2000	Scaled	Rank	Cost of Living, 2002	Scaled	Rank
Austin-Round Rock, TX	156.4	911	0.58	6.26	24	105.1	5.55	28
Buffalo-Cheektowaga-Tonawanda, NY	125.6	623	0.66	10.00	1	88.4	10.00	1
Charlotte-Gastonia-Concord, NC-SC	146.2	695	0.68	8.27	11	99.1	7.14	19
Cincinnati-Middletown, OH-KY-IN	145.9	662	0.66	8.43	10	93.6	8.60	8
Cleveland-Lorain-Elyria, OH	**145.2**	**748**	**0.68**	**8.10**	**13**	**97.7**	**7.51**	**16**
Columbus, OH	146.1	636	0.62	8.54	8	97.5	7.57	15
Denver-Aurora, CO	187.0	945	0.66	4.26	30	110.6	4.07	31
Grand Rapids-Wyoming, MI	157.2	632	0.75	7.71	15	93.4	8.65	6
Greensboro-High Point, NC	139.5	593	0.69	9.20	4	95.2	8.17	11
Indianapolis, IN	139.4	588	0.68	9.24	3	92.0	9.04	4
Jacksonville, FL	177.0	673	0.67	6.23	25	98.4	7.32	18
Kansas City, MO-KS	161.0	701	0.68	7.20	19	97.1	7.69	14
Las Vegas-Paradise, NV	152.1	827	0.61	7.09	20	104.0	5.84	26
Louisville, KY-IN	150.2	581	0.69	8.51	9	92.7	8.86	5
Memphis, TN-MS-AR	140.5	624	0.65	8.98	5	96.0	7.97	12
Milwaukee-Waukesha-West Allis, WI	155.2	670	0.61	7.77	14	97.7	7.51	17
Minneapolis-St. Paul-Bloomington, MN-WI	198.5	912	0.72	3.55	32	106.1	5.28	29
Nashville-Davidson-Murfreesboro, TN	148.3	676	0.66	8.20	12	100.8	6.68	21
Oklahoma City, OK	145.1	581	0.65	8.89	6	90.7	9.39	2
Orlando, FL	163.9	817	0.66	6.45	22	102.2	6.31	22
Phoenix-Mesa-Scottsdale, AZ	166.7	806	0.68	6.32	23	102.9	6.13	24
Pittsburgh, PA	143.7	608	0.71	8.83	7	91.6	9.15	3
Portland-Vancouver-Beaverton, OR-WA	158.4	771	0.63	7.02	21	104.9	5.59	27
Providence-New Bedford-Fall River, RI-MA	196.1	667	0.60	5.28	28	103.0	6.10	25
Richmond, VA	151.4	780	0.68	7.50	16	96.5	7.83	13
Riverside-San Bernardino-Ontario, CA	191.2	690	0.67	5.19	29	102.4	6.27	23
Sacramento-Arden-Arcade-Roseville, CA	196.1	918	0.62	3.80	31	108.7	4.58	30
San Antonio, TX	135.5	633	0.63	9.25	2	95.1	8.21	10
San Diego-Carlsbad-San Marcos, CA	226.5	1095	0.55	1.00	33	122.1	1.00	33
Seattle-Tacoma-Bellevue, WA	170.5	899	0.62	5.54	27	115.4	2.78	32
St. Louis, MO-IL	157.7	691	0.71	7.47	17	93.6	8.60	7
Tampa-St. Petersburg-Clearwater, FL	179.2	745	0.71	5.67	26	99.5	7.03	20
Virginia Beach-Norfolk-Newport News, VA-NC	154.6	743	0.63	7.42	18	94.7	8.32	9
Akron, OH	145.9	656	0.70	8.47	(9-10)	93.0	8.65	(6)
Canton-Massillon, OH	151	509	0.73	8.67	(7-8)	92.1	8.90	(4-5)
Youngstown, OH	146.61	531	0.74	8.90	(5-6)	87.9	10.00	(1)

Table B2. Environment and Lifestyle Indicators: Home Ownership, Air and Water Quality, and Mobility and Traffic Congestion

Metropolitan Statistical Area (in alphabetical order)	Home Ownership			Air and Water Quality				Mobility and Traffic Congestion					
	Percent of Owner-Occupied Houses, 2000	Percent of Owner-Occupied Houses		Air Quality, 2003	Water Quality*	Air and Water Quality		Annual Delay per Traveler, 2002	Travel Time Index, 2002	Congestion Cost per Traveler, 2002 $	Percent Change of Congestion Cost per Traveler, 2001-2002	Mobility and Traffic Congestion	
		Scaled	Rank			Scaled	Rank					Scaled	Rank
Austin-Round Rock, TX	58.22%	2.29	32	630	4	9.91	2	49	1.31	867	-2.3	3.12	29
Buffalo-Cheektowaga-Tonawanda, NY	66.17%	5.97	19	585	5	9.22	4	10	1.08	182	0.0	9.43	3
Charlotte-Gastonia-Concord, NC-SC	68.39%	7.00	8	529	26	7.91	17	45	1.31	791	14.3	2.53	30
Cincinnati-Middletown, OH-KY-IN	66.22%	6.00	18	504	56	6.87	26	38	1.25	687	9.7	4.06	19
Cleveland-Lorain-Elyria, OH	**68.35%**	**6.98**	**9**	**436**	**3**	**7.05**	**24**	**11**	**1.1**	**204**	**-12.8**	**10.00**	**1**
Columbus, OH	62.32%	4.19	26	521	14	8.06	16	29	1.18	514	-2.7	6.55	9
Denver-Aurora, CO	66.49%	6.12	16	542	74	7.03	25	45	1.4	786	-27.8	4.71	16
Grand Rapids-Wyoming, MI	74.86%	10.00	1	566	0	9.05	7	20	1.15	360	7.1	7.21	7
Greensboro-High Point, NC	68.68%	7.14	6	539	19	8.22	13	N/A	N/A	N/A	N/A	N/A	N/A
Indianapolis, IN	67.82%	6.74	12	519	132	5.38	31	37	1.24	663	-5.4	5.29	13
Jacksonville, FL	67.31%	6.50	14	639	44	9.14	5	31	1.16	558	9.6	5.59	10
Kansas City, MO-KS	67.94%	6.79	11	508	40	7.29	22	15	1.1	270	-6.3	9.08	4
Las Vegas-Paradise, NV	61.05%	3.60	30	457	0	7.43	21	27	1.35	494	-3.5	5.59	11
Louisville, KY-IN	68.57%	7.09	7	509	68	6.67	27	38	1.24	672	11.4	4.07	18
Memphis, TN-MS-AR	65.39%	5.61	21	509	21	7.73	19	31	1.22	547	4.8	5.53	12
Milwaukee-Waukesha-West Allis, WI	61.09%	3.62	29	610	45	8.69	11	23	1.24	413	-5.7	7.05	8
Minneapolis-St. Paul-Bloomington, MN-WI	72.43%	8.88	2	576	9	8.99	8	42	1.34	740	-3.9	3.89	21
Nashville-Davidson-Murfreesboro, TN	65.98%	5.88	20	548	41	7.77	18	41	1.19	735	10.9	4.06	20
Oklahoma City, OK	64.71%	5.29	22	612	46	8.70	10	14	1.11	245	16.1	7.67	6
Orlando, FL	66.29%	6.03	17	666	89	8.53	12	51	1.29	904	-14.7	3.84	23
Phoenix-Mesa-Scottsdale, AZ	68.00%	6.82	10	492	61	6.58	29	45	1.35	812	-4.6	3.43	26
Pittsburgh, PA	71.29%	8.34	4	415	8	6.62	28	12	1.1	210	-11.4	9.82	2
Portland-Vancouver-Beaverton, OR-WA	62.87%	4.45	25	665	23	10.00	1	41	1.38	733	-1.7	3.55	25
Providence-New Bedford-Fall River, RI-MA	59.77%	3.00	31	615	39	8.90	9	33	1.2	583	37.5	3.24	27
Richmond, VA	67.65%	6.66	13	556	77	7.17	23	15	1.08	272	15.7	7.75	5
Riverside-San Bernardino-Ontario, CA	66.63%	6.18	15	97	48	1.00	33	57	1.39	1,043	4.2	1.00	32
Sacramento-Arden-Arcade-Roseville, CA	62.09%	4.08	27	380	16	5.92	30	36	1.33	650	11.7	3.61	24
San Antonio, TX	63.36%	4.67	23	618	23	9.30	3	36	1.23	640	3.1	4.94	14
San Diego-Carlsbad-San Marcos, CA	55.44%	1.00	33	483	12	7.54	20	47	1.39	865	15.8	1.47	31
Seattle-Tacoma-Bellevue, WA	61.99%	4.03	28	602	63	8.17	15	46	1.35	820	-3.1	3.24	28
St. Louis, MO-IL	71.37%	8.38	3	395	106	4.13	32	36	1.24	647	6.2	4.63	17
Tampa-St. Petersburg-Clearwater, FL	70.78%	8.11	5	610	67	8.20	14	42	1.31	742	-0.7	3.89	22
Virginia Beach-Norfolk-Newport News, VA-NC	62.98%	4.49	24	595	15	9.14	6	28	1.21	501	21.6	4.83	15
Akron, OH	70.46%	7.96	(5-6)	557	3	8.99	(8)	12	1.09	219	-13.8	10.00	(1)
Canton-Massillon, OH	72.94%	9.11	(1-2)	605	N/A	9.67	(2-3)	n/a	n/a	n/a	n/a	n/a	n/a
Youngstown, OH	73.94%	9.57	(1-2)	551	15	8.53	(12)	n/a	n/a	n/a	n/a	n/a	n/a

* Water Quality is measured as number of violations of the Maximum Contaminant Level during 1991-2002

Table B3. Environment and Lifestyle Indicators: Environment & Lifestyle and Crime

Metropolitan Statistical Area (in alphabetical order)	Recreation and Leisure						Crime			
	Employment in Arts & Recreation per 100,000 Population, 2001	Number of Establishments in Arts & Recreation per 100,000 Population, 2001	Employment in Restaurants per 100,000 Population, 2001	Number of Establishments in Restaurants per 100,000 Population, 2001	Recreation and Leisure		Violent Crime Rate	Property Crime Rate	Crime	
					Scaled	Rank			Scaled	Rank
Austin-Round Rock, TX	565	32.6	1774	66.3	3.98	16	370.6	4,391.0	8.14	9
Buffalo-Cheektowaga-Tonawanda, NY	538	33.5	1430	70.4	3.43	26	477.5	3,035.2	9.02	4
Charlotte-Gastonia-Concord, NC-SC	785	36.4	1701	76.4	4.89	9	961.6	4,322.6	6.05	24
Cincinnati-Middletown, OH-KY-IN	739	32.8	1850	63.2	4.39	11	431.7	4,109.8	8.18	8
Cleveland-Lorain-Elyria, OH	**676**	**32.7**	**1472**	**62.4**	**3.45**	**24**	**493.5**	**2,623.8**	**9.35**	**2**
Columbus, OH	578	32.6	1866	60.6	3.97	17	509.3	5,724.2	6.38	21
Denver-Aurora, CO	755	35.6	2017	77.0	5.44	6	386.2	4,434.9	8.04	12
Grand Rapids-Wyoming, MI	424	32.5	1659	57.4	3.11	28	447.3	3,313.2	8.87	7
Greensboro-High Point, NC	532	38.5	1593	74.4	4.19	12	448.9	4,487.6	7.76	15
Indianapolis, IN	753	36.0	1632	58.4	3.98	15	727.0	3616.7	7.56	18
Jacksonville, FL	534	29.5	1450	62.7	2.93	29	837.1	4984.5	5.88	27
Kansas City, MO-KS	640	31.4	1621	63.1	3.63	20	778.0	4984.7	6.09	22
Las Vegas-Paradise, NV	1562	47.0	1511	50.5	5.77	3	678.9	4132.3	7.26	20
Louisville, KY-IN	711	36.5	1630	58.3	3.92	18	511.1	4185.5	7.82	14
Memphis, TN-MS-AR	563	19.4	1273	48.7	1.52	32	1728.5	6727.5	1.00	33
Milwaukee-Waukesha-West Allis, WI	663	33.6	1463	62.1	3.45	25	658.5	4136.2	7.33	19
Minneapolis-St. Paul-Bloomington, MN-WI	967	44.2	1832	60.2	5.38	7	332.0	3694.1	8.93	5
Nashville-Davidson-Murfreesboro, TN	607	66.1	1645	64.2	5.69	5	927.1	4633.4	5.88	26
Oklahoma City, OK	480	28.7	1654	71.1	3.50	21	543.4	5923.2	6.07	23
Orlando, FL	2829	40.4	2115	70.2	10.00	1	816.7	4893.2	6.04	25
Phoenix-Mesa-Scottsdale, AZ	679	26.0	1621	56.2	3.13	27	572.1	6274.5	5.64	29
Pittsburgh, PA	560	30.5	1386	57.9	2.73	30	371.0	2401.0	10.00	1
Portland-Vancouver-Beaverton, OR-WA	572	34.8	1541	76.4	4.02	14	372.3	4723.1	7.82	13
Providence-New Bedford-Fall River, RI-MA	515	40.4	1537	82.8	4.47	10	350.1	3309.0	9.22	3
Richmond, VA	667	33.8	1469	70.8	3.81	19	445.6	4102.7	8.13	10
Riverside-San Bernardino-Ontario, CA	698	19.1	973	44.1	1.00	33	577.8	3658.7	8.07	11
Sacramento-Arden-Arcade-Roseville, CA	752	27.5	1434	68.6	3.46	23	541.7	4288.5	7.61	17
San Antonio, TX	628	25.0	1368	62.4	2.69	31	676.9	6098.4	5.42	31
San Diego-Carlsbad-San Marcos, CA	997	29.5	1496	64.3	4.05	13	480.9	3130.9	8.92	6
Seattle-Tacoma-Bellevue, WA	1031	39.5	1637	83.3	5.71	4	353.3	4866.1	7.75	16
St. Louis, MO-IL	863	45.0	2024	70.0	5.97	2	901.5	5211.7	5.43	30
Tampa-St. Petersburg-Clearwater, FL	1363	31.6	1493	66.7	5.03	8	888.2	5011.1	5.67	28
Virginia Beach-Norfolk-Newport News, VA-NC	618	29.7	1450	71.9	3.47	22	864.8	5595.9	5.21	32
Akron, OH	585	35.5	1748	63.1	4.42	(10-11)	319.7	3,717.6	8.67	(7-8)
Canton-Massillon, OH	589	34.2	1686	65.7	4.05	(13-14)	394.6	3,505.6	8.68	(7-8)
Youngstown, OH	361	33.9	1455	58.4	2.70	(29-30)	519.9	3502.9	8.30	(8-9)

Table B4. Education and Health

Metropolitan Statistical Area (in alphabetical order)	Quality of Schools				Health Insurance Coverage				Healthcare Accessibility			
	Total Per-Pupil Expenditures, 2002	Pupil/Teacher Ratio, 2002-2003	Quality of Schools		Percent of Households with Health Insurance Coverage, 2001	Percent Change of Households with Health Insurance Coverage, 2001-2003	Health Insurance Coverage		Employment in Ambulatory Healthcare and Hospitals per 100,000 Population*	Number of Establishments in Healthcare and Hospitals per 100,000 Population*	Healthcare Accessibility	
			Scaled	Rank			Scaled	Rank			Scaled	Rank
ustin-Round Rock, TX	$6,876	14.5	5.23	11	80.01%	-3.79%	3.30	28	2,980	154	4.54	26
uffalo-Cheektowaga-Tonawanda, NY	$10,387	13.8	10.00	1	83.46%	-2.12%	6.33	12	3,958	179	7.50	7
harlotte-Gastonia-Concord, NC-SC	$6,591	15.8	4.36	19	83.48%	-5.11%	4.39	20	3,284	120	3.19	31
incinnati-Middletown, OH-KY-IN	$7,219	16.3	4.97	14	82.18%	0.27%	7.17	7	3,773	147	5.46	20
leveland-Lorain-Elyria, OH	**$8,643**	**15.2**	**7.22**	**4**	**81.05%**	**1.10%**	**7.07**	**8**	**4,581**	**179**	**8.47**	**3**
olumbus, OH	$7,903	16.2	5.89	8	88.42%	-9.25%	4.49	19	3,550	155	5.53	19
enver-Aurora, CO	$7,041	17.4	4.32	20	81.39%	2.35%	8.07	6	3,174	173	5.88	15
rand Rapids-Wyoming, MI	$7,912	19.5	4.61	16	87.49%	-0.99%	9.35	2	3,556	144	4.92	23
reensboro-High Point, NC	$6,444	14.8	4.56	18	82.48%	-2.32%	5.65	14	3,052	137	3.72	29
ndianapolis, IN	$7,464	17.1	4.97	13	83.64%	-2.52%	6.17	13	4,468	154	6.97	10
acksonville, FL	$5,650	18.6	2.07	31	78.13%	-5.70%	1.00	33	3,394	166	5.85	17
ansas City, MO-KS	$7,079	14.8	5.37	9	84.51%	0.24%	8.46	3	3,786	156	5.95	14
as Vegas-Paradise, NV	$5,799	20.3	1.60	32	76.25%	-0.13%	3.56	27	2,318	146	3.08	32
ouisville, KY-IN	$7,362	17.7	4.61	17	87.93%	-3.16%	8.18	5	4,001	169	7.00	9
lemphis, TN-MS-AR	$6,043	19.2	2.34	30	80.62%	-6.14%	2.11	30	3,716	145	5.23	21
lilwaukee-Waukesha-West Allis, WI	$9,101	15.7	7.61	3	84.12%	0.15%	8.19	4	4,647	176	8.43	4
linneapolis-St. Paul-Bloomington, MN-WI	$7,689	17.3	5.18	12	90.30%	-2.42%	10.00	1	3,836	133	4.79	24
lashville-Davidson-Murfreesboro, TN	$6,162	15.3	4.01	21	83.68%	-3.73%	5.41	16	4,570	174	8.19	6
klahoma City, OK	$5,880	16.4	3.22	24	72.36%	4.15%	4.16	21	3,937	204	8.78	2
rlando, FL	$5,784	17.1	2.82	27	81.34%	-4.42%	3.65	25	3,132	174	5.86	16
hoenix-Mesa-Scottsdale, AZ	$5,363	20.4	1.00	33	80.95%	-3.33%	4.13	22	2,511	156	3.93	27
ittsburgh, PA	$8,133	15.5	6.45	5	85.19%	-2.82%	6.86	11	4,591	207	10.00	1
ortland-Vancouver-Beaverton, OR-WA	$6,920	21.0	2.76	28	83.31%	-5.44%	4.09	23	2,802	163	4.76	25
rovidence-New Bedford-Fall River, RI-MA	$9,025	14.4	8.02	2	78.97%	-6.31%	1.07	32	3,780	163	6.35	12
ichmond, VA	$6,983	12.6	6.11	6	78.64%	-1.78%	3.83	24	3,807	152	5.79	18
iverside-San Bernardino-Ontario, CA	$6,966	22.0	2.43	29	71.25%	0.45%	1.12	31	2,065	116	1.00	33
acramento-Arden-Arcade-Roseville, CA	$7,188	20.7	3.22	23	77.43%	4.14%	7.01	9	2,605	151	3.80	28
an Antonio, TX	$6,723	14.9	4.88	15	67.09%	7.29%	3.23	29	3,534	166	6.08	13
an Diego-Carlsbad-San Marcos, CA	$7,485	20.8	3.56	22	77.70%	1.18%	5.23	18	2,730	173	5.21	22
eattle-Tacoma-Bellevue, WA	$6,844	20.3	2.94	26	85.59%	-5.29%	5.47	15	3,454	181	6.78	11
t. Louis, MO-IL	$7,141	15.1	5.34	10	88.09%	-5.17%	6.96	10	4,013	170	7.06	8
ampa-St. Petersburg-Clearwater, FL	$6,011	17.1	3.11	25	73.88%	2.02%	3.62	26	3,535	205	8.24	5
irginia Beach-Norfolk-Newport News, VA-NC	$7,020	13.2	5.92	7	70.00%	8.10%	5.40	17	2,990	133	3.43	30
kron, OH	$7,771	15.0	6.10	(6-7)	78.98%	2.27%	6.35	(11-12)	3,661	163	6.12	(12-13
anton-Massillon, OH	$6,989	16.2	4.64	(15-16)	80.08%	4.29%	8.11	(5-6)	3,872	167	6.68	(11-12
oungstown, OH	$7,381	15.8	5.30	(10-11)	78.73%	3.51%	6.91	(10-11)	3,852	215	9.26	(1-2)

001 % of Households (or population) that have Health Insurance
Employment and Number of Establishments in Ambulatory Care Services and Hospitals are measured by NAICS 621, 622

APPENDIX C:
MEASURES OF MOBILITY AND TRAFFIC CONGESTION

The 2004 Urban Mobility Report's methodology recommends using two measures of "intensity" and one measure of "magnitude" to describe and interpret mobility of traffic conditions in an urban area. This report uses the following measures:

- Travel Time Index (TTI) – the ratio of peak period travel to free-flow travel time. The TTI shows what extra time is needed to travel in the peak relative to free-flow travel. For example, a TTI of 1.3 indicates that a 10-minute free-flow trip will take 13 minutes during the peak travel period, a 3-minute (60%) travel time penalty.

- Delay per Traveler (DPT) – the hours of extra travel time divided by the number of urban area peak period travelers. This measure indicates the sum of all the extra travel time that would occur during the year for the average traveler. All urban travelers represent the comparison group to better relate the delay statistics to those affected on the roads.

- Cost of Congestion (COC) – the value of the extra time and fuel that is consumed during congested travel. The value of time is estimated for passenger vehicles and trucks and fuel costs are the per-gallon average price for each state. The value of a person's time is derived from the perspective of the individual's value of her or his time.

- Change in Congestion (CIC) –congestion trend. Trends in congestion are important as they indicate whether the right amount of improvement is being funded.

More information on travel mobility and traffic congestion measures can be found at htti://tti.tamu.edu

APPENDIX D:

DESCRIPTION OF INDUSTRIES USED TO CALCULATE INDICATORS OF RECREATION AND LEISURE AND HEALTHCARE ACCESSIBILITY

Recreation and Leisure

NAICS 711 – Performing Arts, Spectator Sports, and Related Industries.

This industry includes establishments that produce or organize and promote live presentations involving the performances of actors and actresses, singers, dancers, musical groups and artists, athletes, and other entertainers, including independent (i.e., freelance) entertainers and the establishments that manage their careers.

NAICS 712 – Museums, Historical Sites, and Similar Institutions

Industries in this sub-sector are engaged in the preservation and exhibition of objects, sites, and natural wonders of historical, cultural, and/or educational value. Besides museums and historical sites, it includes zoos, botanical gardens, and nature parks.

NAICS 713 – Amusement, Gambling, and Recreation Industries

These industries (1) operate facilities where patrons can primarily engage in sports, recreation, amusement, or gambling activities and/or (2) provide other amusement and recreation services, such as supplying and servicing amusement devices in places operated by others; operating sport teams, clubs, or leagues engaged in playing games for recreation purposes; and guiding tours without using transportation equipment.

Restaurants

NAICS 7221 – Full-Service Restaurants

This industry group comprises establishments primarily engaged in providing food services to patrons who order and are served while seated (i.e., waiter/waitress service) and pay after eating. Establishments that provide these types of food services to patrons with any combination of other services, such as carryout services, are classified in this industry.

Health Care

NAICS 621 – Ambulatory Healthcare Services

Industries in the Ambulatory Healthcare Services sub-sector provide healthcare services directly or indirectly to ambulatory patients and do not usually provide inpatient services. Health practitioners in this sub-sector provide outpatient services, with the facilities and equipment not usually being the most significant part of the production process. This sub-sector includes Offices of Physicians, Offices of Dentists, Offices of Other Health Practitioners, and Outpatient Care Centers.

NAICS 622 – Hospitals

Industries in the Hospitals sub-sector provide medical, diagnostic, and treatment services that include physician, nursing, and other health services to inpatients and the specialized accommodation services required by inpatients. This sub-sector includes General Medical and Surgical Hospitals, Psychiatric and Substance Abuse Hospitals, and Specialty (except Psychiatric and Substance Abuse) Hospitals.