

VI. COMPARATIVE PERSPECTIVE ON NASHVILLE'S HEALTH CARE INDICATORS

VI.1. Employment Growth and Export Potential

Indicators of health care employment suggest that the Nashville MSA has a strong health care industry presence compared to its peer MSAs. Health care employment per capita is the largest among the peers with 59 employees per 1,000 people. Similarly, employment share of the health care sector is the largest among the peers with 12.16 percent in 2008. Finally, in terms of growth of health care employment from 2004, all MSAs show a positive growth trend: the Nashville MSA ranks sixth with 15.05 percent.

Comparative perspective on selected health care indicators

	Export Potential*		Health Care Employment		
	Health care export capacity (LQ)	% Change in export capacity (2004-2008)	Health care employment per capita	Health care employment share (%)	Health care employment growth (%)
Atlanta	0.74	1.37	39	8.59	16.11
Birmingham	0.98	-4.00	50	11.26	6.07
Charlotte	0.67	1.86	39	7.76	21.68
Columbus	0.90	0.11	55	9.70	9.88
Dallas	0.82	0.26	44	9.40	18.19
Denver	0.79	-0.79	40	9.07	13.93
Indianapolis	0.94	1.52	58	10.83	13.14
Jacksonville	0.96	-5.92	53	11.13	8.13
Kansas City	0.90	1.16	52	10.43	13.63
Louisville	1.00	-3.60	57	11.49	6.89
Nashville	1.05	1.14	59	12.16	15.05
Raleigh	0.83	-3.58	46	9.59	19.90
Richmond	0.96	15.51	57	11.12	29.10

*A score greater than "1" indicates that MSA is exporting health care services. A score less than "1" indicates that health care services are primarily used by area residents.

Source: Bureau of Labor Statistics and BERC estimates



Furthermore, the Nashville MSA's health care industry overall has the best export potential among 13 comparable MSAs. A score greater than one "1" ($LQ > 1$) suggests that an MSA is exporting health care services; that is, residents from other areas are traveling to the region to use its health care services. The Nashville MSA performed better than its peer MSAs in 2008 and also showed a positive growth trend with a 1.14 percent increase from 2004.

VI.2. Health Care Industry Cluster Headquarters and Global Impact

Nashville ranks first among the 13 MSAs in terms of number of major health care industry cluster management companies (both public and private), their revenues, and their employment.

Nashville's global impact is quite substantial with more than 400,000 jobs and \$62 billion in annual business revenues generated by investor-owned health care management companies.

Comparative Perspective on Health Care Cluster Headquarters* (Public and Private)

MSAs	Number of Cluster Headquarters	Total Global Employment ('000)	Total Revenues (2009 Billion \$)	Composite Score	Rank
Nashville	56	400.78	\$62.58	0.87	1
Dallas	99	210.53	\$31.42	0.79	2
Indianapolis	36	134.13	\$100.55	0.69	3
Columbus	45	78.33	\$108.56	0.68	4
Atlanta	60	120.21	\$9.74	0.58	5
Denver	37	73.25	\$11.74	0.41	6
Louisville	27	89.39	\$12.89	0.38	7
Richmond	24	22.93	\$18.84	0.31	8
Kansas City	26	24.22	\$4.99	0.28	9
Birmingham	23	34.14	\$5.00	0.27	10
Charlotte	25	24.45	\$2.58	0.26	11
Jacksonville	15	24.77	\$4.43	0.23	12
Raleigh	14	13.92	\$1.85	0.21	13

Notes: * Companies with greater than \$500,000 in annual revenue and 100 employees. List includes health care industry cluster companies defined throughout this study. Two sources are used for this profile: LexisNexis Academic Universe and ReferenceUSA.com. Composite score includes relative rankings of each MSA with regard to (1) the number of headquarter companies, (2) their total revenues, and (3) their total number of employees.



VI.3. Health Care Occupations

Nashville ranks second among the 13 MSAs in terms of percent of health care occupations among all occupations. Nashville ranks fourth among 13 MSAs in health care occupations per 1,000 people.

Health Care Practitioners and Support Occupations			
MSAs	Total	Health Care Occupations as Percent in Total	Health Care Occupations Per Capita
Atlanta	141,500	5.88	26
Birmingham	48,870	9.44	44
Charlotte	58,360	6.64	34
Columbus	78,430	8.42	44
Dallas	193,480	6.49	31
Denver	82,040	6.54	33
Indianapolis	75,810	8.38	44
Jacksonville	46,470	7.67	35
Kansas City	80,920	7.97	40
Louisville	51,640	8.36	41
Nashville	65,140	8.42	42
Raleigh	37,240	7.22	34
Richmond	49,470	8.05	40

Note: Health care occupations per 1,000 people. Average wage represents the average wage for health care practitioners and support occupations.

Source: Bureau of Labor Statistics (www.bls.gov)





VI.4. Venture Capital Flow

Tennessee ranks fourth among 12 states in terms of venture capital flow in medical devices, equipment, health services, and biotechnology. In Tennessee, the total value of venture capital in these industry fields between 1998 and 2009 was about \$1 billion. Due to data availability, state-level figures are used. However, the major MSAs in these states are the primary recipients of these capital flows.

Venture Capital Flow by State between 1998 and 2009* in Medical Devices and Equipment, Health Services, and Biotechnology (Million \$)

MSAs	1998-2003	2004-2009	1998-2009	Rank**
Tennessee (Nashville)	\$673.5	\$314.6	\$988.1	4
Alabama (Birmingham)	\$74.3	\$42.5	\$116.8	12
Colorado (Denver)	\$629.8	\$939.9	\$1,569.7	3
Florida (Jacksonville)	\$358.7	\$483.0	\$841.7	6
Georgia (Atlanta)	\$460.8	\$431.9	\$892.7	5
Indiana (Indianapolis)	\$55.0	\$268.5	\$323.4	9
Kentucky (Louisville)	\$68.4	\$93.1	\$161.5	11
Missouri (Kansas City)	\$177.6	\$105.3	\$282.9	10
North Carolina (Charlotte & Raleigh)	\$1,275.8	\$1,430.6	\$2,706.5	1
Ohio (Columbus)	\$253.5	\$337.9	\$591.4	8
Texas (Dallas)	\$965.2	\$885.6	\$1,850.7	2
Virginia (Richmond)	\$395.5	\$222.4	\$617.9	7
U.S. Total	\$32,492.7	\$44,261.3	\$76,754.0	

Source: PricewaterhouseCoopers/Venture Economics/National Venture Capital Association Money Tree Survey

Notes: *Data reflect the venture capital flow in the following sectors: (1) medical devices and equipment, (2) health services, and (3) biotechnology.

**Ranking is based on the cumulative value (1998-2009).



Venture Capital by Sectoral Breakdown

Total value of venture capital in Tennessee between 1998 and 2009 was \$283 million in medical equipment, \$578 million in health services, and \$127 million in biotechnology. Tennessee's share of venture capital in health services in U.S. health services venture capital was 9.10 percent. Much of this amount flowed to the Nashville MSA. This assigns a clear leadership position to Nashville in access to funding for health care services companies.

Venture Capital Flow by State between 1998 and 2009 (Million \$)

MSAs	Medical Equipment	Health Services	Biotechnology
Tennessee (Nashville)	\$282.93	\$578.17	\$126.97
Alabama (Birmingham)	\$65.05	\$23.86	\$27.84
Colorado (Denver)	\$382.59	\$126.28	\$1,060.82
Florida (Jacksonville)	\$307.60	\$237.39	\$296.76
Georgia (Atlanta)	\$415.11	\$169.00	\$308.59
Indiana (Indianapolis)	\$42.15	\$124.25	\$157.02
Kentucky (Louisville)	\$19.11	\$52.43	\$89.93
Missouri (Kansas City)	\$160.78	\$27.20	\$94.93
North Carolina (Charlotte & Raleigh)	\$642.07	\$239.40	\$1,825.00
Ohio (Columbus)	\$369.04	\$18.77	\$203.55
Texas (Dallas)	\$634.30	\$469.67	\$746.75
Virginia (Richmond)	\$170.93	\$290.33	\$156.65
U.S. Total	\$26,636.97	\$6,350.42	\$43,766.57
	Medical Equipment	Health Services	Biotechnology
	% in U.S. Total	% in U.S. Total	% in U.S. Total
Tennessee (Nashville)	1.06	9.10	0.29
Alabama (Birmingham)	0.24	0.38	0.06
Colorado (Denver)	1.44	1.99	2.42
Florida (Jacksonville)	1.15	3.74	0.68
Georgia (Atlanta)	1.56	2.66	0.71
Indiana (Indianapolis)	0.16	1.96	0.36
Kentucky (Louisville)	0.07	0.83	0.21
Missouri (Kansas City)	0.60	0.43	0.22
North Carolina (Charlotte & Raleigh)	2.41	3.77	4.17
Ohio (Columbus)	1.39	0.30	0.47
Texas (Dallas)	2.38	7.40	1.71
Virginia (Richmond)	0.64	4.57	0.36

Source: PricewaterhouseCoopers/Venture Economics/National Venture Capital Association MoneyTree(tm) Survey, and BERC estimates



VI. Where does the Nashville MSA stand relative to its peers?

There are many studies for both academic and public policy purposes that analyze quality of life, business climate, infrastructure, and socioeconomic productivity across cities. While many of these studies are comprehensive in terms of their use of indicators and coverage area, some focus on a single issue, such as education.¹ The rankings serve many purposes: business groups use them as a marketing tool, policymakers address the deficiencies in their respective regions, and individuals and businesses make their relocation decisions based on these rankings. From these perspectives, the rankings play an important role in understanding socioeconomic dynamics across regions.

A glance at various rankings demonstrates that Nashville is in the top 10 among comparable MSAs in terms of infrastructure and human capital.² Most recently, Tennessee has been ranked the 13th most business tax friendly state in 2010. Furthermore, Franklin, Tennessee, is ranked among the best city for startup companies.³ Along similar lines, this study provides rankings of 13 comparable MSAs in the area of health care services. This study uses two categories of ranking: health care business climate and health care infrastructure. For ranking purposes, BERC identified 14 indicators for the health care business climate and 21 for health care infrastructure.

Selection of indicators was affected by (1) availability of reliable data across peer MSAs and (2) literature on business climate and infrastructure indicators. Before rankings, each indicator was converted to a unitless relative score bounded between zero and one [0, 1]. These relative scores were then averaged across indicators for each MSA within the given category (business climate or infrastructure).

BERC's final rankings are based on two fundamental assumptions: (1) each indicator contributes equally to the final score for a given category (no weights are assigned to the indicators), and (2) each indicator's contribution to a given category is linear.

¹ For a review of literature on different aspects of city rankings, see Fred Carstensen et al. (2001), *The Second MetroHartford Regional Performance Benchmark*, Connecticut Center for Economic Analysis, University of Connecticut, Storrs, CT.

² See Carstensen et al. (2001). These rankings are based on 56 comparable MSAs in the U.S.

³ For a list of rankings, see Nashville Area Chamber of Commerce at www.nashvillechamber.com.



VI.1. Health Care Business Climate Indicators

The health care business climate in Nashville is substantially better than in the 12 other MSAs.

Health Care Business Climate Indicators	Atlanta	Birmingham	Charlotte	Columbus	Dallas	Denver	Indianapolis	Jacksonville	Kansas City	Louisville	Nashville	Raleigh	Richmond
Health care employment share (% , 2008)	8.59	11.26	7.76	9.7	9.4	9.07	10.83	11.13	10.43	11.49	12.16	9.59	11.12
Health care employment per 1,000 people (2008)	39	50	39	55	44	40	58	53	52	57	59	46	57
Health care pay (average \$, 2008)	\$57,443	\$47,654	\$53,279	\$54,337	\$55,709	\$59,163	\$55,009	\$51,353	\$53,411	\$50,784	\$51,731	\$52,234	\$52,932
Health care occupations (% , 2008)	5.88	9.44	6.64	8.42	6.49	6.54	8.38	7.67	7.97	8.36	8.42	7.22	8.05
Health care occupations per 1,000 people (2008)	26	44	34	44	31	33	44	35	40	41	42	34	40
Total private health care cluster headquarters' employment ('000)	107.02	12.03	19.98	44.01	155.70	19.15	44.94	21.09	15.54	38.41	255.98	13.52	11.47
Total private health care cluster headquarters' revenue (billion \$)	\$7.49	\$2.93	\$1.45	\$5.85	\$17.79	\$2.14	\$12.22	\$2.48	\$2.84	\$6.11	\$36.47	\$1.51	\$1.73
Number of private health care cluster headquarters (2009)	49	20	20	37	81	23	31	14	22	22	39	10	20
Total public health care cluster headquarters' employment ('000)	13.19	22.11	4.47	34.32	54.84	54.09	89.19	3.68	8.68	50.98	144.81	0.40	11.46
Total public health care cluster headquarters' revenue (billion \$)	\$2.25	\$2.06	\$1.12	\$102.72	\$13.63	\$9.61	\$88.34	\$1.95	\$2.15	\$6.78	\$26.11	\$0.34	\$17.12
Number of public health care cluster headquarters (2009)	11	3	5	8	18	14	5	1	4	5	17	4	4
Health care export capacity (LQ, 2008)	0.74	0.98	0.67	0.9	0.82	0.79	0.94	0.96	0.9	1	1.05	0.83	0.96
Change in export capacity (2004-2008)	1.37	-4	1.86	0.11	0.26	-0.79	1.52	-5.92	1.16	-3.6	1.14	-3.58	15.51
Health care employment growth (% , 2004-2008)	16.11	6.07	21.68	9.88	18.19	13.93	13.14	8.13	13.63	6.89	15.05	19.9	29.1



VIII.2. Health Care Infrastructure Indicators

Nashville's performance is better than the average of the 13 MSAs in health care cost, venture capital in health services, medical devices and equipment, and a number of four-year colleges. Venture capital indicators are state-level indicators. However, a substantial portion of these funds flow to the major MSAs in their respective states.

Health Care Infrastructure Indicators	Atlanta	Birmingham	Charlotte	Columbus	Dallas	Denver	Indianapolis	Jacksonville	Kansas City	Louisville	Nashville	Raleigh	Richmond
Cost per dental visit (\$, 2006)	\$74	78	76	84	78	74	62	67	63	69	59	75	76
Percent of 108 hospital services available (2006)	96.30	96.30	93.52	97.22	96.30	99.07	95.37	86.11	100.00	95.37	94.44	84.26	97.22
Health care cost index (U.S. = 100, 2006)	104.4	91.4	101	96.6	107.5	125.3	99.7	88.3	96	90.2	82.7	104.3	89.5
Cost per doctor visit (\$, 2006)	\$80	61	79	69	88	82	69	63	71	73	71	66	70
Hospital beds per 100,000 people (2006)	242.6	537.4	268.6	310.1	256.7	236.1	357	353.5	400.8	435.8	419.7	269.1	514.1
Number of 4-year colleges (2006)	32	9	13	17	19	28	11	12	29	12	19	6	10
Number of teaching hospitals (2006)	11	10	5	10	17	18	9	6	15	6	5	2	4
Per capita income (\$, 2006)	\$28,214	\$24,186	\$27,603	\$26,569	\$27,942	\$30,599	\$26,927	\$24,895	\$26,523	\$24,792	\$25,727	\$28,820	\$26,653
Physicians per 100,000 people	211	324.1	209.6	280.7	217.7	253	326	257.3	263.3	276.1	299.6	186.7	287.9
Unemployment rate (% , March 2009)	8.8	8.6	11.1	8	7.3	8.5	8.9	9	8.4	10.5	9.3	8.5	7.3
Venture capital in biotechnology--state level (% , 2004-09)	0.74	0.013	3.74	0.22	1.45	2.56	0.46	0.77	0.27	0.22	0.22	3.74	0.36
Venture deals in biotechnology--state level (% , 2004-09)	1.5	0.075	4.14	0.71	1.73	1.92	0.64	0.87	0.41	0.45	0.3	4.14	1.02
Venture capital growth in biotechnology (% , from 1998-2003)	67	-85.97	14.88	-60.25	3.1	69.74	209.96	106.39	181.96	209.96	-15.06	14.88	45.89
Venture capital in health services--state level (% , 2004-09)	0.18	0	6.42	0.61	3.97	2.09	6.48	5.22	0	2.01	8.17	6.42	2.55
Venture deals in health services--state level (% , 2004-09)	0.97	0	1.94	1.3	5.18	2.91	2.91	9.39	0	0.97	11	1.94	2.27
Venture capital growth in health services (% , from 1998-2003)	-98.19	-100	-16.89	20.32	-83.31	-61	484.57	-40.75	-100	653.95	-68.59	-16.89	-82.55
Venture capital in medical--state level (% , 2004-09)	1.43	0.237	2.1	1.64	2.66	1.44	0.24	1.18	0.21	0.02	0.72	2.1	0.52
Venture deals in medical--state level (% , 2004-09)	2.19	0.349	1.65	2.59	3.34	2.04	0.5	1.15	0.6	0.2	1.1	1.65	0.8
Venture capital growth in medical (% , from 1998-2003)	31.63	50.2	17.1	171.6	125.31	62.57	1037.1	72.75	-71.97	1783.6	-28.41	17.1	1.99
Economic diversity (2008)	0.9026	0.9014	0.9022	0.8938	0.9043	0.8999	0.9034	0.9018	0.9028	0.9048	0.9027	0.8921	0.8934
Change in diversity (2004-2008)	-0.18	-0.14	-0.29	-0.21	-0.18	-0.31	-0.15	0.27	-0.2	0.08	0.001	-0.06	-0.16



VI.3. Relative Rankings

In the health care business climate, the Nashville MSA ranks first among the 13 MSAs, while Indianapolis ranks second, Columbus third, and Richmond fourth. While Nashville maintained its ranking from a similar ranking in 2005, Louisville's ranking slipped from second to sixth. In health care infrastructure, similar to its ranking in 2005, Nashville ranks second after Indianapolis, followed by Dallas (third) and Jacksonville (fourth). Rankings of peer MSAs other than Nashville changed significantly in this category. Finally, in overall relative health care competitiveness, Nashville again tops the chart, while Indianapolis ranks second, Dallas third, Columbus fourth, and Richmond fifth. There is again a significant shift in ranking across peers.

MSAs	Climate Relative Rankings*		Health Care Infrastructure Relative Rankings**		Overall Rankings	
	Average Score***	Relative Rankings	Average Score***	Relative Rankings	Average Score***	Relative Rankings
Atlanta, GA	0.41	9	0.46	9	0.43	10
Birmingham, AL	0.42	8	0.40	13	0.41	11
Charlotte, NC	0.30	13	0.44	10	0.37	13
Columbus, OH	0.58	3	0.44	12	0.51	4
Dallas, TX	0.56	5	0.53	3	0.54	3
Denver, CO	0.39	10	0.52	5	0.45	8
Indianapolis, IN	0.67	2	0.57	1	0.62	2
Jacksonville, FL	0.35	11	0.52	4	0.44	9
Kansas City MO	0.44	7	0.50	6	0.47	7
Louisville, KY	0.50	6	0.50	7	0.50	6
Nashville, TN	0.78	1	0.54	2	0.66	1
Raleigh, NC	0.31	12	0.46	8	0.38	12
Richmond, VA	0.56	4	0.44	11	0.50	5

Notes: *Based on the linear combination of standardized scores of 14 indicators presented above.

**Based on the linear combination of standardized scores of 21 indicators presented above.

***The BEREC assumes that each indicator contributes to the average score equally. The selected indicators are closely related to health care business environment and infrastructure. The data availability and timeliness were two key criteria used in the data selection process.

