

**Manufacturing in Louisville
and Its Peer Metropolitan Areas:
Results from the 2002 Economic Census**

a report for

Greater Louisville, Inc.



by

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EXECUTIVE SUMMARY

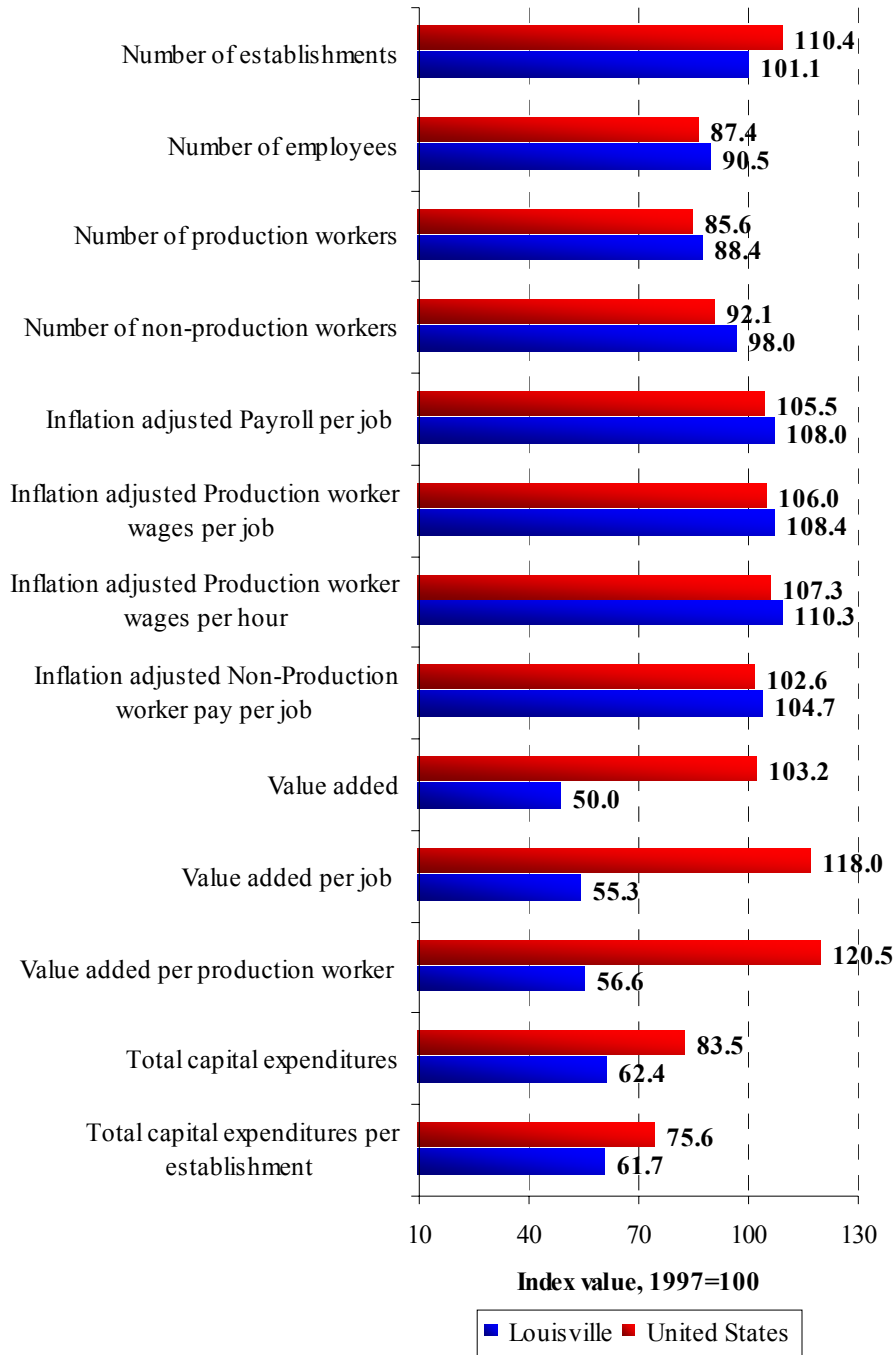
This report summarizes the results of the 2002 Economic Census for Louisville and its fifteen competitor peer metropolitan areas. The Economic Census provides a detailed portrait of the nation's economy once every five years, from the national to the local level. Census forms are mailed to more than 5 million companies. There are over 600 versions of the census form, each customized to particular industries. Only some very small companies do not receive a census form. The Economic Census provides the best snapshot we have of the various industries making up the economy, and since all measurements utilize a single standard nationwide it is the easiest and most consistent way to compare the industrial composition of disparate localities. The set of competitor peer metropolitan areas for Louisville was constructed with the input of business and government leaders and we have used the concept in numerous previous reports on multiple topics.

In general, following the national trend, the manufacturing sector in the Louisville metropolitan area contracted from 1997 to 2002. The chart on the next page compares Louisville to the national situation in terms of some key indicators of industry performance. While Louisville underperformed the national average in terms of the number of manufacturing establishments, the Louisville region suffered a smaller loss of jobs and saw real wages rise at a greater rate than the national average for both production and non-production workers. On the other hand, the reported value added of the Louisville manufacturing sector was just half that reported in 1997, while the value added for the nation increased a small bit. While capital expenditures were off by 16.5 percent nationally, in Louisville they decreased an extra 20 percent. It must be said, however, that much of the decrease in value added may be due to a data input error and capital expenditures are very lumpy from year to year.

The Louisville thirteen county metropolitan area had about 83,300 manufacturing jobs in 2002. This was a drop of nearly ten percent from the 92,000 jobs reported in the 1997 Economic Census for those same counties. Half of the manufacturing employment is in four of the 21 manufacturing subsectors; transportation equipment (20.9%), fabricated metal products (12.4%), food (8.9%), and printing and related support activities (7.7%).

With respect to its peer group of metro areas, Louisville most often ranks among the pack in the middle. In general, Louisville is most like the peer metro areas that are closest to it geographically (Cincinnati, Indianapolis, Nashville, Dayton, Columbus, with the addition of Kansas City), and most unlike Greensboro, Raleigh-Durham, and Richmond.

Manufacturing in the Louisville MSA Compared to the United States Change from 1997 to 2002 (1997=100)



NOTE ON GEOGRAPHY AND MSA DEFINITION CHANGES

In December 2003 the United States Office of Management and Budget instituted a revised classification system for MSAs, which now includes micropolitan areas as well as metropolitan areas. Each metropolitan statistical area must have at least one urbanized area of 50,000 or more inhabitants. Each micropolitan statistical area must have at least one urban cluster of at least 10,000 but less than 50,000 population. Counties are the building blocks of the statistical areas, with additional “outlying counties” included in the metro or micro area if they meet specified requirements of commuting to or from the central counties. The new definitions also utilized 2000 Census population and commuting data.

In practice this meant that in many cases one or more outlying counties were dropped from a metro area definition while one or more others were added. Sometimes a dropped county became a new micropolitan area. In a few cases a metro area was split up into two or more metro areas or a combination of metro and micro areas.

Metropolitan Area Definition Reconciliation, 1997 to 2002

<u>1997 Definition</u>	<u>2002 Definition</u>
Birmingham, AL MSA	Birmingham-Hoover, AL MetroSA
Charlotte-Gastonia-Rock Hill, NC-SC MSA	Charlotte-Gastonia-Concord, NC-SC MetroSA Lincolnton, NC MicroSA Salisbury, NC MicroSA
Cincinnati, OH-KY-IN PMSA	Cincinnati-Middletown, OH-KY-IN MetroSA
Columbus, OH MSA	Columbus, OH MetroSA
Dayton-Springfield, OH MSA	Dayton, OH MetroSA Springfield, OH MetroSA
Greensboro-Winston Salem-High Point, NC MSA	Greensboro-High Point, NC MetroSA Winston-Salem, NC MetroSA Burlington, NC MetroSA Lexington-Thomasville, NC MicroSA
Indianapolis, IN MSA	Indianapolis, IN MetroSA Anderson, IN MetroSA
Jacksonville, FL MSA	Jacksonville, FL MetroSA
Kansas City, MO-KS MSA	Kansas City, MO-KS MetroSA
Lexington, KY MSA	Lexington-Fayette, KY MetroSA Richmond, KY MicroSA
Louisville, KY-IN MSA	Louisville, KY-IN MetroSA Scottsburg, IN MicroSA
Memphis, TN-MS-AR MSA	Memphis, TN-MS-AR MetroSA
Nashville, TN MSA	Nashville-Davidson-Murfreesboro, TN MetroSA
Omaha, NE MSA	Omaha-Council Bluffs, NE-IA MetroSA
Raleigh-Durham-Chapel Hill, NC MSA	Raleigh-Cary, NC MetroSA Durham, NC MetroSA
Richmond-Petersburg, VA MSA	Richmond, VA MetroSA

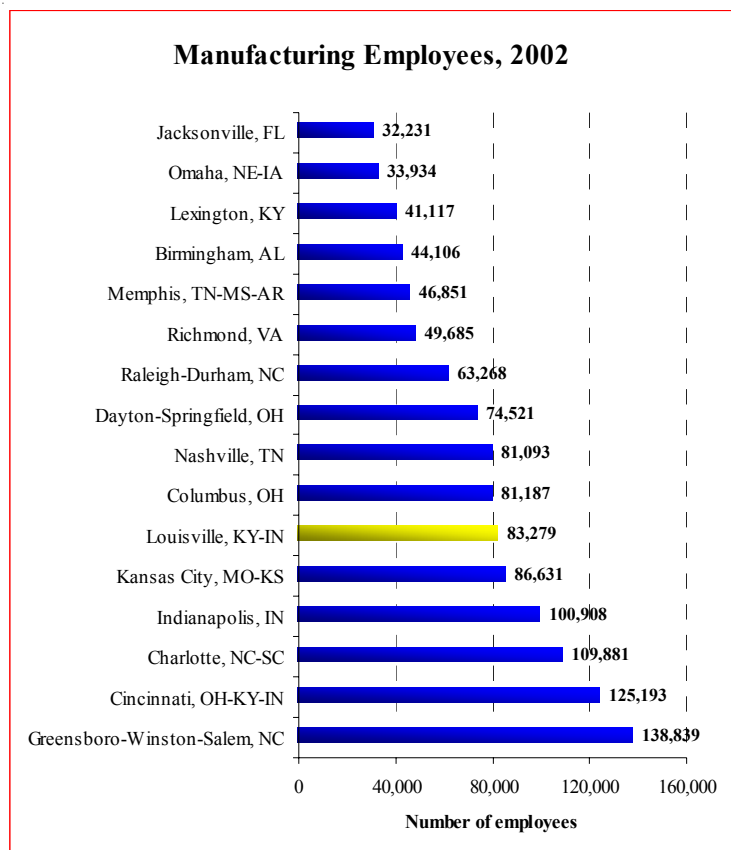
Among Louisville and its peer metros this created significant disjunction between the 1997 and 2002 Economic Census area definitions for Charlotte, Dayton, Greensboro-High Point, Indianapolis, Lexington, Louisville, and Raleigh-Durham. In order to facilitate more accurate historical comparison we adjusted the 2002 data to make sure that every county in the 1997 area definitions was included in this analysis. This usually involved adding micropolitan data to a metropolitan area. The table shows how we reconciled the different metro definitions. The figures reported in this analysis for each metro area include data from every county in the 1997 metro definition. There may, however, be additional counties included that were not part of the 1997 metro definition. These extra counties are on the fringes of each metro area, so they most likely do not contribute very many manufacturing jobs. While the 1997 and 2002 manufacturing information should now be aligned in a fairly unbiased way to facilitate comparison, the extra outlying counties can add to the 2002 population figures to such a degree that population-based historical comparisons should be taken with a grain of salt.

It should be noted that if any metro area benefits in the comparisons from the addition of extra outlying counties it is Louisville, which added seven counties, including Shelby County.

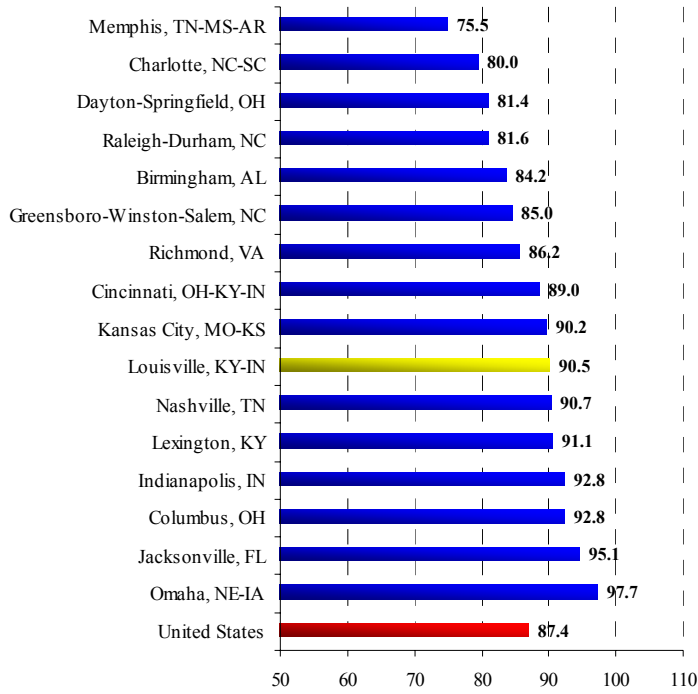
EMPLOYMENT & EMPLOYMENT CHANGE 97-02

The Louisville MSA had 83,279 manufacturing employees in 2002, a 9.5 percent decrease from 1997. In the overall manufacturing employment data we have adjusted the 1997 totals to include all the additional counties added to the MSA definitions in 2002.

Of the 16 peers, Louisville has the sixth most manufacturing employees. Cincinnati and Greensboro have by far the most manufacturing employees. At the other end of the spectrum, Jacksonville, Omaha, Birmingham, Memphis, and Richmond have relatively few manufacturing employees. Mirroring the national trend, every one of the MSAs lost manufacturing jobs from 1997 to 2002. While nine of the 16 peers did better than the nation as a whole, only Omaha and Jacksonville, the MSAs with the smallest number of manufacturing jobs, came close to breaking even. Louisville was right in the middle of the pack, with the seventh best performance of the peer metros.



**Manufacturing Employees,
Change from 1997 to 2002 (1997=100)**

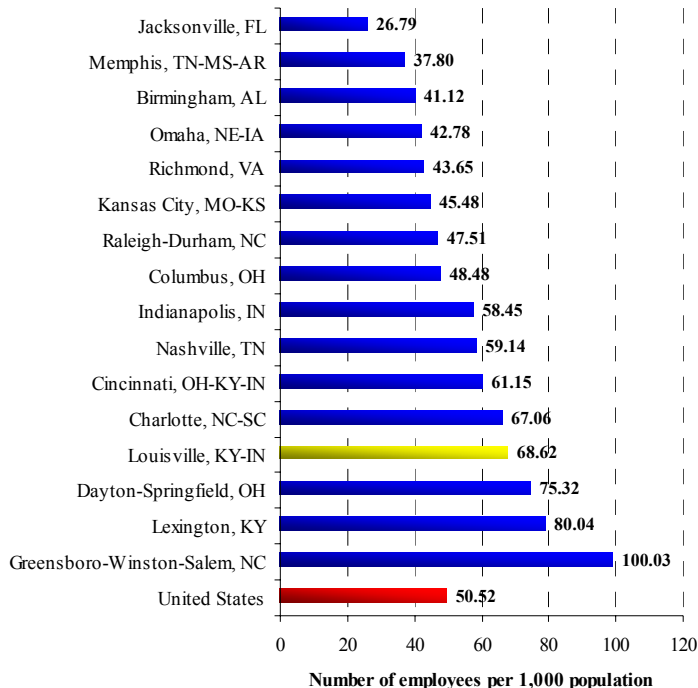


The big losers were Memphis, Charlotte, Dayton-Springfield, and Raleigh-Durham which lost 24.5, 20, 19.6, and 19.4 percent of their manufacturing employment, respectively, from 1997 to 2002.

**EMPLOYMENT PER CAPITA AND
EMPLOYMENT PER CAPITA
CHANGE 97-02**

Louisville had about 69 manufacturing jobs per one thousand people in 2002, fourth most among the peer metros. Greensboro, Lexington, and Dayton have the highest concentrations of manufacturing jobs, with Greensboro's rate of manufacturing jobs per capita being double the nationwide rate of 50 jobs per thousand people. Half of the peer metros have more manufacturing jobs per capita than the national average. The peer metros with the fewest such jobs per capita are Jacksonville (about 27 per thousand people), Memphis (just under 38 per thousand people), and Birmingham (roughly 41 per thousand people). Memphis and Birmingham were among the biggest manufacturing job losers from 1997 to 2002. Charlotte and Dayton were also among the biggest job losers, but they still rank much higher than average in terms of per capita manufacturing employment.

**Manufacturing Employees
per 1,000 Population, 2002**



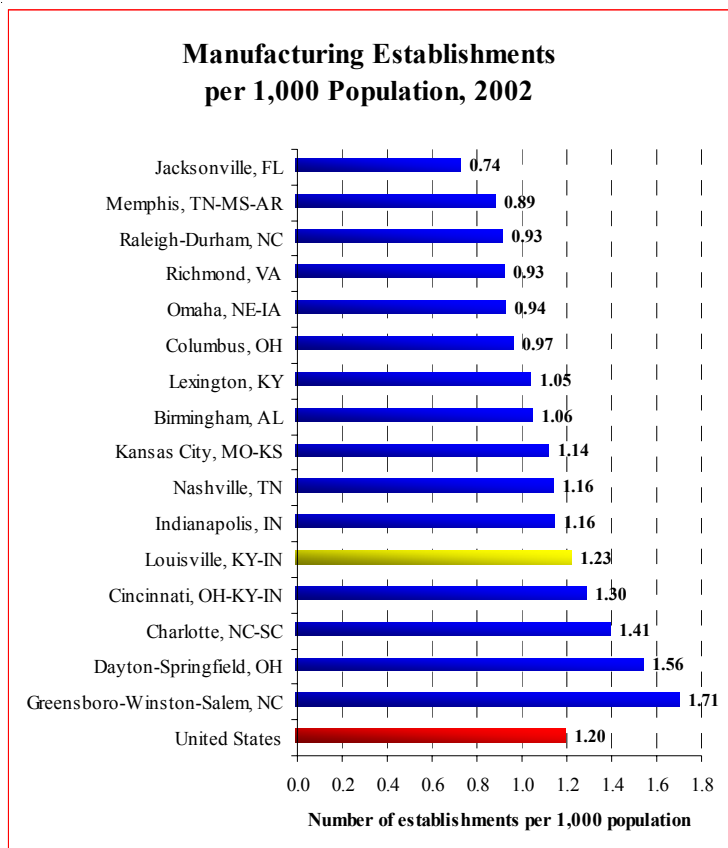
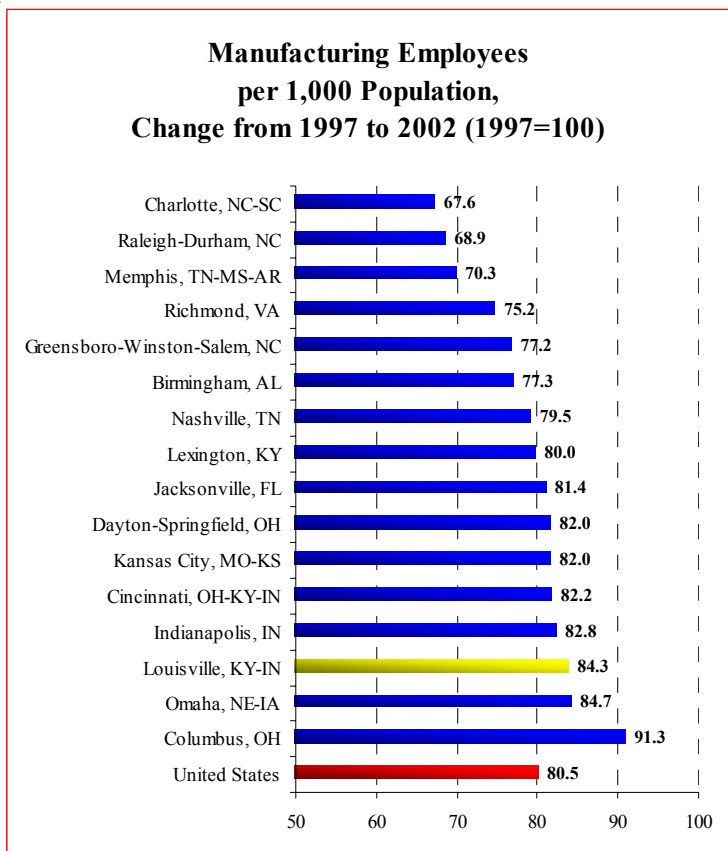
Change in manufacturing jobs per thousand people from 1997 to 2002 can be interpreted as an indicator of how quickly a regional economy is moving away from its previous level of reliance on the manufacturing sector for employment. Nationwide, the level of manufacturing jobs per capita dropped by nearly 20 percent from 1997 to

2002, from about 63 to 50.5 jobs per thousand people. Half of the peer metros experienced a slower rate of change away from manufacturing in their economies, but only one, Columbus, was more than just a little different from the national rate. The Charlotte, Raleigh-Durham, and Memphis economies have been making the swiftest transitions away from manufacturing employment. In those metros the current level of manufacturing employment per capita is at least 30 percent less than it was just eight years ago.

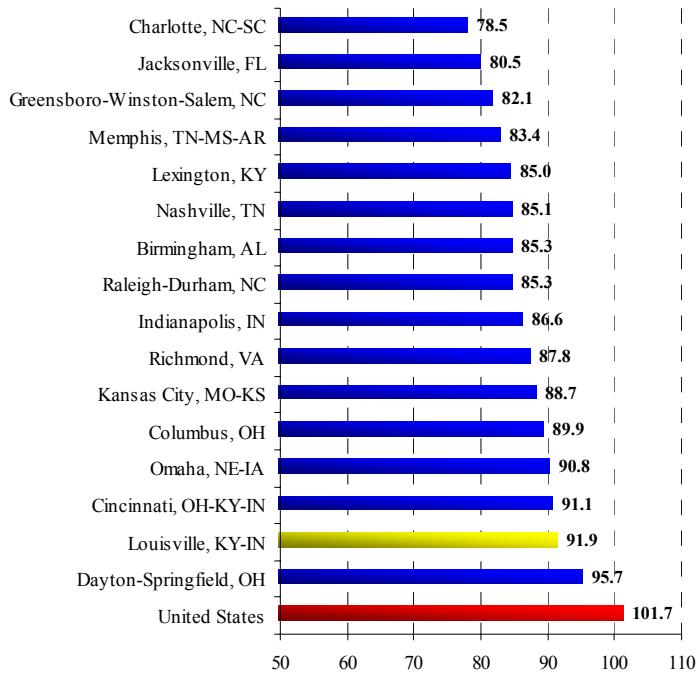
ESTABLISHMENTS PER CAPITA AND ESTABLISHMENTS PER CAPITA CHANGE 97-02

This data reinforces the snapshot and trends seen in the employment data. Louisville had 1.23 manufacturing establishments per one thousand people in 2002, fifth most among the sixteen peer metros, which is right about the national average. Greensboro, Dayton, and Charlotte have the most establishments per capita. Lexington has a level of establishments per capita quite a bit lower than the national average despite also having a relatively high level of manufacturing employment per capita, indicating that the Lexington market is weighted pretty heavily towards large firms. Jacksonville and Memphis have the lowest number of manufacturing firms per capita.

The number of manufacturing establishments per capita nationwide has been increasing; it's nearly two percent higher now than in 1997, but not in any of the peer metros. The trend is markedly in the opposite



**Manufacturing Establishments
per 1,000 Population,
Change from 1997 to 2002 (1997=100)**

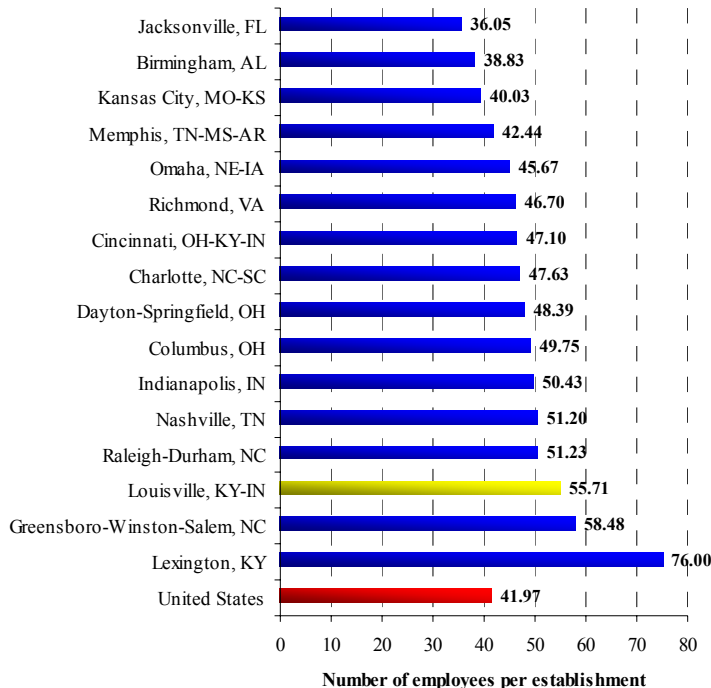


direction for the peer metros, with all but four have at least ten percent fewer firms per capita now than in 1997. Louisville is one of the four, but it has still seen a drop of eight percent in manufacturing firms per capita.

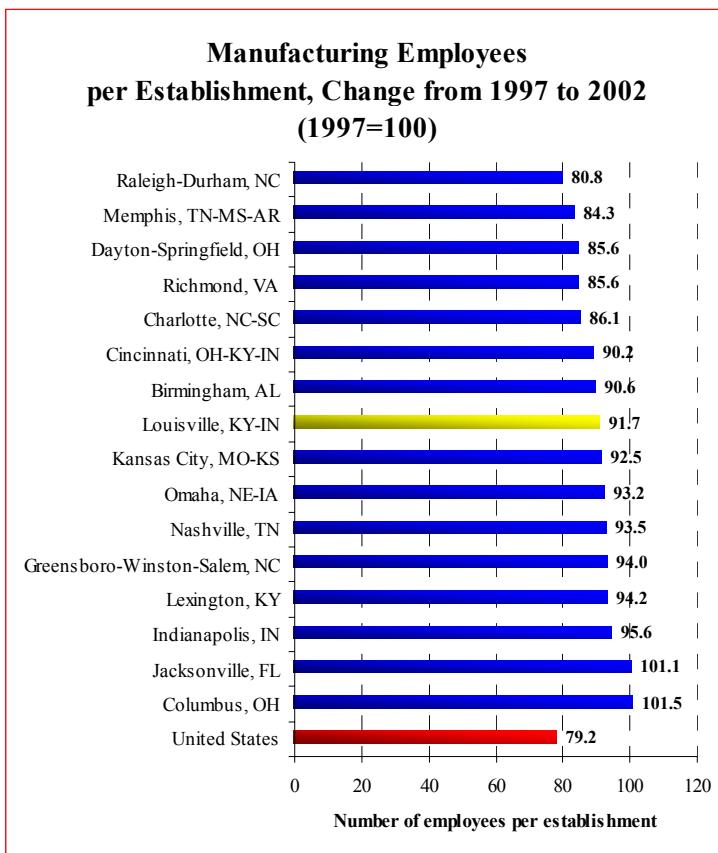
**EMPLOYMENT PER
ESTABLISHMENT AND
EMPLOYMENT PER
ESTABLISHMENT CHANGE 97-02**

All but three of the sixteen peer metros have above average firm size, as indicated by the number of employees per manufacturing establishment. Lexington, with 76 employees per establishment, has far and away the largest average firm size, indicating that its regional economy is much more heavily weighted towards large firms than the nation as a whole. Louisville has the third highest average firm size among the peer metros, with about 56 employees per manufacturing establishment.

**Manufacturing Employees
per Establishment, 2002**



The number of employees per establishment has been dropping for all but two of the peer metros, Jacksonville and Columbus. However, none of the peer metros has experienced a decrease in average firm size as great as the nation as a whole. Average firm size in Louisville has decreased just over eight percent since 1997, putting it right in the middle of the pack.



JOB DISTRIBUTION AND JOB DISTRIBUTION CHANGES 97-02

The following table describes the distribution of jobs among the 21 manufacturing subsectors for each of the 16 peer metros. In those cases where employment data was not disclosed by the Census Bureau due to privacy requirements we have estimated the number of jobs based upon the published range for the particular sector and the typical number of unknown jobs for those metros with no undisclosed data. About 11 percent of the metro-subsector combinations had undisclosed data.

There is quite a bit of variation in the makeup of the manufacturing sector across the peer metros. Louisville, for example, has its largest concentration of jobs in the transportation equipment subsector (nearly 21 percent of jobs, the fourth highest percentage, trailing only Lexington, Dayton, and Indianapolis), while Greensboro, Raleigh-Durham, Omaha, Memphis, and Richmond all have three percent or less of their manufacturing jobs in that subsector.

Greensboro and Raleigh-Durham are the most unique of the peer metros. While most of the peers have fewer than two percent of their manufacturing jobs in the textile mills and apparel manufacturing subsectors Greensboro has about 14 and seven percent of jobs in those sectors, respectively. Additionally, Greensboro's highest concentration of jobs is in the furniture and related products subsector (nearly 18 percent), reflecting the influence of the High Point furniture market. The highest concentration of jobs for the Raleigh-Durham metro area is in the computer and electronic products subsector. Almost 31 percent of manufacturing jobs in the Raleigh-

Job Distribution by Industry for Louisville and its Competitor Peer Metropolitan Areas

Industry	Birmingham,	Charlotte,	Cincinnati,	Columbus,	Dayton-	Greensboro-	Indianapolis,	Jacksonville,
	AL	NC-SC	OH-KY-IN	OH	Springfield, OH	Winston-Salem, NC	IN	FL
Food mfg	15.2%	10.0%	9.9%	8.0%	3.7%	3.1%	5.9%	12.6%
Beverage & tobacco product mfg	1.4%	3.4%	1.5%	3.1%	0.0%	4.7%	0.7%	8.5%
Textile mills	1.4%	13.3%	0.3%	0.0%	0.0%	13.8%	0.0%	0.0%
Textile product mills	0.0%	0.7%	1.2%	0.5%	0.5%	2.7%	0.3%	0.9%
Apparel mfg	0.0%	2.4%	0.0%	0.5%	0.0%	7.3%	0.9%	2.0%
Leather & allied product mfg	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Wood product mfg	4.0%	3.1%	1.1%	1.7%	1.1%	3.4%	2.4%	2.3%
Paper mfg	1.1%	4.0%	6.6%	1.8%	2.3%	4.4%	2.3%	8.3%
Printing & related support activities	5.7%	3.8%	7.2%	5.5%	5.0%	4.4%	5.2%	6.0%
Petroleum & coal products mfg	1.4%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.9%
Chemical mfg	2.1%	7.0%	6.8%	6.4%	1.5%	4.9%	6.8%	3.1%
Plastics & rubber products mfg	3.1%	8.2%	7.2%	9.1%	10.6%	5.5%	6.0%	3.0%
Nonmetallic mineral product mfg	6.7%	3.4%	2.3%	9.2%	1.7%	2.3%	4.3%	6.2%
Primary metal mfg	19.4%	2.2%	4.7%	2.8%	2.5%	0.8%	4.2%	3.4%
Fabricated metal product mfg	14.7%	8.3%	13.8%	11.2%	14.8%	6.7%	12.7%	10.1%
Machinery mfg	6.2%	7.4%	11.4%	6.8%	15.4%	4.3%	9.6%	4.2%
Computer & electronic product mfg	0.7%	5.2%	2.7%	6.2%	5.4%	3.3%	4.1%	2.1%
Electrical equipment, appliance, & component mfg	2.4%	2.1%	3.1%	3.3%	2.7%	4.1%	0.7%	1.6%
Transportation equipment mfg	4.9%	9.4%	13.3%	17.8%	27.6%	3.0%	26.6%	7.8%
Furniture & related product mfg	4.7%	3.1%	1.6%	2.0%	1.3%	17.4%	1.5%	3.8%
Miscellaneous mfg	3.4%	2.8%	4.1%	4.0%	2.5%	2.9%	4.1%	13.1%
Unknown	1.7%	0.2%	0.3%	0.2%	1.6%	0.9%	1.5%	0.2%

Industry	Kansas City,	Lexington,	Louisville,	Memphis,	Nashville,	Omaha, NE-	Raleigh-	Richmond,
	MO-KS	KY	KY-IN	TN-MS-AR TN	TN	IA	Durham, NC	VA
Food mfg	9.4%	1.8%	8.9%	11.3%	7.2%	35.8%	8.2%	8.5%
Beverage & tobacco product mfg	0.9%	1.4%	2.0%	2.4%	0.9%	0.0%	0.9%	14.1%
Textile mills	0.0%	0.0%	0.0%	0.0%	2.2%	0.0%	4.9%	3.0%
Textile product mills	0.3%	0.0%	0.9%	1.9%	1.5%	0.0%	2.5%	0.7%
Apparel mfg	0.9%	0.0%	0.0%	1.2%	0.7%	0.0%	1.7%	0.8%
Leather & allied product mfg	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%
Wood product mfg	0.9%	0.7%	2.1%	3.2%	3.1%	1.4%	4.8%	4.4%
Paper mfg	5.8%	2.7%	4.8%	5.5%	2.8%	2.8%	1.2%	10.4%
Printing & related support activities	11.1%	5.3%	7.7%	12.8%	7.7%	8.4%	4.8%	7.5%
Petroleum & coal products mfg	0.4%	0.0%	0.0%	1.2%	0.0%	0.0%	0.0%	0.0%
Chemical mfg	8.4%	1.4%	6.5%	10.3%	2.4%	3.1%	10.5%	10.8%
Plastics & rubber products mfg	6.2%	4.8%	6.3%	5.7%	7.5%	5.2%	3.1%	8.6%
Nonmetallic mineral product mfg	3.7%	5.7%	2.5%	3.4%	3.6%	4.0%	3.0%	2.8%
Primary metal mfg	0.9%	0.0%	1.9%	2.3%	3.1%	2.2%	0.5%	3.7%
Fabricated metal product mfg	10.1%	9.3%	12.4%	11.2%	9.0%	4.9%	5.4%	5.9%
Machinery mfg	11.1%	10.1%	7.2%	9.4%	5.7%	8.9%	5.9%	4.6%
Computer & electronic product mfg	6.1%	8.3%	1.6%	0.0%	6.5%	4.9%	30.7%	3.0%
Electrical equipment, appliance, & component mfg	2.2%	9.4%	4.5%	3.9%	7.6%	3.7%	4.2%	1.2%
Transportation equipment mfg	13.5%	32.9%	20.9%	1.7%	19.9%	1.9%	2.5%	1.0%
Furniture & related product mfg	3.2%	0.7%	5.0%	3.1%	4.1%	5.8%	2.0%	4.1%
Miscellaneous mfg	4.3%	3.5%	2.8%	8.8%	3.6%	4.6%	2.7%	4.4%
Unknown	0.7%	1.9%	1.9%	0.8%	0.2%	2.5%	0.7%	0.5%

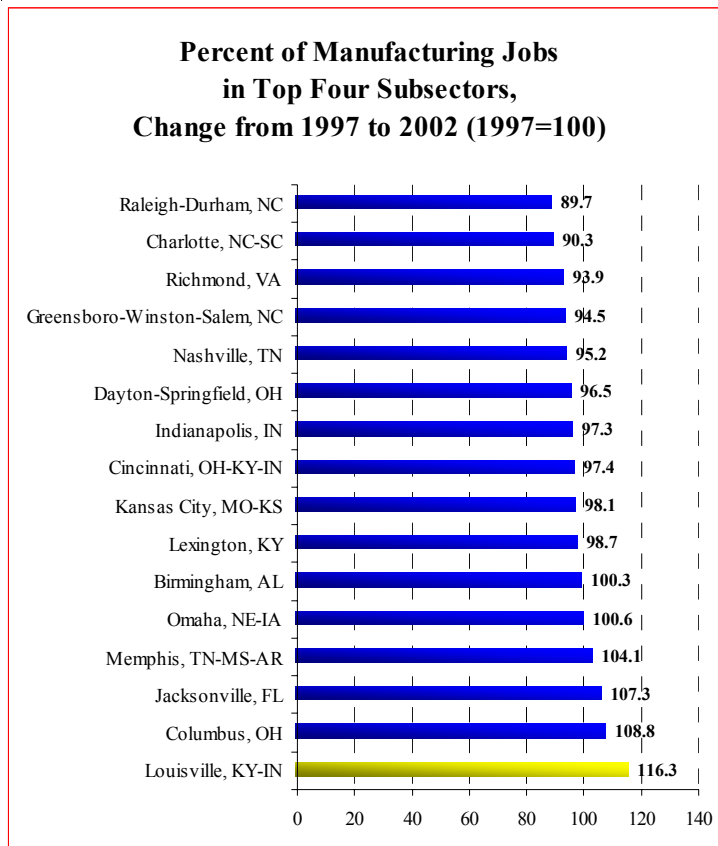
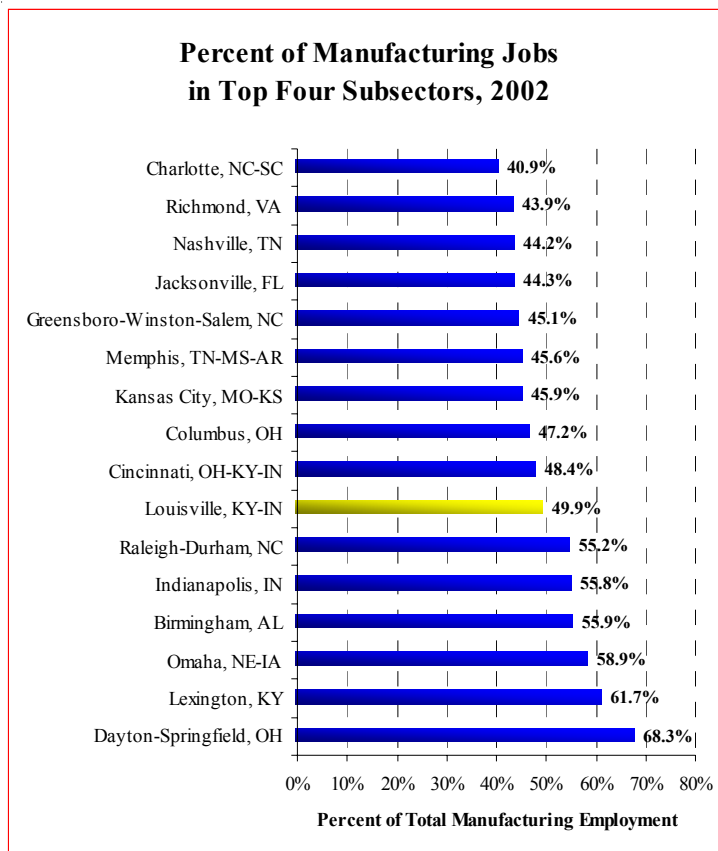
Durham metro are in this sector. By comparison, the average among the other 15 peers is just four percent, with Lexington having the next highest concentration of jobs in the computer and electronic products subsector at just over eight percent.

The metros with the most unevenly distributed regional economies as measured by the variance among the distribution of jobs between the subsectors are Omaha, Lexington, Dayton, and Raleigh-Durham. Nearly 36 percent of Omaha’s manufacturing jobs are in the food subsector, the highest concentration for any subsector of any of the peer metro areas. Lexington has about 33 percent of its manufacturing jobs in the transportation equipment subsector, and Dayton has nearly 28 percent of its manufacturing jobs in that same subsector.

In terms of the percentage of total manufacturing employment in the top four subsectors of each peer metro, Dayton is clearly the most “top heavy,” with just over 68 percent of its manufacturing employment coming from just four subsectors (transportation equipment, machinery, fabricated metal products, and plastic and rubber products). Louisville is the seventh most concentrated by this measure, with about 50 percent of its manufacturing jobs in the transportation equipment, fabricated metal products, food and printing and related support activities subsectors. The most diversified peer metro is Charlotte, with just 41 percent of manufacturing jobs in its top four subsectors (textile mills, food, transportation equipment, and fabricated metal products).

Dayton was even more heavily concentrated in 1997, with about 71 percent of its total manufacturing employment in its top four sectors, but it has seen a loss of about 11,000 jobs in the transportation equipment subsector. Interestingly, it seems as if much of that employment has shifted just a bit northeast to the neighboring Columbus metro area, which has seen an increase of more than 8,000 jobs in that subsector since 1997.

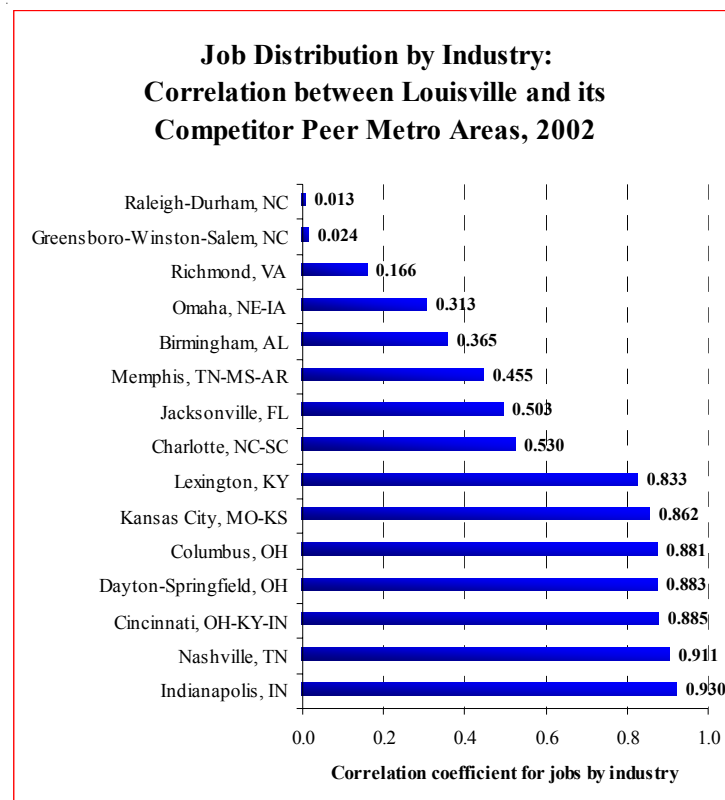
As an indicator of the trend in industry concentration for each peer metro we looked at the change in the percentage of manufacturing employment in the top four subsectors from 1997 to 2002. On this measure, six of the 16 peer metros have trended towards greater concentration of jobs among the top four sectors, while ten have trended in the opposite direction, towards greater diversification of their remaining manufacturing jobs. Louisville is the metro with the biggest trend



towards greater concentration of manufacturing jobs, while Raleigh-Durham and Charlotte have been diversifying the greatest. In the latter two cases, this is largely due to huge job losses in the previously dominant subsector (computer and electronic products and textile mills, respectively). In Louisville's case, it is due to an increase in employment in the transportation equipment and fabricated metal products subsectors, some of which may be an artifact of the addition of Shelby and Nelson counties in Kentucky and Washington County, IN, to the metro area definition.

We examined the correlation of the distribution of jobs by manufacturing subsector between Louisville and its peer metro areas as an indicator of how close in overall manufacturing industry structure each peer metro is to Louisville. The peer metros that are closest geographically to Louisville also turn out to be the closest to Louisville in terms of the distribution of manufacturing sector jobs among the 21 subsectors. Kansas City is the exception, but it is also an older, more traditional manufacturing town. Raleigh-Durham, Greensboro, and Richmond are the peer metros least like Louisville. They are also the least like any other peer metro area in terms of the average correlation over all the other peer metros. They are also unlike each other (the largest correlation coefficient among the three being just 0.116).

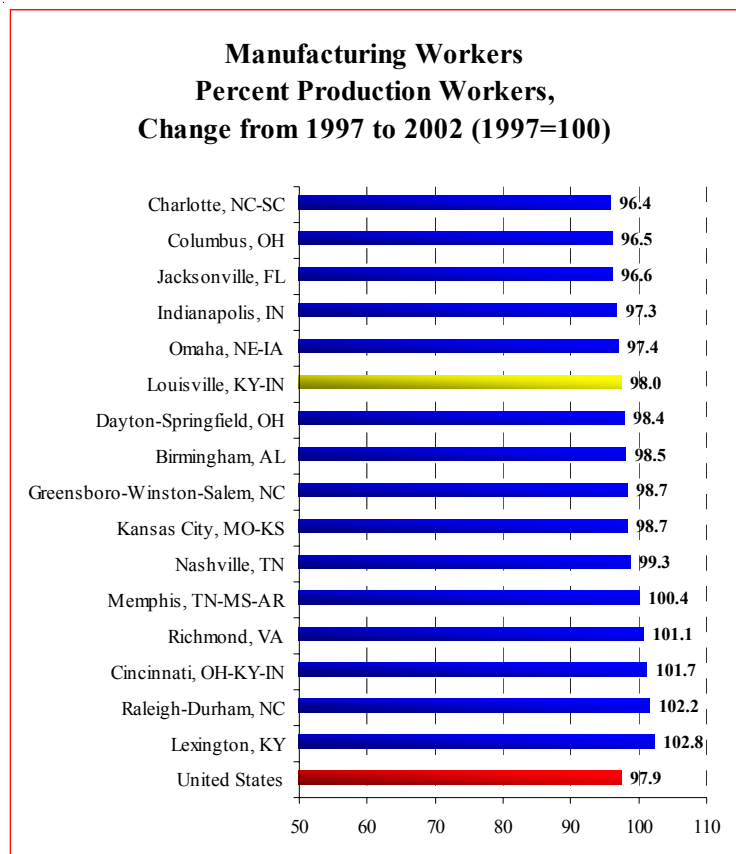
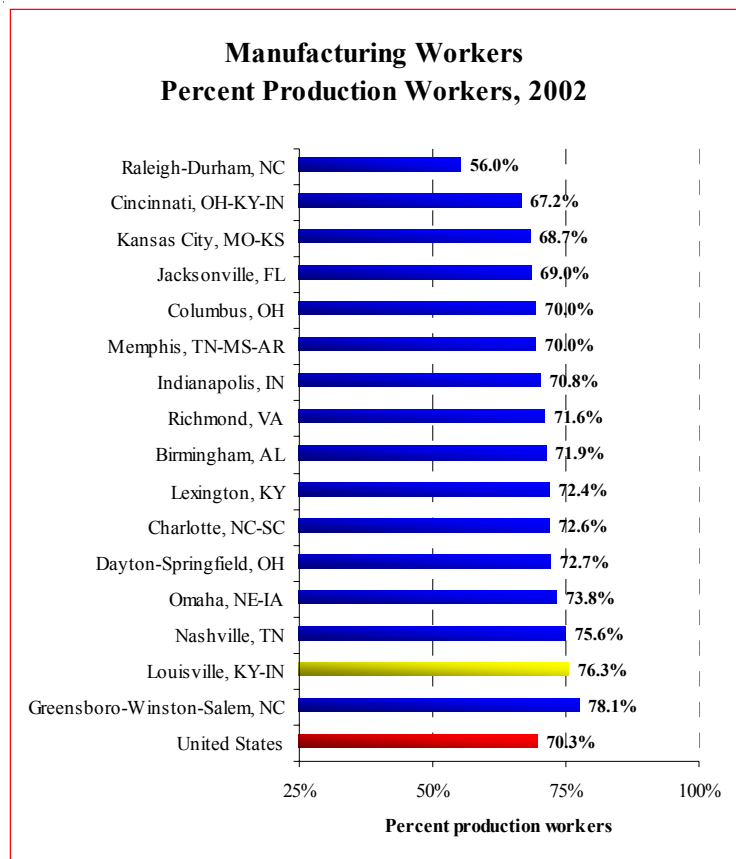
Interestingly, none of the peer metro areas are very much like any of the others in terms of how the distribution of their manufacturing jobs has changed since 1997. But movement in opposite directions can signal convergence from different starting points. In general Louisville has moved closer to Charlotte, Columbus, and Lexington, and moved away from Omaha in terms of the distribution of manufacturing jobs among the industry subsectors.



PERCENT PRODUCTION WORKERS AND PERCENT PRODUCTION WORKERS CHANGE 97-02

Nationwide, just over 70 percent of manufacturing employees are production workers. Ten of our 16 peer metro areas have a percentage of production workers a bit higher than that, with Greensboro having the highest percentage of production workers, a bit over 78 percent. Louisville has the second highest percentage of production workers at 76.3 percent. Aside from Nashville, which has one of the most diversified manufacturing sectors, the percent of production workers correlates fairly well with our measures of industry concentration. The implication is that concentration in the subsectors is due to extensive production facilities.

The clear outlier is Raleigh-Durham in which only 56 percent of manufacturing workers are production workers. Nearly 31 percent of the manufacturing jobs in Raleigh-Durham are in the computer and electronic products subsector, which has just 23 percent production workers among its employees. Nationally, the computer and electronic products subsector has 47 percent production workers. Employment in that subsector in Raleigh-Durham appears to be heavily weighted towards research and design jobs. In comparison, all of the other peer metros, with the exception of Birmingham (but only 311 jobs), have a percentage of production workers in this subsector above the national average. Nearly 75 percent of



Greensboro's employment in the computer and electronic products subsector consists of production workers. For Louisville the percentage is 55 percent.

There has not been much movement in terms of the change in the percentage of production workers from 1997 to 2002. The two metros that lost the most employment in the computer and electronic products subsector also saw the most positive change as the mix of jobs shifted away from that low production worker subsector to other types of manufacturing. Louisville mirrored the national trend almost exactly.

VALUE ADDED PER EMPLOYEE AND VALUE ADDED PER EMPLOYEE CHANGE 97-02

As can be easily seen in the charts Louisville provides a puzzling case in terms of value added. It is the only metro area that saw a drop in value added per employee from 1997 to 2002. The fact that the value added per employee dropped by almost half and that Louisville went from having the second highest value added per employee among the peer metros in 1997 to having the second lowest in 2002 is baffling. Looking at the breakdown of value added statistics by manufacturing subsector for 1997 and 2002 does not provide any easy answers to the situation.

The table makes clear that the issue is the vast difference in value added reported for 1997 versus 2002. The difference between the total for all the disclosed data and the entire manufacturing sector for 2002 is small and entirely accounted for by our estimates of the undisclosed data (based upon disclosed data for the other peer metros for those

subsectors). However, this is not the case for 1997, where the difference is very large (less than half of the total is disclosed) and after our estimates we are still left with a gap of \$3.6 billion (even using the high end of our estimate ranges). It is entirely possible that the puzzle is due to a recording error and that the true value added figure for 1997 is \$11.27 billion and not \$17.27 billion. In this case the difference between 1997 and 2002 would be accounted for by the closing of the Phillip Morris plant. Making this substitution Louisville would only have had the fifth highest value added per job among the peer metros in 1997 and would have been just above most of the rest. It would also mean that Louisville's value added per employee was just 20 percent below 1997 levels rather than 48 percent below.



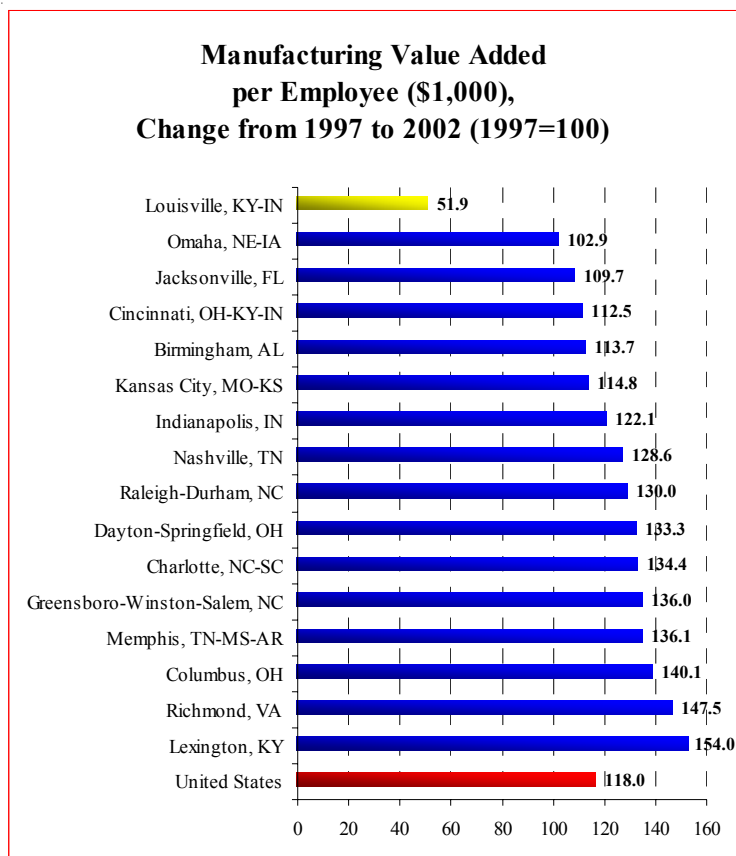
Louisville MSA Manufacturing Value Added, 1997 and 2002

Manufacturing subsector	Value added, 1997 (\$1,000)	Undisclosed data estimates, 1997 (\$1,000)	Value added, 2002 (\$1,000)	Undisclosed data estimates, 2002 (\$1,000)
Food mfg	\$926,087		\$1,048,957	
Beverage & tobacco product mfg	\$3,281,830		\$460,360	
Textile product mills	D	\$30,000-40,000	D	\$30,000-40,000
Apparel mfg	D	\$75,000-100,000	\$0	
Wood product mfg	\$110,399		D	\$100,000
Paper mfg	\$210,364		\$505,640	
Printing & related support activities	\$439,170		\$479,054	
Chemical mfg	\$1,202,820		\$1,035,979	
Plastics & rubber products mfg	\$302,780		\$250,959	
Nonmetallic mineral product mfg	\$246,949		\$219,909	
Primary metal mfg	\$104,778		\$173,526	
Fabricated metal product mfg	\$705,678		\$991,250	
Machinery mfg	\$514,720		\$515,636	
Computer & electronic product mfg	D	\$150,000-200,000	\$170,814	
Electrical equipment, appliance, & component mfg	D	\$500,000-1,000,000	D	\$300,000-400,000
Transportation equipment mfg	D	\$2,000,000-4,000,000	\$2,007,376	
Furniture & related product mfg	\$177,166		\$282,371	
Miscellaneous mfg	\$108,031		\$158,746	
Sum of all disclosed data, or estimates	\$8,330,772	\$5,340,000	\$8,300,577	\$540,000
Total manufacturing sector	\$17,272,778		\$8,794,261	

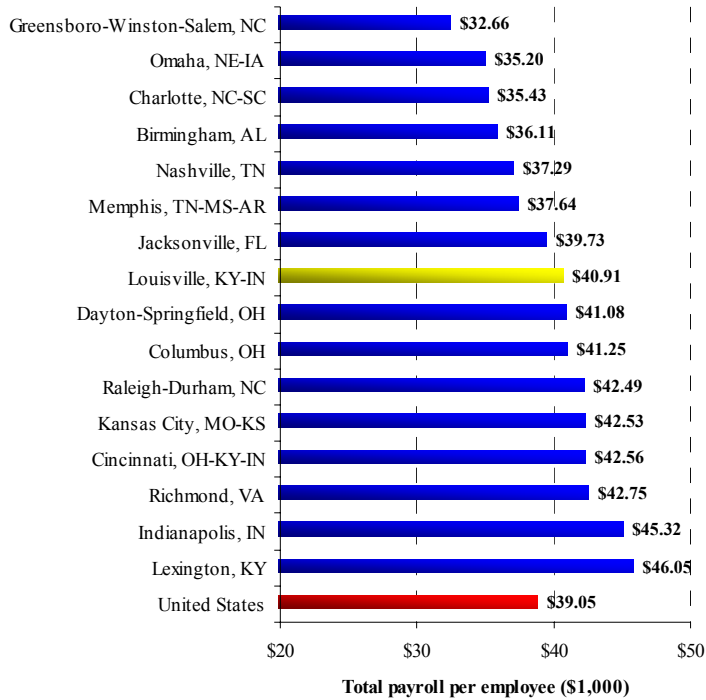
All but four of the peer metros (Birmingham, Louisville, Omaha, and Nashville) have more value added per employee than the national average. Richmond is the clear leader here, with a figure nearly 80 percent greater than second place Raleigh-Durham. Ten of the 16 peers have also had more positive change in the level of value added per employee than the national average. Value added per employee is more than 50 percent higher in Lexington now than it was in 1997.

PAYROLL PER EMPLOYEE AND PAYROLL PER EMPLOYEE CHANGE 97-02

Ten of the 16 peer metros had annual payrolls per employees greater than the national average of \$39,050 in 2002. Tops was Lexington with an average payroll of \$46,050 per employee. Indianapolis had the second highest average payroll. Louisville, at \$40,910 had the ninth highest payroll per employee among the peer metros.



**Manufacturing Total Payroll
per Employee (\$1,000), 2002**

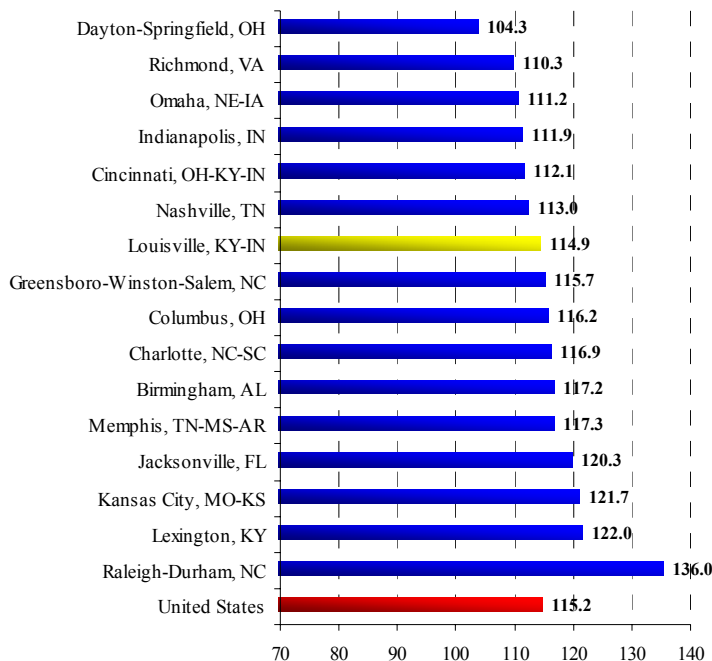


Greensboro, with an average payroll of \$32,660 per employee, was by far the lowest paying metro. Omaha, Charlotte, and Birmingham were also well below the national average.

Nine of the peer metros saw their total payrolls per employee rise faster than the national average from 1997 to 2002. The clear leader was Raleigh-Durham which experienced a 36 percent increase in payroll per employee. Louisville experienced an increase right around the national average. Dayton, which lost a lot of jobs in the transportation equipment subsector, was the only peer metro that did not manage an increase in payroll per employee that was at least close to the national average.

**PRODUCTION WORKER WAGES
PER HOUR AND PRODUCTION
WORKER WAGES PER HOUR
CHANGE 97-02**

**Manufacturing Total Payroll
per Employee (\$1,000),
Change from 1997 to 2002 (1997=100)**

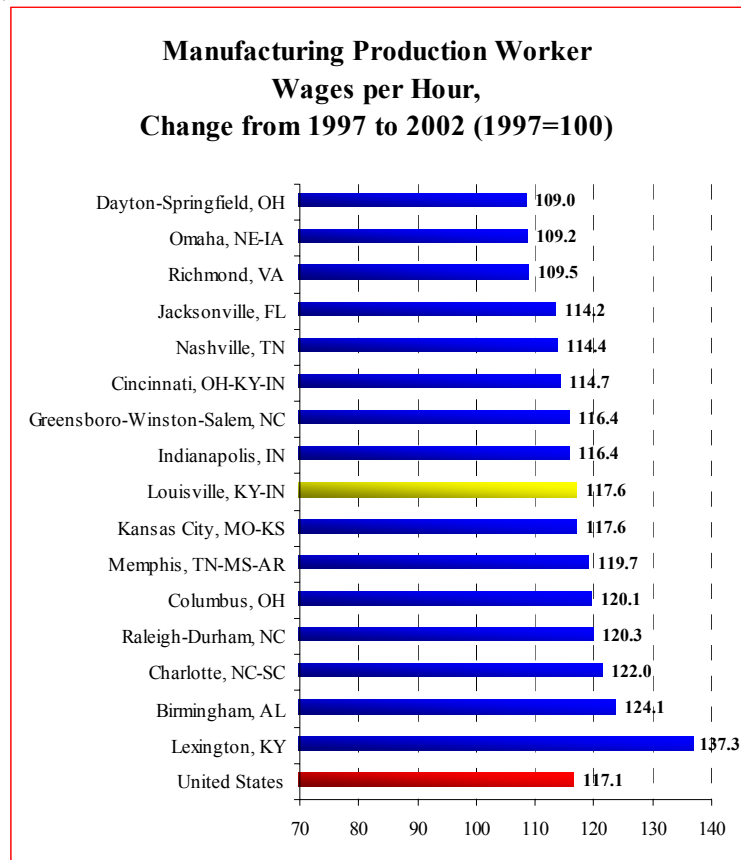
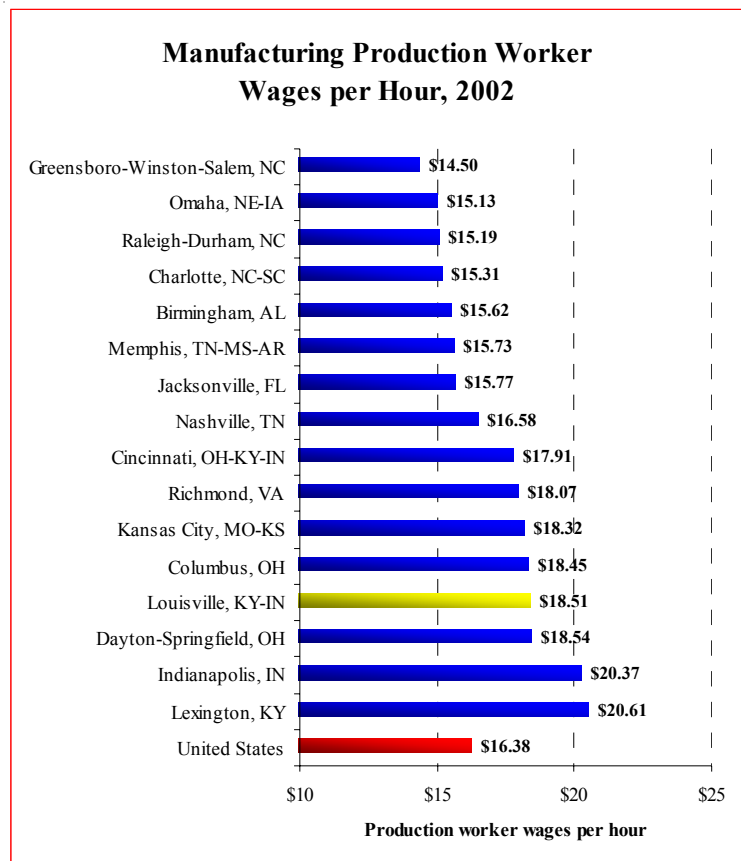


Nine of the 16 peer metros had average production worker wages per hour higher than the national average of \$16.38 in 2002. Lexington and Indianapolis had the most well paid production workers at more than 20 dollars per hour. Louisville was fourth, with an average wage rate of \$18.51.

The bulk of Lexington's manufacturing jobs are in relatively high paying subsectors such as transportation equipment, machinery, fabricated metal products, and electrical equipment, appliances, and components. The bulk of manufacturing jobs in Indianapolis are in the first three of those subsectors plus chemicals and plastic and rubber products. The

variation in production worker pay among industries is illustrated well by examining the Raleigh-Durham area. Despite having a total payroll per employee well above the national average, and sixth among the peer metros, its production worker pay per hour is well below the national average and third worst among the peer metro areas. While about 31 percent of all manufacturing jobs in Raleigh-Durham are in the computer and electronic products subsector, only about 12 percent of the production workers are in this sector, and the six sectors that have the great majority of production workers in Lexington and Indianapolis have just 35 percent of such workers in the Raleigh-Durham metro area.

As with overall payroll, Louisville experienced an increase in production worker wages right around the national average. Most of the peer metros experienced a wage increase close to the national average, with Louisville having the eighth highest rate of increase. Lexington was the clear winner, having experienced a greater than 37 percent rise in production worker wages per hour, much higher than any other peer metro. Only three of the peers experienced much less production worker wage growth than the national average. Dayton, Omaha, and Richmond had only about half as much growth as the nation as a whole.



CAPITAL EXPENDITURES PER ESTABLISHMENT AND CAPITAL EXPENDITURES PER ESTABLISHMENT CHANGE 97-02

Capital expenditures in any one year are a very imprecise measure of the ongoing improvement (or lack thereof) of manufacturing facilities and other capital equipment since these are expenditures that are meant to last for years and not repeated each year. But these two charts can at least give us a snapshot of what was happening in the census year and how that differed from the previous census year.

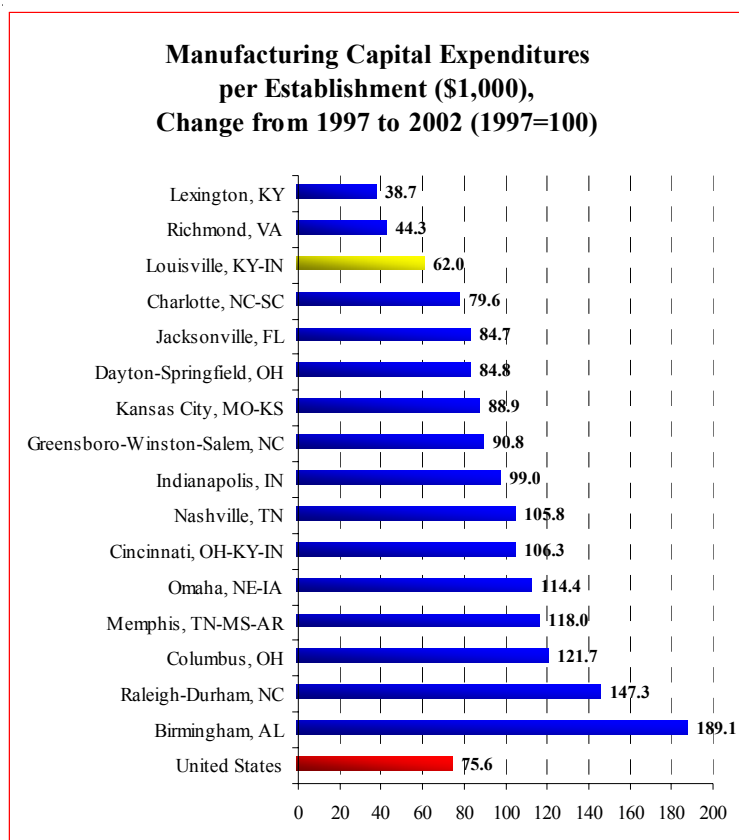
Ten of the 16 peer metros had levels of capital expenditures in 2002 that were significantly above the national average per establishment. Nashville, Lexington, and Raleigh-Durham all had levels of capital expenditures at least 75 percent greater than the US average. About two-thirds of the capital expenditures in Nashville were in the transportation equipment subsector. Lexington also had a high level of capital expenditures in that subsector. Over 60 percent of the capital expenditures in Raleigh-Durham came in the chemical and computer and electronic products subsectors. Only Jacksonville and Kansas City had capital expenditures much below the national level.

Louisville was just twelfth in capital expenditures per establishment among the peer metros but still had a level above the national average. Capital expenditures in Louisville were spread among all the subsectors, but the transportation equipment and chemical subsectors did account for about 35 percent of such spending in Louisville during 2002.

Nationwide, capital expenditures per establishment were down nearly 25 percent in 2002 from 1997. Thirteen of the peer metros did better than that, and seven had higher levels of capital expenditures per establishment in 2002

than they had in 1997. Per establishment, Birmingham had 89 percent more capital spending than in 1997. Louisville, Richmond, and Lexington were the only metros that did worse than the national average in terms of the change from 1997 to 2002 in capital expenditures per establishment. The fact that Lexington had the second highest level of capital expenditures per establishment in 2002 (80 percent higher than the US average) but the lowest change from 1997 means that Lexington's level of capital expenditures per establishment in 1997 was about three and a half times greater than the national average.

In general, because most of the peer metros were both above the national average for capital expendi-



tures per establishment and experienced much greater change from 1997 to 2002 they were as a group much closer to the national average in 1997 in terms of capital expenditures per establishment.

