Wisconsin
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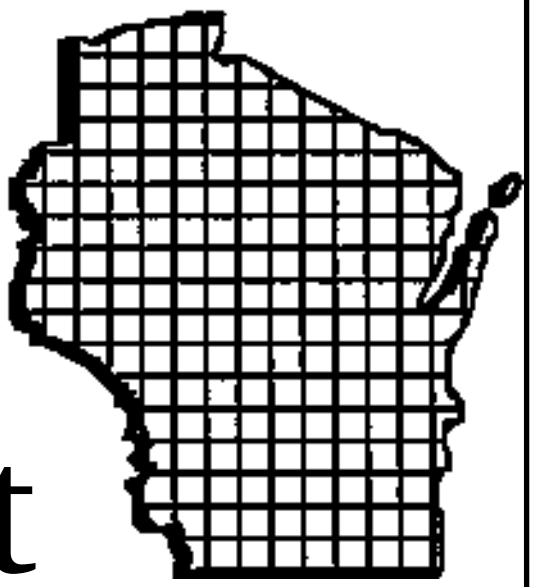
Report



August 2004 Volume 17, Number 4

Jobs In The New Millennium

Wisconsin's Regional Economies 1999-2003

REPORT FROM THE PRESIDENT:

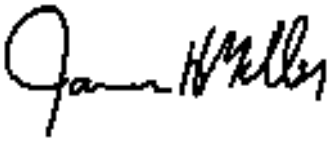
This is the fourth tracking study we have done in the last decade that measures metropolitan economic development in Wisconsin. As in the previous three times, this project was developed by the Center for Urban Initiatives and Research at the University of Wisconsin-Milwaukee under the direction of Professor Sammis White. It is the only institution in the state that has access to and uses the jobs data from the State of Wisconsin, Department of Workforce Development. In this study we examine the largest metropolitan areas in the state, measuring job growth between 1999 and 2003.

The news from this report does not bode well for Wisconsin in the new millennium. In this time period, Wisconsin's employment decreased slightly while U.S. employment grew. More importantly, the state's growth rate dropped in this period. In the 1990s, it had been 2.6%: between 1999 and 2003 it showed negative growth.

The other alarming number is that Wisconsin has lost 85,000 manufacturing jobs in a four-year period. It is unlikely that we will see those jobs ever return to the state. No area was harder hit than metropolitan Milwaukee, which lost almost 30,000 jobs. What is interesting in the Milwaukee numbers, however, is that the major losses were not in the City of Milwaukee, but rather in the suburban areas of the region, which lost about twice as many jobs as the city.

One positive note of this report is that Dane County is the one region that seems to have positioned itself to continue to grow economically in the new century. One observation is that Dane County profited from not having a strong manufacturing base. Clearly, the rest of Wisconsin has been seriously damaged by the loss of these well-paying manufacturing jobs.

If there is one lesson to be learned from this research, it is that Wisconsin has to start seriously considering how it uses economic development tools in the future. It needs to examine and copy Dane County's formulas, rather than the traditional economic development idea of trying to attract more manufacturing jobs. That has not worked over the last four years, and it is extremely doubtful that it will work over the next decade.



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Jobs In The New Millennium

Wisconsin's Regional Economies 1999-2003

Sammis B. White, Ph.D.

EXECUTIVE SUMMARY

The years between March 1999 and March 2003 were challenging for Wisconsin and many of its regions. This study focuses on the issues of changes in employment and employee earnings to learn just what happened, and to attempt to answer some of the questions as to why they happened. Here are some of the more important lessons learned:

- Wisconsin's employment decreased slightly (-0.3%) while U.S. employment grew 1.5% in the 1999-2003 period. Furthermore, the Wisconsin economy dropped from an annual growth rate of 2.6% in the 1990s to negative growth in 1999-2003.
- Wisconsin lost over 85,500 manufacturing jobs, a loss that is not likely to ever be regained within manufacturing. This loss affected every region of the state, but especially metropolitan Milwaukee with its loss of just under 30,000 manufacturing jobs. The surprise in Milwaukee is that the City lost 10,130 manufacturing jobs (20.3%), the Milwaukee County suburbs lost 8,800 jobs (24.6%), and the three suburban counties lost 11,000 jobs (13.2%).
- Wisconsin had only three industries (out of 16 analyzed) that grew either by more than 10,000 jobs or by more than 10% for the period. Furthermore, the state only had two metropolitan areas whose employment grew by more than 1% over the four years.
- The state was led by Dane County with a 4.4% growth rate, followed by Brown County with its 1.9% growth rate. Three other metropolitan areas and the smaller cities and rural areas of the state also grew, but very slowly.
- Dane County led not only in employment growth but also income growth. It is the prime example in the state of a "new economy," one that relies on education and higher-paying service industries. The more traditional regional economies did not fare well in this transition to the 21st century.
- The two industries that carried the state were Health Care and Social Assistance (+35,425) and Educational Services (+17,248). Others that grew significantly but added fewer than 10,000 jobs each were Finance, Insurance, and Real Estate (FIRE); Professional, Scientific and Technical Services; and Accommodation and Food Services.
- Despite the loss of over 85,000 manufacturing jobs, manufacturing remains very important to the state and especially to certain regional economies. Manufacturing is very important both because it finished the period as 19% of all employment (though this has been reduced a bit in the last year) and because average earnings per worker in manufacturing rose more than 9% in the 1999-2003 period.
- High-tech industries lost employment statewide during the period 1999-2003. By contrast Biotech gained employment but not enough to offset the losses in high-tech. Dane County was the major exception: it gained significantly in both.
- Employment gains (net) were confined to establishments smaller than 100 employees. Those with fewer than 20 employees added far more than any other size. In contrast, those with 500 or more employees were responsible for 60% of gross employment losses.
- Existing firms play a dramatic role in the health of the economy. If they are healthy, the local or state economy is healthy. Dane County again was the healthiest economy in the state because its existing employers added substantially more jobs than they lost 1999 to 2003.
- Suburban employment either grew faster or declined more slowly than central city employment in every Wisconsin metropolitan area.
- Average earnings per worker across all industries grew substantially during the 1999-2003 period, and they grew substantially faster than they had in the "go-go" 1990s for a variety of reasons. The reasons for the recent rapid increases in earnings include: a very low rate of inflation, layoffs of lower-paid, less-senior workers, large productivity increases, closure of less efficient (and therefore lower-paying) businesses, and relative growth in specific high-paying industries.
- The number of jobs with average earnings per worker of at least $30,000 in service industries now outnumbers those in manufacturing by a substantial ratio in all economies of the state. In Dane County the ratio

is 6:1; in Racine, it is 1.2:1. Service industries are where growth is occurring both in terms of absolute number of jobs and in terms of the number of well-paying jobs.

- Interestingly, the role of existing firms in job creation and the rate of survival hardly changed during these trying times.

Whether a true New Economy is upon us will not be perfectly clear for several more years. But it does appear that increased development and use of technology, higher rates of productivity, and global competition are realities of the New Economy and what Wisconsin faces today. Due to these shifts, it is the high-paying Manufacturing and high-end Services sectors that are forced to continually evolve. Dane County seems to have made a rather successful transition. Other state economies have been less successful to date. But why have they lagged? That is a question all regions must answer for themselves. This report reveals numerous details of what has occurred during the transition to the 21st century and offers some explanations. The reader is encouraged to look further to discover dimensions of what happened over the past four years and think what it is that must be done to keep Wisconsin's economy growing.

INTRODUCTION[1]

The United States' employment peaked in March 2001 and went into what is termed a mild recession. The recession was a surprise to many states. Income was lower than expected. Some 42 states experienced budget deficits as late as 2003-04. Wisconsin was among them. Wisconsin was particularly hard hit by manufacturing job losses, job losses that have continued well into 2004 in some parts of the state.

The U.S. economy was officially in recession for a very short time period (March 2001 through November 2001). But what was unusual is that once the recession formally ended and gross domestic product began to grow, it grew with no employment growth. It was termed a "jobless recovery." And it was. Unemployment grew and the employment numbers did not. It was not until March 2004 that the U.S. announced significant employment gains.

The question that this report addresses is what has been happening over the 1999-2003 period to the various metropolitan economies of the state. We know through many press releases that it was not until late spring 2004 that the state's economy actually began to show signs of an employment recovery. And even then, areas such as Milwaukee still were showing declines relative to comparable months in 2003. A few areas of the state did not suffer the same fate. In fact, some actually grew over this period. That is not a surprise. What may be a surprise is what is behind the job losses and employment growth. Areas that experienced net job losses were home to industries that gained employment. It is details such as these that this report brings to the fore.

THE DATA

There is one main and several minor sources of data used in this report. The minor sources come first. Among these are the U.S. Census data, largely taken from the 2000 Census. These data have been updated to the degree possible by estimates of change since April 2000. The data are included because they help to explain some of the changes that have been occurring in the Wisconsin regional economies. The most basic issues are those of the size of the population and the changes in the size of the adult, working-age population. Both are influential in the local economy.

Other minor sources are data from the Bureau of Labor Statistics (BLA) and the Wisconsin Department of Administration (DOA). These data are included to help give a setting for the analysis that constitutes most of the report.

The main source of data is the Unemployment Insurance records of employers in the state of Wisconsin, provided by the state's Department of Workforce Development (DWD). All employers of one or more persons are required to report quarterly to the state information on the name and address of the employer, the industry in which it is located, the number of employees, total payroll, ownership, and the like. We use these individual establishment records to build aggregate pictures of conditions in the regions in both 1999 and 2003 and then calculate the changes that have occurred between those two years.

We use March data from each of the two years as the measure of employment for the year. This date historically has given the most representative picture of the economy for the calendar year. The other quarters fluctuate because of various forms of seasonal employment. A second reason for the use of March data is that it takes about nine months for the data to become available to researchers. Thus, March 2003 data are the most recent March data available.

As we have done in our previous reports, we have broken the state into nine regions. Eight of these are the larger metropolitan areas. The rest of the state beyond these eight metropolitan areas are then pulled together as the rest of the state. We have chosen to continue to use the eight metropolitan areas of the state that were the eight largest when we began these analyses in the late 1980s. Times have changed, and some are no longer in that category. But to give these areas continuity of analysis, we continue to use that group.

We must note that six of these metro economies are described as being the county in which one or two larger central cities lie. Thus, the economies of Brown, Dane, Kenosha, La Crosse, Racine, and Rock are referred to as either their single name or the name followed by the word "county." Each is one and the same. Metro Milwaukee consists of four counties (Milwaukee, Waukesha, Ozaukee, and Washington), and the Fox Cities (based on Appleton and the many communities surrounding it) draws from three counties, but does not include all of any one county. The Rest of the State literally consists of the rest of the state.

1. I would like to thank Ryan J. Horton for his extremely able assistance in putting together all of the data required for this report. He did a masterful job.

For the first time in this series we are using new industrial designations based on the North American Industrial Classification System or NAICS for short. This system is now the standard. It was created to give greater insight into the industries of North America and to better account for the many industries that have become established since the old Standard Industrial Code (SIC) system was last updated in 1987. As many readers will recall, the old SIC system failed to cover many of the new IT industries, biotechnology, and material developments, to name a few. The system also did not cover well the development of new industries in financial services or any other industry area that has continued to evolve.

The NAICS allows much more detailed looks at just where jobs are. We no longer have to see thousands of jobs in ill-defined categories listed as "not elsewhere classified." Unfortunately, the switch to NAICS has a cost — the inability to easily look backward in time. Whereas the previous report allowed examination of 1991 data, this report cannot go back any further than 1999. Even looking back to 1999 has risks: some of the firms that were in existence in 1999 did not report a NAICS industry. We have had to use multiple methods to assign NAICS codes. Even then, we were unable to do so in 100% of the cases. Therefore, our estimate is that any 1999-2003 comparisons may be off by 0.1% to 3%. This is not enough to change any major conclusions, but it is enough that we must warn the reader that the changed numbers need to be used with some caution.

DEMOGRAPHIC TRENDS

The growth of an economy is closely tied to demographic change. If an economy is to grow rapidly in term of employment, it needs not only an expanding demand for workers; it needs an expanding supply of workers. As you may recall, Wisconsin's economy grew especially rapidly in the first half of the 1990s. This was a period of rather rapid population growth in the state, as workers from elsewhere migrated to the economy of a state that was growing faster than many others in the U.S. Slower growth occurred in Wisconsin in the later 1990s, as other state economies grew faster and attracted more of the workforce.

To gain insights into the changes in Wisconsin's economy since 1999, we need to examine such elements as the changes in the size of the population, the working age population, the labor force, and the rate of unemployment. Then we examine the eight metropolitan areas and the rest of the state to see what these demographic and economic figures will suggest about changes in the economies of these areas.

Population

One critical element for a growing economy is enough workers to fill the job openings created. It is very hard to increase employment, especially in a state with the highest female labor-force participation rate of any state in the nation. Wisconsin's population grew 3.2% while the U.S. population grew 3.8% between 1999 and 2003. This rate placed it second highest in the Midwest, but the amount of growth was not large enough to prevent Wisconsin falling from 18th to 20th largest among the 50 states. Nevertheless, the growth suggests that employment could have grown over the study period.

When we look at the growth among the various metropolitan areas of Wisconsin for this period, we see variation. Dane County grew the most at 5.9%, while Metro Milwaukee and Racine grew the least, 1.6% each. Those numbers would suggest that the latter two likely had slower growth economies. That they did, as will be seen below. Given the more rapid population growth of Dane County, the Fox Cities, and Brown County, it would suggest that these are prime candidates for the fastest growing economies in the state.

Working Age Population

A measure that also suggests that Dane and Brown Counties and the Fox Cities might be among the fastest growers is that of the proportion of the entire population that is of working age (16-66). As it turns out, these three areas are among the four metro regions of Wisconsin that are highest in terms of the percentage that is of working age. That creates even more potential for having a higher level of employment.

One must note, however, that the U.S. average is marginally higher than that of Wisconsin. This suggests, as is evident, that several areas of Wisconsin have percentages that are below the state average. Again, Southeast Wisconsin looks like it may not be poised for much economic growth because of the smaller working age population as well as slower population growth.

TABLE 1 LABOR FORCE AND DEMOGRAPHIC CHARACTERISTICS BY REGION, 1999-2003

Population	1999	2003	Net Change	% Change
Dane County	420,284	445,253	24,969	5.9%
Winnebago, Calumet & Outagamie Counties	354,235	371,236	17,001	4.8%
Brown County	223,991	234,660	10,669	4.8%
Kenosha County	148,025	154,234	6,209	4.2%
United States	**278,765,258**	**289,391,851**	**10,626,593**	**3.8%**
Wisconsin	**5,321,366**	**5,490,718**	**169,352**	**3.2%**
La Crosse County	106,562	108,795	2,233	2.1%
Rock County	151,547	154,588	3,041	2.0%
Metro Milwaukee	1,494,673	1,518,957	24,284	1.6%
Racine County	188,082	191,079	2,997	1.6%

Working Age Population (16-66)	1999	2003	As % of 2003 Population
Dane County	300,692	318,556	71.5%
La Crosse County	72,432	73,951	68.0%
Brown County	150,849	158,034	67.3%
Winnebago, Calumet & Outagamie Counties	235,713	247,026	66.5%
United States	**184,291,299**	**191,316,524**	**66.1%**
Wisconsin	**3,499,209**	**3,610,572**	**65.8%**
Kenosha County	97,089	101,162	65.6%
Metro Milwaukee	975,653	991,505	65.3%
Rock County	98,808	100,791	65.2%
Racine County	122,480	124,432	65.1%

Labor Force	1999	2003	Net Change	% Change
Dane County	260,147	281,843	21,696	8.3%
Brown County	134,131	142,971	8,840	6.6%
Winnebago, Calumet & Outagamie Counties	220,489	234,639	14,150	6.4%
Wisconsin	**2,934,666**	**3,065,184**	**130,518**	**4.4%**
Kenosha County	81,106	84,693	3,587	4.4%
United States	**140,207,000**	**145,465,000**	**5,258,000**	**3.8%**
La Crosse County	60,062	62,196	2,134	3.6%
Racine County	91,745	93,819	2,074	2.3%
Metro Milwaukee	806,330	818,598	12,268	1.5%
Rock County	78,635	78,113	-522	-0.7%

Unemployment Rate	1999	2003
Racine County	4.8%	8.8%
Rock County	3.9%	7.3%
Kenosha County	3.6%	6.6%
Metro Milwaukee	3.4%	6.3%
Wisconsin	**3.0%**	**5.8%**
United States	**4.2%**	**5.8%**
Brown County	2.7%	5.7%
Winnebago, Calumet & Outagamie Counties	3.0%	5.7%
La Crosse County	3.3%	5.0%
Dane County	1.7%	3.1%

Labor Force and Unemployment Rate figures are March-to-March from the U.S. BLS (La Crosse County 1999 and 2003 are estimates)

Population figures are January-to-January estimates based on Wisconsin DOA and the U.S. Census Bureau

Working Age Population figures are April-to-April estimates based on Wisconsin DOA and the U.S. Census data

Labor Force

Not only is it likely that a growing economy has a larger working age population and a faster growing population, it is also likely to have larger growth in its labor force. The three tend to work together. Again, three regions that grew among the fastest in the 1990s, Dane and Brown Counties and the Fox Cities, had the largest rates of growth in their labor forces, 1999-2003. All rates were faster than both the U.S. and all of Wisconsin.

At the low-end of net labor force change are found the areas of Southeastern Wisconsin: Milwaukee, Racine and Rock. This does not bode well for rapid economic growth during this 1999-2003 period. As the reader will soon discover, these economies did not do well in the 21st century.

Unemployment Rate

Another measure, that of the unutilized portion of the labor force — unemployment — also is an indicator of economic health. As the chart shows, all parts of Wisconsin and the U.S. as a whole experienced an increase in their unemployment rate between 1999 and 2003. What is also revealing is that the areas with the lowest rates, all of which were below both the US and the Wisconsin rates, were the same three economies, Brown and Dane Counties and the Fox Cities. Also appearing is La Crosse County. It is another metro economy that grew, albeit slowly, in the 1999-2003 period.

At the upper end of the unemployment rates, communities such as Metro Milwaukee, Racine, Kenosha, and Rock Counties all experienced higher rates of unemployment than the rest of the state. Racine led with an unemployment rate of 8.8% in March 2003. That does not bode well for job growth having occurred in that economy.

Given these demographic changes, it appears very likely that the economies identified as growing faster in terms of population, working age population, and labor force are much more likely to have succeeded than the other metro areas of the state. We will now look at the employment data to learn if that indeed was the case.

Total Employment by Industry

Using the new NAICS for differentiating among industries, we look first at the industries in which employment was found in March of 2003. Our examination initially begins with the differentiation of employment among 16 different industries rather than the traditional nine used with the SIC (See Appendix A). This will hopefully yield some new insights. Even greater detail is possible, but we decided to use these designations because we think they are a good mix of traditional and new titles.

It is important to point out, however, that few of the numbers will match those that appeared in the last report. Manufacturing, for example, has changed. Under NAICS, headquarters of manufacturing companies are classified as Management of Companies and Enterprises. Their employment is not counted as manufacturing. The same is true of some industries now counted in Information that used to be counted as Manufacturing. Other changes of this nature also have affected the counts.

Readers should also be aware that the number of persons employed in each industry refers to the number of employees that were recorded as working in establishments covered by Unemployment Compensation. Self-employed individuals are not counted here. To make reading more enjoyable, we do use the terms “employment,” “employees,” and “jobs” interchangeably. We recognize that some persons have more than one job but do not acknowledge that in our use of these terms. Since most other users of these data use them the same way, this should not cause any confusion.

Readers should also be aware that the numbers in this report are not likely to match those that they have seen elsewhere. There are several explanations. One is the four years of analysis are March to March. These are not annual averages. Second, few others have tried to do longitudinal analyses with the switch in industrial code of Standard to North American. We have made the attempt. The result is not perfect, but it is likely to be much closer than most other analyses available.

EMPLOYMENT BY INDUSTRY

Table 2 reveals the 2003 distribution of employment by 16 industry groups across Wisconsin. As of March 2003, total employment was just over 2.6 million persons. The largest single industry was Manufacturing, with over 505,000 jobs or 19% of the total. The second largest was the combination of Health and Social Assistance. They employed 333,000 workers or 13% of the total. Within this combined industry, health and social assistance employment were responsible for about 85% and 15% of the total employment respectively. Close behind Health was Retail Trade with about 309,000 or 12% of total employment.

Two industries that are relatively large (8%) are Educational Services and Accommodation and Food Services. Educational Services consists mostly of the public K-12 school systems and the state university system. Wisconsin is home to both private K-12 schools and colleges and universities. The public entities, however, dominate the limited number of private educational institutions in terms of employment: approximately 73% of this employment is local public schools, 15% is public state colleges and universities, and 12% are private schools, colleges, and universities. Since the industry is so heavily public, no attempt has been made to differentiate between public and private sectors.

TABLE 2 STATE EMPLOYMENT BY INDUSTRY, 2003

Industry	Employment	Proportion
Agri., Mining and Construction	127,460	5%
Manufacturing	505,175	19%
Wholesale Trade	111,934	4%
Retail Trade	308,969	12%
Utilities, Trans. and Warehousing	119,283	5%
Information	51,915	2%
FIRE	153,591	6%
Professional and Technical Services	91,516	3%
*Management of Companies	37,854	1%
Administrative and Waste Services	110,362	4%
Educational Services	220,541	8%
Health Care and Social Assistance	333,242	13%
Arts, Entertainment and Recreation	35,762	1%
Accommodation and Food	202,336	8%
Other Services	82,654	3%
Public Administration	140,785	5%
Nonclassified	7,022	0.3%
TOTAL	**2,640,401**	**100%**

* Data are "broken" and are being revised by DWD; the numbers should not yet be relied upon for this industry

Far smaller numerically are some of the new industries. These include Information, with about 52,000 workers (2%), and Arts, Entertainment, and Recreation, with just over 35,000 workers (1%). The use of 16 rather than nine industries means that most will appear small. The advantage, however, is that we will have much more precise data in the future as the economy continues to change.

Table 3 reveals employment by industry for the different geographic areas of the state in March 2003. What is listed is total employment for each region, subdivided by the 16 different NAICS industry groups. The table is included to give readers insights into the size of employment in specific industries in specific locations. Thus, if one seeks to know employment in Information in Metro Milwaukee and Dane County, it is easy to see that Milwaukee's employment in this industry was about three times larger than that in Dane. The reader can also see the relative number of jobs in any industry across the regions.

The largest metropolitan area, Milwaukee, was home to almost 800,000 jobs. At the other end of the scale, Kenosha employers employed just over 51,000 workers. In between is a range of other metropolitan areas.

TABLE 3 REGIONAL EMPLOYMENT BY INDUSTRY, 2003

Industry	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State
Agric., Mining and Construction	7,861	14,564	8,572	2,207	2,088	30,912	3,441	2,802	55,013
Manufacturing	25,776	26,720	29,155	10,581	8,544	139,306	20,128	15,390	229,575
Wholesale Trade	5,853	10,193	4,294	1,889	3,645	40,313	3,071	3,050	39,626
Retail Trade	15,770	29,896	15,027	6,367	7,449	78,384	9,097	8,479	138,500
Utilities, Trans., and Warehousing	10,347	9,526	5,839	1,894	1,973	35,882	2,173	2,919	48,730
Information	2,483	6,959	3,146	430	1,132	18,471	641	1,250	17,403
FIRE	10,557	24,825	8,283	1,543	3,674	58,198	2,493	1,806	42,212
Professional and Technical Services	4,738	15,263	4,592	1,016	1,567	38,395	2,032	1,267	22,646
*Management of Companies	2,743	4,237	4,056	430	1,727	16,337	325	629	7,370
Administrative and Waste Services	5,089	11,012	7,175	1,389	2,481	48,880	3,307	2,770	28,259
Educational Services	9,291	33,251	7,488	6,128	5,430	62,540	5,047	5,661	85,705
Health Care and Social Assistance	16,807	35,286	13,000	6,614	12,254	108,489	10,033	7,509	123,250
Arts, Entertainment and Recreation	1,384	3,609	1,431	988	946	12,153	947	624	13,680
Accommodation and Food	12,562	20,476	8,354	4,954	5,533	52,193	5,217	5,097	87,950
Other Services	4,401	10,077	4,622	1,850	2,238	26,438	2,435	1,741	28,852
Public Administration	4,507	23,926	2,979	2,719	2,189	32,702	4,025	3,398	64,340
TOTAL	**140,169**	**279,828**	**128,022**	**51,004**	**62,870**	**799,640**	**74,418**	**64,416**	**1,040,034**

* Data are "broken" and are being revised by DWD; the numbers should not yet be relied upon for this industry

Above columns do not sum to TOTAL figure shown due to exclusion of nonclassified (not assigned to any industry) employment

Collectively, the eight metropolitan areas accounted for 61% of the employment in the state, just half a percent less than they accounted for in 1999.

The eight metropolitan areas did dominate certain industries in terms of the percentage of employment they contained in specific industries. For example, 73% of FIRE (Finance, Insurance and Real Estate) employment, 66% of Information employment, and 75% of Professional, Scientific and Technical Services employment were in the metropolitan areas. By contrast 55% of Manufacturing and 55% of Retail Trade employment were in the eight metropolitan areas detailed in this report.

What is clear from a glance at Table 3 is that one industry, Manufacturing, dominates all regions except for Dane County. Health Care and Social Assistance is the second largest in five regions and the largest in the sixth, which is also Dane County. Retail tends to be the third largest in most regions. There is some variety as one goes down the list of industries, but the big three do tend to dominate the top three positions in every region. The variations are seldom dramatic, but they do reveal that differences do exist across the state among the economies of its regions.

Changes in Employment by Industry and Location

Between 1999 and 2003 the U.S. economy gained 1.9 million jobs or 1.5% of its total employment. Wisconsin's economy downsized, losing about 9,234 jobs between the two years. This is a 0.3% decline. This loss is in marked contrast to Wisconsin's 21% growth between 1991 and 1999 or even the 9% growth between 1995 and 1999. The US and Wisconsin economies moved in different directions in the most recent four-year period.

TABLE 4 CHANGE IN STATE EMPLOYMENT BY INDUSTRY, 1999-2003

Industry	Absolute Change	% Change
Ag., Mining and Construction	2,956	2%
Manufacturing	-85,580	-17%
Wholesale Trade	-3,803	-3%
Retail Trade	-12,119	-4%
Utilities, Trans. and Warehousing	1,950	2%
Information	120	1%
FIRE	9,625	6%
Professional and Technical Services	7,824	9%
*Management of Companies	8,792	23%
Administrative and Waste Services	-4,808	-4%
Educational Services	17,248	8%
Health Care and Social Assistance	35,425	12%
Arts, Entertainment and Recreation	4,822	13%
Accommodation and Food	7,567	4%
Other Services	4,195	5%
Public Administration	5,766	4%
Nonclassified and Uncategorized	-9,214	NA
TOTAL	**-9,234**	
% CHANGE	**-0.3%**	

* Data are "broken" and are being revised by DWD; the numbers should not yet be relied upon for this industry

Uncategorized employment is primarily from buisiness, social, personal, engineering, accounting, research, management, and other service industries

Table 4 shows the absolute and relative change in employment by industry for the state of Wisconsin. This table is included to allow each area to view how it did relative to the state as a whole. On the plus side, Health Care and Social Assistance (+35,425) is the largest absolute grower, followed by Educational Services (+17,248). The third-fastest growing industry was FIRE (+9,625). In absolute terms, these are solid growth figures. What these numbers show, among other things, is that Health Care in Wisconsin, as elsewhere in the U.S., is a large and growing industry. This expansion is occurring in part because of the aging of the U.S. and state populations.

In relative terms the fastest growers were Management of Companies (+23%), Arts, Entertainment, and Recreation (+13%), Health Care (+12%), Professional and Technical Services (+9%), and Educational Services (+8%). Management of Companies is a new designation. The industry is small at 1% of the state's employment. In addition, the Department of Workforce Development is still working on correctly categorizing the establishments that belong in this category. For that reason we have eliminated it from any analysis after the next table; it would only confuse the reader. The second-fastest growth rate belongs to Arts, Entertainment, and Recreation, another new and extremely small industry (1% of state employment). These industries may become important, but at this point even with high rates of growth they contribute modestly to the state's economy in terms of employment.

On the negative side, the state was hard hit by job losses in Manufacturing. These equaled at least 85,580 jobs and were in excess of 17% of the 1999 manufacturing job base. During this same four-year period, the U.S. lost about 15.3% of its Manufacturing jobs, which may be some consolation for Wisconsin. Only three other industries in Wisconsin — Retail Trade, Wholesale Trade, and Administrative and Waste Services — were negative for the 1999-2003 period. All three suffered very modest relative declines in employment, although Retail did lose over 12,000 jobs, net. Aside from these, the state did grow in 12 of 16 industries. The unfortunate part is that despite gains of over 106,000 jobs in the 12 industries, manufacturing losses, combined with the other three industries' losses, more than equaled gains in the 12 growing industries.

Table 5 reveals the absolute changes that have occurred in employment in the 16 specified industries and in each region between 1999 and 2003. Again, we must warn the reader that the exact numbers should not be accepted as gospel. The numbers are very close to being exact, but since we had to take steps to assign NAICS to some of the 1999 employment, they should not be accepted as absolutely accurate. The percentage error, however, is likely to be very small.

The losses experienced by the state were not found in every region. Dane County, for example, grew by 4.4% in employment between 1999 and 2003. Brown County (Green Bay) grew by 1.9%. In absolute numbers, the Rest of the State added over 6,800 jobs, second only to Dane County. At the other end of the spectrum were Racine (-6.2%), Rock (-3.8%), and Milwaukee (-2.9%) metro areas. So geographically there were differences.

There were also changes by industry. One can easily see the losses in Manufacturing employment across all regions. Nonclassified and Uncategorized lost employment in eight regions, but these losses are hard to interpret because they represent losses that could not be tied to those specific industries. These are jobs that in 1999 did not have a NAICS code and could not accurately be assigned a NAICS code. This is the residual. Retail Trade, Administration and Waste Services each lost employment in five regions. And three industries — Construction, Wholesale Trade, and Utilities/Transportation/Warehousing — lost employment in four regions. By contrast industries such as Health Care and Social Assistance, Educational Services, and FIRE grew across all areas. Arts and Entertainment, Management of Companies and Professional, Scientific, and Technical Services grew in eight of nine areas. Accommodation and Food Services grew in seven.

Readers interested in particular regions should look in detail at the regions of greatest interest. This chart shows the absolute growth/decline within each.

Metropolitan Areas

Brown County was once again at the high end of employment growth. It did not exceed the growth in Dane, but it still grew during a very trying economic period. Three industries (plus the Uncategorized) experienced losses. The largest was Manufacturing (-2,802). This was a substantial turnaround from the 1990s that yielded growth of over 7,000 manufacturing jobs. The other two were the mixed combination of Administration/Support (-1,288) and Transportation, Warehousing, and Utilities (-403). It is likely that these also reversed a growth trend of the 1990s. On the plus side were the leaders: Health Care and Social Assistance (+2,685) and Educational Services (+1,195). The area also did quite well in FIRE (+725).

TABLE 5 ABSOLUTE CHANGE IN REGIONAL EMPLOYMENT BY INDUSTRY, 1999-2003

Industry	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State
Ag., Mining and Construction	753	572	142	190	-290	-41	-76	-110	1,816
Manufacturing	-2,802	-2,507	-5,546	-2,497	-2,465	-29,953	-4,409	-3,762	-31,639
Wholesale Trade	82	-162	-40	-544	48	-4,332	36	609	500
Retail Trade	347	-146	1,273	221	81	-5,688	-403	-201	-7,603
Utilities, Trans. and Warehousing	-403	6	212	129	104	-571	-143	-112	2,728
Information	290	110	586	-144	159	-1,265	-484	27	841
FIRE	725	1,826	389	270	556	2,498	2	93	3,266
Professional and Technical Services	479	2,742	110	140	68	1,762	-12	201	2,334
*Management of Companies	156	1,567	886	-171	637	4,038	196	100	1,383
Administrative and Waste Services	-1,288	-658	173	-4	51	-5,326	-1,302	215	3,331
Educational Services	1,195	2,899	1,082	722	488	5,182	515	498	4,667
Health Care and Social Assistance	2,685	5,050	803	1,206	1,257	10,296	827	542	12,759
Arts, Entertainment and Recreation	364	280	318	-56	14	2,638	118	10	1,136
Accommodation and Food	315	2,221	76	463	-16	467	463	-143	3,721
Other Services	387	1,252	418	248	34	-490	-165	-47	2,558
Public Administration	79	-1,162	299	304	-58	1,487	164	-163	4,816
Nonclassified and Uncategorized	-769	-2,033	-541	-311	-255	-4,963	-282	-282	222
TOTAL	**2,595**	**11,857**	**640**	**166**	**413**	**-24,261**	**-4,955**	**-2,525**	**6,836**
% CHANGE	**1.9%**	**4.4%**	**0.5%**	**0.3%**	**0.7%**	**-2.9%**	**-6.2%**	**-3.8%**	**0.7%**

* Data are "broken" and are being revised by DWD; the numbers should not yet be relied upon for this industry

Uncategorized employment is primarily from business, social, personal, engineering, accounting, research, management, and other service industries

Dane County led the state in growth rate and absolute employment growth. This occurred despite experiencing losses in five industries and the Uncategorized employment. Dane experienced the third-smallest absolute loss of manufacturing employment (-2,507), in part because it has the smallest relative role of manufacturing in its economy of any of the regions. But it also has newer manufacturing than many of its cohorts (manufacturing was later to develop in Madison than in many other parts of the state). The other larger loss (-1,162) came in Public Administration, an area that has come under pressure because of large public sector budget deficits. Some would view this job loss as a benefit rather than a cost.

On the plus side, Dane experienced its large growth in terms of Health Care and Social Assistance (+5,050), Educational Services (+2,899), Professional, Scientific, and Technical Services (+2,742), Accommodation and Food Services (+2,221), and FIRE (+1,826). Dane's economy grew despite having experienced losses in five of the 16 industries. These types of numbers give some credence to the recent Fortune article that ranked Madison as the number one city in the country for business.

Fox Cities continued to grow as it had in the 1990s, but at a markedly lower rate. The big problem was the loss of manufacturing jobs (-5,546). This number is almost the exact opposite of its manufacturing job gains in the 1990s. All of the other industries grew, except for Wholesale Trade and the Uncategorized. So the economy appears to be healthy, aside from Manufacturing. The economy experienced sizeable growth in Retail Trade (+1,273), Educational Services (+1,082), and Health Care and Social Assistance (+803).

The Kenosha economy basically stayed even, but there were shifts within the industries. Manufacturing lost jobs (-2,497), as did Wholesale Trade (-544). Four other industries plus the Uncategorized lost modest numbers of jobs. Most other industries gained enough to offset those losses. The three largest gainers were Health Care and Social Services (+1,206), Educational Services (+722), and Accommodation and Food Services (+463).

La Crosse did a bit better than break even. It gained 0.7% in terms of employment, despite having lost 2,465 jobs in manufacturing. Gains were realized in almost every other industry. By far the largest gains were in Health Care and Social Assistance (+1,257), and FIRE helped by contributing a gain of 556 jobs. But it was growth in many industries that put the county in positive territory over this challenging period.

Milwaukee suffered through this period. While it had grown more slowly than almost all other areas in the 1990s it had still added 105,000 jobs. The 1999-2003 period was a reversal: Milwaukee Metro lost over 24,000 net jobs. The large losses came especially in Manufacturing (-29,953), Retail Trade (–5,688), and Administrative and Waste Services (-5,326). Milwaukee lost in nine of the 17 categories, matched only by Racine in that regard.

Milwaukee, however, gained in several industries. These include Health Care and Social Assistance (+10,296), Educational Services (5,182), FIRE (+2,498), and Arts, Entertainment and Recreation (2,638). Milwaukee's absolute growth in the Arts is unmatched elsewhere in the state. Even if we include the supposed growth in Management of Companies (+4,038), these five largest growers cannot match the loss of 30,000 jobs in Manufacturing. The Milwaukee economy is undergoing a substantial transformation.

Racine County was the largest relative employment loser. It lost almost 5,000 jobs or 6.2% of its employment base. Racine had the slowest growth economy in the 1990s. Its current position is where it was in the 1990s, only now it is negative. The largest problem is the continuing loss of manufacturing jobs (-4,409), but it also lost jobs in eight of the 16 other industries. On the plus side, the largest net growth occurred in Health Care (+827) and Accommodation and Food Services (+463). These industries helped, but the modest growth in all industries could not offset the losses in Manufacturing much less industries such as Administrative and Waste Services.

Rock County experienced losses like Milwaukee and Racine. Its loss of 2,525 jobs yielded a rate of job loss of -3.8%. Losses occurred in eight of the 17 categories, but by far the largest losses came in Manufacturing. Most other industries were a little positive or a little negative. Growth in the area was led by the Wholesale Trade, Health Care and Social Assistance, and Educational Services industries. But their expansion could not offset the losses in Manufacturing.

The Rest of the State, the aggregation of rural and smaller metropolitan areas, did better than Southeastern Wisconsin. Although the Rest of the State lost over 31,639 jobs in manufacturing, it countered by substantial growth in Health Care and Social Assistance (+12,759) and several smaller gains such as Public Administration (+4,816), Educational Services (+4,667), and Accommodations and Food Services (+3,721). In fact, all other industries but Retail Trade and Manufacturing gained employment between 1999 and 2003. So the economies of the Rest of the State were largely healthy, were it not for Manufacturing and Retail Trade.

Industries with the Largest Employment Gains

One of the most intriguing questions is that of which specific industries have been carrying regional economies in this four-year period. We know there are job gains and losses overall. What is of greater interest is more specificity as to the industries that have been growing in these difficult times. Table 6 lists the ten fastest-growing industries in each region. In most instances the industries are identified by their three-digit NAICS code. But in some cases a two-digit code has been used in order to not reveal the identity of an employer.

One message is that there is some continuity across the regions: some industries appear in many different regions. Educational Services appear in all nine regions among the largest growing industries. Hospitals appear in eight regions. Food Services appear in seven, and Social Assistance appears in six. Also common are 621: Ambulatory Health Care and 522: Credit Intermediation (largely banks) that appear in five regions. The count can go on; a number of industries are shared across the state.

Other industry growth, however, is unique to a particular area. Individual fast-growing industries, such as 922: Justice and Public Order in Brown County, 812: Personal and Laundry Services in Kenosha, and 327: Nonmetallic Mineral Products in Rock County are examples.

When we look at each geographic area, it becomes clear as to just which industries have been leading in terms of net job creation. In Brown County the leaders are, Hospitals, Educational Services and Ambulatory Health Care Services. These are commonplace and relate to increasing health care needs of the aging population and additional emphasis on education as well as the servicing of the baby boomlet with K-12 education. The only possible surprise is the existence of some industry in the Information industry. The exact industry had to be suppressed to prevent disclosure.

Dane County's growth was led by a number of the common industries, including Educational Services, Professional, Scientific, and Technical Services, Food Services and Drinking Places, and some Health industries. The five fastest growing industries together generated almost as much net employment growth as the rest of the economy altogether. Obviously, there were losers as well as winners in this economy.

The Fox Cities' growth was led by Educational Services. There is less health care growth and greater variety among those rapidly growing than most areas. For example, an industry in Information grew more than in most areas, as did General Merchandise Stores.

Kenosha's economy was also led by Educational Services. And it is furthered bolstered by three health industries. Few of these gains are large; in fact, none was over 750 jobs, net. Not a single manufacturing industry appears, revealing the very changed nature of the Kenosha economy.

La Crosse's economy was led by Health Care, Banking, Education Services, and Information. None were large growers, but four did add between 475 and 600 jobs each. These were important to a smaller economy.

Metro Milwaukee is like many others in the state. Its largest contributors to growth included Education Services, Hospitals, Social Assistance, Ambulatory Care, and a specific industry in Arts, Entertainment, and Recreation. Together these five industries added a net of 18,398 jobs, not enough to offset the combined loss in all industries. As was obvious earlier, the net loss of employment in Milwaukee indicates that despite substantial growth in several industries, the losses in others were too great to overcome.

Racine, despite its loss of over 6% of its employment base, did experience some growth. Hospitals, Food Manufacturing, and Educational Services all added over 500 jobs each. But these were not enough for the overall economy to grow.

Rock County was home to many of the common growing industries, but the scale of their growth was not sufficient to overcome the losses elsewhere. Only a particular industry within Wholesale Trade added more than 500 jobs. The others were more modest, with the tenth fastest-grower, Accommodations, adding just 113 jobs over four years. The ten fastest growing industries were just able collectively to generate enough jobs to equal the net job loss for the metro area 1999-2003.

The Rest of the State did experience growth during the four-year study period. The area's fastest growers might suggest that, with their aggregate growth of 36,736 jobs. These jobs were in some of the common industries: Health Care — Ambulatory Care, Hospitals, and Nursing and Residential Care — and Educational Services, but growth also

TABLE 6 INDUSTRIES WITH THE LARGEST GAIN IN EMPLOYMENT BY THREE-DIGIT NAICS, 1999-2003

Brown County

Rank	NAICS	Industry	Gain
1	622	Hospitals	1,282
2	611	Educational Services	1,195
3	621	Ambulatory Health Care Services	916
4	522	Credit Intermediation	757
5	23	Construction	635
6	922	Justice, Public Order and Safety	524
7	722	Food Services and Drinking Places	481
8	541	Prof., Scientific, and Tech. Services	479
9	51	Information	434
10	623	Nursing and Residential Care Facilities	383

Dane County

Rank	NAICS	Industry	Gain
1	611	Educational Services	2,899
2	541	Prof., Scientific, and Tech. Services	2,742
3	722	Food Services and Drinking Places	2,085
4	621	Ambulatory Health Care Services	1,984
5	622	Hospitals	1,935
6	524	Insurance Carriers	1,897
7	51	Information	1,188
8	624	Social Assistance	943
9	23	Construction	665
10	813	Religious, Civic, and Prof. Org's	579

Fox Cities

Rank	NAICS	Industry	Gain
1	611	Educational Services	1,082
2	623	Nursing and Residential Care Facilities	877
3	452	General Merchandise Stores	716
4	51	Information	587
5	624	Social Assistance	567
6	522	Credit Intermediation	421
7	23	Construction	374
8	813	Religious, Civic, and Prof. Org's	337
9	336	Transportation Equipment	318
10	523	Securities, Commodity Contracts	294

"551 Management of Companies" removed

Selected three-digit industries are disguised if they either have too few firms or one large firm accounts for 80% of employment in that industry

TABLE 6 (CONT) INDUSTRIES WITH THE LARGEST GAIN IN EMPLOYMENT BY THREE-DIGIT NAICS, 1999-2003

Kenosha County

Rank	NAICS	Industry	Gain
1	611	Educational Services	722
2	622	Hospitals	466
3	722	Food Services and Drinking Places	454
4	623	Nursing and Residential Care Facilities	321
5	921	Government Support	316
6	624	Social Assistance	289
7	621	Ambulatory Health Care Services	239
8	522	Credit Intermediation	221
9	812	Personal and Laundry Services	202
10	561	Administrative and Support Services	196

La Crosse County

Rank	NAICS	Industry	Gain
1	621	Ambulatory Health Care Services	606
2	622	Hospitals	533
3	522	Credit Intermediation	530
4	611	Educational Services	488
5	51	Information	284
6	42	Wholesale Trade	279
7	444	Building Material and Garden Equip.	227
8	624	Social Assistance	163
9	311	Food Manufacturing	145
10	484	Truck Transportation	117

Metro Milwaukee

Rank	NAICS	Industry	Gain
1	611	Educational Services	5,182
2	622	Hospitals	4,304
3	624	Social Assistance	4,170
4	621	Ambulatory Health Care Services	2,643
5	71	Arts, Entertainment and Recreation	2,099
6	522	Credit Intermediation	1,863
7	541	Prof., Scientific, and Tech. Services	1,762
8	722	Food Services and Drinking Places	1,274
9	524	Insurance Carriers	1,169
10	311	Food Manufacturing	1,118

"551 Management of Companies" removed

Selected three-digit industries are disguised if they either have too few firms or one large firm accounts for 80% of employment in that industry

TABLE 6 (CONT) INDUSTRIES WITH THE LARGEST GAIN IN EMPLOYMENT BY THREE-DIGIT NAICS, 1999 - 2003

Racine County

Rank	NAICS	Industry	Gain
1	622	Hospitals	573
2	311	Food Manufacturing	547
3	611	Educational Services	515
4	624	Social Assistance	307
5	621	Ambulatory Health Care Services	231
6	42	Wholesale Trade	170
7	722	Food Services and Drinking Places	170
8	713	Amusement, Gambling and Recreation	137
9	522	Credit Intermediation	99
10	441	Motor Vehicle and Parts Dealers	97

Rock County

Rank	NAICS	Industry	Gain
1	42	Wholesale Trade	768
2	611	Educational Services	498
3	722	Food Services and Drinking Places	331
4	621	Ambulatory Health Care Services	301
5	561	Administrative and Support Services	279
6	622	Hospitals	236
7	541	Prof., Scientific, and Tech. Services	201
8	327	Nonmetallic Mineral Product Mfg.	200
9	453	Electronics and Appliance Stores	117
10	721	Accommodation	113

Rest of State

Rank	NAICS	Industry	Gain
1	621	Ambulatory Health Care Services	6,235
2	999	Nonclassifiable	4,725
3	611	Educational Services	4,667
4	622	Hospitals	3,552
5	921	Government Support	3,442
6	42	Wholesale Trade	3,408
7	561	Administrative and Support Services	2,988
8	623	Nursing and Residential Care Facilities	2,690
9	722	Food Services and Drinking Places	2,670
10	524	Insurance Carriers	2,359

"551 Management of Companies" removed

Selected three--digit industries are disguised if they either have too few firms or one large firm accounts for 80% of employment in that industry

occurred in such industries as “non-classifiable,” Government Support (the only government listing among the ninety listings), Wholesale Trade, Food Services, and Insurance Carriers. It is a mix, one that worked to create growth in the region.

Largest Gains and Losses in Manufacturing

As is clear in the preceding table, unless we focus directly on Manufacturing, we will not notice any of the growth that might have occurred in the industry. That would be unfortunate, since there actually were some sizable gains in Manufacturing in certain areas. What also would be missed is where the greatest losses have occurred. Everyone hears of the bleeding in the industry, but few can pinpoint in which industries it has occurred across the state. Table 7 allows the reader to spot what went right and what went wrong in Manufacturing in various parts of the state.

As will be clear upon inspection, there are almost no industries that grew in more than one region. Two exceptions are meatpacking (Animal Slaughtering and Processing) and Wood Kitchen Cabinet and Countertops. And various forms of Food Manufacturing (NAICS 311) appear in five of the nine regions, suggesting a continuing strength in the state. Otherwise each appears unique to one geographic area, but look back at this table and you will notice many commonalities if you just focus on the first three digits. There are greater commonalities among the losing industries. Some industries that lost in more than one region are Paper Mills, Printing, Machinery Manufacturing, Other Industrial Machinery, Other Plastic Products, and Electrical Equipment Manufacturing. Many of these have been traditional strengths of Wisconsin economies, and many of them grew in the 1990s.

A quick glance at Table 7 reveals that in every community the top gainers have much smaller numbers associated with them than the top losers. The top gainers often were able to replace only a third of the jobs lost by the industries in greatest decline. There is little wonder as to why the state experienced a net loss of so many manufacturing jobs.

Brown County had rather modest gains in Manufacturing. Its five largest growth industries added a total of 858 jobs while its five largest decliners lost 2,799. The County’s largest growth came in meatpacking: +320 jobs. Two of its five growers are related to paper, but its largest losses also came from paper, in this case Paper Mills. The industry is changing, as is the role of Green Bay in that change. Paper Mills were one of the largest growers in manufacturing in the 1990s, as were Furniture, Machinery and Printing. Perhaps these trends will change again, but given the increased global competition, it will be harder to reverse the declines in manufacturing employment.

Dane County is not heavily involved in manufacturing, compared to other parts of Wisconsin. And, unlike other parts of the state, there was not a large mismatch between its largest gainers and losers. The top five gainers added 1,242 jobs while the losers dropped 1,995. The industries that grew are rather specialized and had to be disguised in more inclusive NAICS codes. Three of the growing industries appear to be in higher technology fields, a condition not found in any other region. What is also interesting is that the manufacturing industries that lost the most employment tended to be niche industries that were not large enough to receive their own NAICS codes. This implies a rather different mix than found elsewhere in the state.

The Fox Cities, which is still more reliant on manufacturing than the state as a whole, experienced a real imbalance between the gains of the winners and the losses of those that declined the most. The five largest losses equaled 3,584 while the largest gainers added a mere 609 jobs. In other words the gains were one-sixth of the losses. No single industry gained more than 210 jobs. There was little in manufacturing that was strongly positive during the 1999-2003 period.

On the negative side, Paper Mills, as in Brown County, were a substantial loser, but the area also lost employment in the Computer industry, Other Industrial Machinery, Paper Bags and Treated Paper, and Bread and Bakery Products. In the 1990s several of these industries were on the largest growth list for the area.

Kenosha was known as a manufacturing center for many decades. As of 2003, Manufacturing was responsible for 20.7% of employment in the County, just above the state average. But the 1999-2003 period was not kind to Manufacturing in this metropolitan area: losses among the largest losers outpaced the largest gains by 1,885 to 432 or a greater than 4:1 ratio. The gains were in specialty manufacturing, industries that are so unique that we had to disguise their identification in four of the five cases. None of the gains are very large. The one point that can be made is that the losses tended to be concentrated in traditional Wisconsin industries: Fabricated Metal and Industrial Machinery.

TABLE 7 MANUFACTURING INDUSTRIES WITH THE LARGEST GAIN AND LOSS IN EMPLOYMENT BY FIVE-DIGIT NAICS, 1999-2003

Brown County

Rank	NAICS	Industry	Gain
1	31161	Animal Slaughtering and Processing	320
2	32229	Other Converted Paper Product	289
3	32619	Other Plastic Products	93
4	32222	Coated and Treated Paper	82
5	33232	Architectural Metal Products	74

Rank	NAICS	Industry	Loss
1	32212	Paper Mills	-1,473
2	33329	Other Industrial Machinery	-520
3	337	Furniture and Related Products	-430
4	33399	Other General Purpose Machinery	-198
5	32311	Printing	-178

Dane County

Rank	NAICS	Industry	Gain
1	3352	Household Appliance	470
2	3345	Control Instruments	286
3	3254	Pharmaceutical and Medicine	239
4	33911	Medical Equipment and Supplies	147
5	33271	Machine Shops	100

Rank	NAICS	Industry	Loss
1	336	Transportation Equipment	-581
2	32619	Other Plastics Products	-463
3	33399	All Other General Purpose Machinery	-386
4	33329	Other Industrial Machinery	-314
5	3359	Other Electrical Equipment	-251

Fox Cities

Rank	NAICS	Industry	Gain
1	336	Transportation Equipment	207
2	32229	Other Converted Paper Product	130
3	336	Transportation Equipment	124
4	33392	Material Handling Equipment	86
5	3273	Cement and Concrete Product	62

Rank	NAICS	Industry	Loss
1	32212	Paper Mills	-1,243
2	334	Computer and Electronic Product	-921
3	33329	Other Industrial Machinery	-517
4	32222	Coated and Treated Paper	-477
5	31181	Bread and Bakery Products	-426

Selected five-digit industries are disguised if they either have too few firms or one large firm accounts for 80% of employment in that industry

TABLE 7 (CONT) MANUFACTURING INDUSTRIES WITH THE LARGEST GAIN AND LOSS IN EMPLOYMENT BY FIVE-DIGIT NAICS, 1999-2003

Kenosha County

Rank	NAICS	Industry	Gain
1	335	Electrical Equipment	149
2	33232	Architectural Metal Products	118
3	327	Nonmetallic Mineral Product	60
4	335	Electrical Equipment	54
5	322	Paper Manufacturing	51

Rank	NAICS	Industry	Loss
1	336	Transportation Equipment	-457
2	33329	Other Industrial Machinery	-399
3	332	Fabricated Metal Product	-366
4	334	Computer and Electronic Product	-331
5	332	Fabricated Metal Product	-232

La Crosse County

Rank	NAICS	Industry	Gain
1	311	Food Manufacturing	133
2	33711	Wood Kitchen Cabinet and Countertop	113
3	321	Wood Products	52
4	321	Wood Products	26
5	339	Miscellaneous Manufacturing	19

Rank	NAICS	Industry	Loss
1	333	Machinery Manufacturing	-683
2	316	Leather and Allied Products	-591
3	32619	Other Plastic Products	-505
4	312	Beverage and Tobbaco Products	-312
5	336	Transportation Equipment	-143

Metro Milwaukee

Rank	NAICS	Industry	Gain
1	31161	Animal Slaughtering and Processing	1,232
2	33699	Other Transportation Equipment	920
3	31499	All Other Textile Products	213
4	31199	All Other Food Manufacturing	102
5	31192	Coffee and Tea Manufacturing	87

Rank	NAICS	Industry	Loss
1	32311	Printing	-3,314
2	33531	Electrical Equipment Manufacturing	-2,903
3	33361	Engine, Turbine, and Transmission	-2,860
4	33639	Other Motor Vehicle Parts	-2,443
5	33351	Metalworking Machinery	-1,245

Selected five-digit industries are disguised if they either have too few firms or one large firm accounts for 80% of employment in that industry

TABLE 7 (CONT) MANUFACTURING INDUSTRIES WITH THE LARGEST GAIN AND LOSS IN EMPLOYMENT BY FIVE-DIGIT NAICS, 1999-2003

Racine County

Rank	NAICS	Industry	Gain
1	333	Machinery Manufacturing	659
2	311	Food Manufacturing	564
3	3261	Plastic Products	191
4	3256	Soap, Compound, and Toilet Prep.	96
5	33721	Office Furniture (including Fixtures)	65

Rank	NAICS	Industry	Loss
1	333	Machinery Manufacturing	-1,561
2	33531	Electrical Equipment Mfg.	-539
3	33399	Other General Purpose Machinery	-394
4	33152	Nonferrous Metal Foundries	-312
5	3315	Foundries	-269

Rock County

Rank	NAICS	Industry	Gain
1	327	Nonmetallic Mineral Product	196
2	3363	Motor Vehicle Parts	142
3	311	Food Manufacturing	88
4	3219	Other Wood Product	55
5	3363	Motor Vehicle Parts	47

Rank	NAICS	Industry	Loss
1	33329	Other Industrial Machinery	-829
2	336	Transportation Equipment	-633
3	332	Fabricated Metal Product	-332
4	3363	Motor Vehicle Parts	-298
5	332	Fabricated Metal Product	-264

Rest of State

Rank	NAICS	Industry	Gain
1	31151	Dairy Product (except Frozen)	549
2	33231	Plate Work and Fabricated Product	474
3	3361	Motor Vehicle Manufacturing	452
4	32611	Plastics Packaging Materials	384
5	33711	Wood Kitchen Cabinet and Countertop	231

Rank	NAICS	Industry	Loss
1	33441	Semiconductor and Electronic Component	-2,460
2	32212	Paper Mills	-2,398
3	33531	Electrical Equipment Manufacturing	-2,345
4	33411	Computer and Peripheral Equipment	-1,959
5	33351	Metalworking Machinery	-1,595

Selected five-digit industries are disguised if they either have too few firms or one large firm accounts for 80% of employment in that industry

La Crosse County in the 1990s had modest gains among its fastest growing manufacturers. In the 1999-2003 period the largest gains were considerably more modest than they were in the 1990s. The top five manufacturing growers added a total of 343 jobs, 1999 to 2003, compared to 5,346 in the 1990s. Only two industries added more than 100 jobs in the study period. All industry gains are so small that the industries and firms had to be disguised.

The five largest employment losers in this period combined to lose 2,234 jobs or 6.5 times more jobs than were gained by the fastest growers. Again the specific industries had to be disguised for confidentiality, but the general industries are noted. It was not a good period for manufacturing in La Crosse.

The same somber assessment applies to Metro Milwaukee. The five largest losers lost five times more jobs (-12,765) than the gainers added (+2,554). The losers were high profile Milwaukee industries like Printing, Electrical Equipment Manufacturing and Engine, Turbine, and Power Transmission — industries synonymous with Milwaukee.

The growing industries grew modestly. The fastest growing was Animal Slaughtering and Processing, as it was in Brown County. This is an historic industry in Milwaukee, but not one that was a likely growth winner. Food industries are included in three of the fastest growing. But the number of jobs added cannot come close to the size of the losses incurred. These industries illustrate just how vulnerable old-line Milwaukee manufacturing has become.

This is especially true for all parts of Milwaukee. The City's manufacturing sector lost 10,130 jobs or greater than 20% of its 1999 manufacturing job base. The Milwaukee County suburbs lost 8,804 manufacturing jobs or 24.6% of its manufacturing jobs. The three suburban counties lost even more jobs (11,019) but at a lower rate (13.2%). Losses occurred in the vast majority of industries. The largest net losses came in very traditional strongholds: Fabricated Metal Products, Electrical Equipment, and Machinery Manufacturing.

Racine County lost about twice as many jobs among its fastest losers compared to the fastest growers: 3,075 versus 1,575. The small economy and the limited number of firms that have grown force us again to use disguised identification, but the industries are in traditional manufacturing industries. Somewhat surprising, a gainer was in Machinery Manufacturing, a general area in which many regions lost a substantial number of jobs. After the top two industries, the size of the growth was pretty modest. The same cannot be said for the losers. A specific industry within Machinery Manufacturing lost 1,561 jobs, virtually offsetting the gains of the five fastest growers. The other machinery manufacturing and the foundries just added to the losses.

Rock County was in the same boat, only further under water. The top losers lost 4.5 times more jobs than the gainers, 2,346 versus 528. The winners and losers come from different industries, but all titles look like traditional industries in Wisconsin. These were just tough times for traditional manufacturing.

The Rest of the State would echo that. The largest losers outpaced the largest gainers by greater than a five to one margin, -10,757 versus +2,090. Most of the winners are unique: especially Dairy Product, Plate Work, and Motor Vehicle Manufacturing. The losers have some industries, such as Paper Mills and Electrical Equipment Manufacturing, shared with other areas. In addition, it has two unique industries that the state hates to see in the negative column: Semiconductors and Computers and Peripheral Equipment. These are the industries most residents expect to see lead the New Economy for Wisconsin. But these industries are down the food chain if they are in small town Wisconsin, and since the national centers for computers and chips took huge beatings, it is no wonder that Wisconsin suffered as well.

Service Industries with the Largest Gains, 1999-2003

Wisconsin's regions did much better in the 1999-2003 period with service industries than it did with manufacturing. To help illustrate this, we list the ten service industries in each region that added the most jobs (Table 8). In the smallest regions the 10th largest gainer may be in the 50 to 100-job range, but in the largest the gains are often well over 1,000 or even 2,000.

As the reader will soon note, there are some industries that appear in a high proportion of the regions. These include Elementary and Secondary Schools (all regions), Offices of Physicians (all), Medical and Surgical Hospitals (8 of 9), Care Facilities for the Elderly (8). Beyond these common industries there is substantial variation.

Elementary and Secondary Education registered gains because of the need to accommodate a mini-babyboom that was moving through the K-12 system. This trend will change as the cohort moves into adulthood and the schools grapple with the high costs of health care and pensions that are forcing layoffs. Offices of Physicians' employment continues to grow as the population ages and more use is made of outpatient services. The Hospitals continue to add

TABLE 8 SERVICE INDUSTRIES WITH THE LARGEST GAIN IN EMPLOYMENT BY FIVE-DIGIT NAICS, 1999-2003

Brown County

Rank	NAICS	Industry	Gain
1	62211	Medical and Surgical Hospitals	1,297
2	61111	Elementary and Secondary Schools	811
3	62111	Offices of Physicians	633
4	722	Food Services and Drinking Places	481
5	56172	Janitorial Services	328
6	62331	Care Facilities for the Elderly	286
7	81341	Civic and Social Organizations	211
8	71	Arts, Entertainment, and Recreation	210
9	56161	Investigation, Guard, and Armored Car	199
10	611	Educational Services	193

Dane County

Rank	NAICS	Industry	Gain
1	722	Food Services and Drinking Places	2,085
2	62211	Medical and Surgical Hospitals	1,924
3	61111	Elementary and Secondary Schools	1,296
4	611	Educational Services	1,077
5	56142	Telephone Call Centers	1,001
6	62111	Offices of Physicians	837
7	54151	Computer Systems Design	832
8	6214	Outpatient Care Centers	493
9	54171	R & D in Physical, Eng., and Life Sciences	453
10	54133	Engineering Services	390

Fox Cities

Rank	NAICS	Industry	Gain
1	62111	Offices of Physicians	1,602
2	61111	Elementary and Secondary Schools	783
3	56142	Telephone Call Centers	591
4	62311	Nursing Care Facilities	504
5	62331	Care Facilities for the Elderly	350
6	5417	Scientific R & D	347
7	81341	Civic and Social Organizations	315
8	62431	Vocational Rehabilitation Services	232
9	81411	Private Households	194
10	611	Educational Services	192

"551 Management of Companies" removed

"722 Food Services and Drinking Places" aggregated up to three-digit level for this table

Selected five-digit industries are disguised if they either have too few firms or one large firm accounts for 80% of employment in that industry

TABLE 8 (CONT) SERVICE INDUSTRIES WITH THE LARGEST GAIN IN EMPLOYMENT BY FIVE-DIGIT NAICS, 1999-2003

Kenosha County

Rank	NAICS	Industry	Gain
1	61111	Elementary and Secondary Schools	571
2	62211	Medical and Surgical Hospitals	466
3	722	Food Services and Drinking Places	454
4	62311	Nursing Care Facilities	201
5	81211	Hair, Nail, and Skin Care Services	163
6	62111	Offices of Physicians	157
7	561	Administrative and Support Services	133
8	62331	Care Facilities for the Elderly	129
9	62412	Services for the Elderly and Disabled	124
10	611	Educational Services	106

La Crosse County

Rank	NAICS	Industry	Gain
1	62111	Offices of Physicians	555
2	62211	Medical and Surgical Hospitals	533
3	56172	Janitorial Services	238
4	61111	Elementary and Secondary Schools	187
5	7139	Amusement and Recreation	178
6	611	Educational Services	133
7	81341	Civic and Social Organizations	95
8	6241	Individual and Family Services	87
9	62121	Offices of Dentists	73
10	62331	Care Facilities for the Elderly	64

Metro Milwaukee

Rank	NAICS	Industry	Gain
1	62211	Medical and Surgical Hospitals	4,027
2	61111	Elementary and Secondary Schools	2,697
3	62412	Services for the Elderly and Disabled	2,669
4	62111	Offices of Physicians	2,161
5	61131	Universities and Prof. Schools	1,777
6	722	Food Services and Drinking Places	1,274
7	62331	Care Facilities for the Elderly	1,058
8	71	Arts, Entertainment and Recreation	1,035
9	62441	Child Day Care Services	790
10	54161	Management Consulting Services	772

"551 Management of Companies" removed

"722 Food Services and Drinking Places" aggregated up to three-digit level for this table

Selected five-digit industries are disguised if they either have too few firms or one large firm accounts for 80% of employment in that industry

TABLE 8 (CONT) SERVICE INDUSTRIES WITH THE LARGEST GAIN IN EMPLOYMENT BY FIVE-DIGIT NAICS, 1999-2003

Racine County

Rank	NAICS	Industry	Gain
1	62211	Medical and Surgical Hospitals	521
2	61111	Elementary and Secondary Schools	423
3	5613	Employment Services	272
4	722	Food Services and Drinking Places	170
5	62331	Care Facilities for the Elderly	167
6	62441	Child Day Care Services	158
7	62111	Offices of Physicians	143
8	62412	Services for the Elderly and Disabled	115
9	71394	Fitness and Rec. Sports Centers	84
10	54194	Veterinary Services	65

Rock County

Rank	NAICS	Industry	Gain
1	61111	Elementary and Secondary Schools	359
2	722	Food Services and Drinking Places	331
3	62211	Medical and Surgical Hospitals	236
4	62331	Care Facilities for the Elderly	216
5	5613	Employment Services	200
6	62111	Offices of Physicians	200
7	54121	Accounting, Tax Prep., Bookkeeping	158
8	54161	Management Consulting Services	129
9	7212	RV Parks and Recreational Camps	95
10	56132	Temporary Help Services	91

Rest of State

Rank	NAICS	Industry	Gain
1	61111	Elementary and Secondary Schools	3,492
2	62111	Offices of Physicians	3,188
3	62211	Medical and Surgical Hospitals	3,104
4	722	Food Services and Drinking Places	2,670
5	62331	Care Facilities for the Elderly	1,620
6	621	Ambulatory Health Care Services	1,564
7	72111	Hotels and Motels	1,525
8	62412	Services for the Elderly and Disabled	917
9	56172	Janitorial Services	804
10	81341	Civic and Social Organizations	755

"551 Management of Companies" removed

"722 Food Services and Drinking Places" aggregated up to three-digit level for this table

Selected five-digit industries are disguised if they either have too few firms or one large firm accounts for 80% of employment in that industry

employment as their utilization increases and their numbers expand, following a period of contraction. Again the age distribution in the state contributes, as does the incidence of such factors as a high obesity rate.

Another industry that commonly grew was that entitled Care Facilities for the Elderly. This is as it appears: residential care facilities for the elderly and those unable to fully care for themselves. What drives the demand is the aging population. This is likely to be a growth industry, as the leading edge of the baby boomers has yet to reach age 60. But the population cohort 75 years of age and over is growing relatively rapidly. It will just grow geometrically in another decade.

Brown County experienced some large service industry gains. Hospitals, schools, and physician offices led the way. These three industries added over 2,700 jobs, more than the net growth in the economy. Janitorial services had some larger gains, as did Care Facilities for the Elderly. There was some variety in the services growth, and if the numbers are reflective, these ten industries alone added over 4,600 jobs.

Dane County also experienced substantial growth in these detailed industries, but the gains from these ten industries are in the neighborhood of 10,400 jobs. That matches the community's total net job gain in the 1999-2003 period. Aside from restaurants, health care and education lead the pack, aided by telephone call centers and computer system design. These industries cover quite a range of services.

The Fox Cities saw some large gains in service employment, especially in contrast to those in manufacturing. Health care industries added some 2,450 jobs. Education added almost 800, and call centers almost 600. These are large numbers in comparison to the overall 640 jobs gained for the region. Losses in other industries clearly took a toll.

Kenosha County benefited to a much greater extent from its services employment than from its traditional manufacturing. Education added close to 600 jobs. Health industries added almost 1,200 jobs. Assorted other industries also contributed. But it is health care in its various forms that is really driving the economy.

La Crosse County's growth was led by four health industries. These combined to add 1,225 jobs. Education services added 320 jobs. Janitorial Services added about 238 more. There is a unique mix to this economy's service growth. And the top ten grew by over 2,100 jobs, a net gain that was almost large enough to erase losses in other industries.

Milwaukee experienced substantial growth in several service industries. The health care field contributed four different industries to the large-scale growth. K-12 education was another large contributor. Even the arts, entertainment and recreation added over 1,000 positions in one of its five-digit NAICS industries. Together, these ten industries added over 18,000 net new jobs, about three-quarters of the net job loss for the metro area. Were it not for the growth in these ten industries, the economy would have lost many more jobs than it did. Furthermore, the growth in these specific industries mirrors the growth in the larger industries in this region.

Racine cannot make the same claim. The top ten growers in service added less than half the number of jobs needed to wipe out the job loss for the period. These ten added about 2,100 jobs while the economy lost 4,955. Only one (Hospitals) of the growing industries added at least 500 jobs. The four Health Care industries reflect the changing nature of health care and the growth common to many Wisconsin municipalities. The growth in Fitness Center employment may reflect a greater concern about the growth in health care employment and the need for such care.

Rock County is a smaller economy, so the numbers are smaller. K-12 education leads with 359 additional jobs. This was followed by Food Service and Drinking Places, Health Care, Employment Services, Management Consulting, and Accounting. The mix is different from other areas. The total is just over 2,000 jobs, not quite enough to offset the losses in other industries. And none of the industries has grown to such a degree that it outpaces the others. The message is that a number of industries are growing modestly; no one industry is leading the Rock County economy in terms of growth.

The Rest of the State experienced large numerical growth in many service industries. Education, health care of various sorts, Food Service and Drinking Places, and hotels led the way. Altogether the ten industries added over 19,600 jobs, many more than enough to offset the area's losses. The mix of industries is quite similar to most of the metropolitan areas, suggesting that the less-populated parts of the state are not very different from the more heavily populated areas.

Consumer- versus Export-Based Industry Employment

Having looked at some specific industries, we move to a new way of aggregating some of the data. Economic theory holds that certain types of employment are more likely to have secondary impacts on the local economy. Those that have greater impact are referred to as "export" industries. These industries tend to sell their goods and services outside the metropolitan areas in which they are located. In return they receive dollars for those goods and services that are then injected into the local economy in terms of labor, goods, and services purchased. Economies are healthier, if they have larger concentrations of export industries.

One attempt to gain insights into the health of the local economies is to compare employment in consumer, (implying local sales), versus export, (implying non-local sales). That is what occurs in Table 9. The question we are asking is not the absolute size of these industries but the size of the job gains over four years in these industries. Areas that have larger gains in export industries and larger net overall gains are more likely to have been healthier. The best ratio is to have export gains larger than consumer gains.

Consumer-base and export-base are rather narrowly defined for this exercise. That is historically how it has been done. Consumer-base industries include Personal Services, Retail Services, and Small Scale (less than 20 employees) Business Services. Export-base industries include Manufacturing and Larger Scale Business Services (those with 20 or more employees).

Unfortunately, export industry gains were smaller than consumer-based jobs in all of the nine economies in Wisconsin in the four-year study period. In fact, Dane County was the only area to have a positive gain (+52 jobs) in Export-Base employment. The area's large-scale business services were just large enough to more than offset the manufacturing losses that were incurred. That speaks to the trouble that manufacturing had in the 1999-2003 period. But even large-scale business services had job losses in five of the nine economies. This was clearly a trying economic time for export-based Wisconsin employers.

Brown County saw most of its consumer demand growth come from gains in Retail Services and to some degree, small-scale business services. Solid gains though these were, they could just barely overcome the losses in both manufacturing and large-scale business services.

Dane County also came out ahead. Its growth was largely attributable to Retail Services and small- and large-scale Business Services. These easily overwhelmed the modest losses in Manufacturing. Unfortunately, Brown and Dane were the only regions that were able to have net growth on these measures.

All other regions had manufacturing losses greater and often far greater than the gains in consumer demand. The Fox Cities joined Milwaukee and Racine as the places where not only Manufacturing but also large-scale business services experienced net employment losses for the period. Rock also experienced net employment loss in Manufacturing. This was a very difficult economic period for much of the Wisconsin economy. It is little wonder that employment growth was slow: there was less money coming into the export-base employers.

Employment and Employment Change in Technology Industries

When we look at economic growth in the U.S. over the last 30 years, there is a very high correlation of employment growth or economic growth and the growth of technology industries. That is why technology is continuously a topic of conversation. To help contribute to that conversation, we offer a table that has two parts. The first examines what is termed "High-Tech" employment, employment that is largely but not completely computer related. The complete list of industries appears in the appendix. Among the industries included in the current definition offered by Dun and Bradstreet and the American Electronics Association are the following: Computer Equipment Manufacturing, Control Instrument Manufacturing, Computer Systems Design and Related Services, and Wireless Telecommunications Carriers.

The second table we offer examines biotech. Since almost all analysis of industries has changed from SIC to NAICS, the definition of biotech has also changed. It has narrowed to some extent. As defined by the Brookings Institution, the industries now included in biotech are the following: Pharmaceutical and Medicine Manufacturing, and Research & Development in the Physical, Engineering, & Life Sciences.

None of these forms of technology is found in profusion in Wisconsin. Two metro areas, Dane and Milwaukee, have higher percentages compared to other areas of the state. Both are close to the U.S. average in high tech, but the

TABLE 9 CHANGE IN EMPLOYMENT IN CONSUMER-BASED AND EXPORT-BASED INDUSTRIES

Brown County

	1999	2003	1999-2003
Residentiary Demand	**29,060**	**32,454**	**3,394**
Personal Services	1,241	1,367	126
Retail Services	25,337	27,901	2,564
Small-Scale Business Services	2,482	3,186	704
Export Base	**36,306**	**33,252**	**(3,054)**
Manufacturing	28,381	25,776	(2,605)
Large-Scale Business Services	7,925	7,476	(449)
Totals	**65,366**	**65,706**	**340**

Dane County

	1999	2003	1999-2003
Residentiary Demand	**56,983**	**63,480**	**6,497**
Personal Services	2,470	2,823	353
Retail Services	48,380	53,097	4,717
Small-Scale Business Services	6,133	7,560	1,427
Export Base	**47,339**	**47,391**	**52**
Manufacturing	28,634	26,720	(1,914)
Large-Scale Business Services	18,705	20,671	1,966
Totals	**104,322**	**110,871**	**6,549**

Fox Cities

	1999	2003	1999-2003
Residentiary Demand	**25,990**	**29,303**	**3,313**
Personal Services	1,435	1,495	60
Retail Services	22,223	24,997	2,774
Small-Scale Business Services	2,332	2,811	479
Export Base	**44,229**	**38,697**	**(5,532)**
Manufacturing	34,450	29,155	(5,295)
Large-Scale Business Services	9,779	9,542	(237)
Totals	**70,219**	**68,000**	**(2,219)**

TABLE 9 (CONT) CHANGE IN EMPLOYMENT IN CONSUMER-BASED AND EXPORT-BASED INDUSTRIES

Kenosha County

	1999	2003	1999-2003
Residentiary Demand	**13,000**	**14,702**	**1,702**
Personal Services	627	829	202
Retail Services	11,342	12,629	1,287
Small-Scale Business Services	1,031	1,244	213
Export Base	**14,000**	**11,855**	**(2,145)**
Manufacturing	12,920	10,581	(2,339)
Large-Scale Business Services	1,080	1,274	194
Totals	**27,000**	**26,557**	**(443)**

La Crosse County

	1999	2003	1999-2003
Residentiary Demand	**15,397**	**16,224**	**827**
Personal Services	586	575	(11)
Retail Services	13,470	14,113	643
Small-Scale Business Services	1,341	1,536	195
Export Base	**13,689**	**11,353**	**(2,336)**
Manufacturing	10,904	8,544	(2,360)
Large-Scale Business Services	2,785	2,809	24
Totals	**29,086**	**27,577**	**(1,509)**

Metro Milwaukee

	1999	2003	1999-2003
Residentiary Demand	**167,269**	**175,163**	**7,894**
Personal Services	8,234	8,523	289
Retail Services	139,551	143,324	3,773
Small-Scale Business Services	19,484	23,316	3,832
Export Base	**242,568**	**212,149**	**(30,419)**
Manufacturing	167,483	139,306	(28,177)
Large-Scale Business Services	75,085	72,843	(2,242)
Totals	**409,837**	**387,312**	**(22,525)**

TABLE 9 (CONT) CHANGE IN EMPLOYMENT IN CONSUMER-BASED AND EXPORT-BASED INDUSTRIES

Racine County

	1999	2003	1999-2003
Residentiary Demand	**17,821**	**18,620**	**799**
Personal Services	768	738	(30)
Retail Services	15,174	15,844	670
Small-Scale Business Services	1,879	2,038	159
Export Base	**28,637**	**23,602**	**(5,035)**
Manufacturing	23,727	20,128	(3,599)
Large-Scale Business Services	4,910	3,474	(1,436)
Totals	**46,458**	**42,222**	**(4,236)**

Rock County

	1999	2003	1999-2003
Residentiary Demand	**15,506**	**16,096**	**590**
Personal Services	494	521	27
Retail Services	13,776	14,068	292
Small-Scale Business Services	1,236	1,507	271
Export Base	**21,944**	**18,446**	**(3,498)**
Manufacturing	19,074	15,390	(3,684)
Large-Scale Business Services	2,870	3,056	186
Totals	**37,450**	**34,542**	**(2,908)**

Rest of State

	1999	2003	1999-2003
Residentiary Demand	**250,805**	**264,471**	**13,666**
Personal Services	7,697	8,692	995
Retail Services	223,244	232,231	8,987
Small-Scale Business Services	19,864	23,548	3,684
Export Base	**284,117**	**257,531**	**(26,586)**
Manufacturing	258,245	229,575	(28,670)
Large-Scale Business Services	25,872	27,956	2,084
Totals	**534,922**	**522,002**	**(12,920)**

size of their concentrations of biotech employment is very modest when compared to other regions of the U.S. It is so small even as a percentage of Wisconsin employment, we do not even show the calculations.

The good news is that there is both high-tech and biotech employment in the state. High-tech industry employment was 3.4% of total state employment in 2003. Biotech was much smaller: 0.2% in 2003. The sad news is that only one, biotech, grew in the 1999-2003 period. High-tech employment grew in four of the nine regions of the state while biotech declined in but one of the eight regions that had biotech employment. Actually, biotech employment is so low in four of the regions that a true change measure is virtually meaningless. The good news is that biotech employment overall in the state grew by 21% or 1,255 jobs. This will not carry a 2.6 million-job economy, but the presence and growth are positive signs. Additionally, we do know that average earnings of workers in biotech are among the highest of any industry in the state. So its presence at any scale is certainly a positive.

High-tech jobs are found in all regions of the state. Metro Milwaukee had the most absolutely (39,059), followed by the Rest of the State and Dane County. These three areas contained 88% of the state's high-tech employment in 2003. Milwaukee and Dane had 4.9% and 5.6%, respectively, of their total employment in high-tech industries.

Not all of the geographic areas grew in terms of technology. In fact, only four of the nine areas added employment in high-tech industries. This is in sharp contrast to the 1990s, where eight of nine areas grew and growth rates were as high as 70% for four years. Times did change. Milwaukee, for example, had gained over 4,500 high-tech jobs in the 1990s; then they lost 1,847. In the 1990s the Fox Cities added 1,866. In 1999-2003, they lost 935 jobs.

Among the most rapid growers relatively were Brown, Dane, and La Crosse Counties. Their gains, however, could not offset the large losses experienced by Milwaukee and the Rest of the State, much less the loss of 935 high-tech jobs in the Fox Cities. The 1999-2003 period was universally not a good period for technology industries. A few industries thrived, resulting in some areas coming out ahead. But nationally, high-tech experienced a recession.

Brown, Kenosha, La Crosse, and Rock Counties did not have much biotech employment by 2003 (Table 10b). Rather than focus on such small numbers, we have disguised them in our table. The focus then turns to the two large growers, Dane and Milwaukee. Dane is the center of this industry, with its 2,480 employees in 2003. Milwaukee had 1,550 at the same time. Somewhat surprisingly, the Fox Cites was a close third, with 1,143 biotech jobs. Dane County added close to 700 and grew by 28% for the four years. That is impressive. The Fox Cities added close to 350, growing by an even higher 30%; and Milwaukee added a more modest 189. Milwaukee did grow by 12%, which is still notable.

If the state is to really prosper from the growth of technology employment, the number of jobs here must grow at least geometrically. Dane County, Milwaukee, and the Fox Cities are on the right path, but the state overall is not close to where it must be. A higher level of effort must be made if Wisconsin is really going to benefit from high-tech and biotech industries. It may be that the state will have to rely on the application of technology rather than the creation of technology. That might still work, but the pressure at the moment is to develop technology, and the current pace is not sufficient to markedly contribute to the state's economy.

Contributions of Single-Site vs. Multi-Site Employers

There has been a long-term trend in both the U.S. and Wisconsin to move from single-site, autonomous employers to those with multiple locations. There can be many efficiencies in operating at several different sites. Sometimes these multiple sites do the same enterprise, but often they are different. In retail we do see the duplication of outlets in multiple locations, but in manufacturing we see each location usually producing some different product. In services, we have examples of both approaches. The basic question is whether the trend toward multiple locations continued in the 1999-2003 period. If it did, did it affect all of the nine economies under study? These questions are important for economic development because it is harder to work with a company headquarters if they are not located in one's community or if decisions on local operations are based on decisions pertaining to operations elsewhere.

The first table reveals that (with one exception, Kenosha), the majority of employment in 2003 was in multi-establishment employers. This is different from 1999 where four of nine areas had the majority in single-site employers and 1991 where eight of nine areas had the majority of employment in single-site employers. The high mark in 2003 was the Fox Cities, with 62% of employment in multi-site employers. La Crosse followed with 58%, as did Brown County with 57%. At the other end was Kenosha with only 41% of employment in multi-site employers. This

TABLE 10A EMPLOYMENT AND CHANGE IN EMPLOYMENT IN HIGH-TECH INDUSTRIES, 1999-2003

	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State	State
High-Tech Employment, 2003	2,842	15,706	4,194	941	872	39,059	1,109	778	23,942	89,443
Absolute Change, 1999-2003	548	3,303	-935	-248	232	-1,847	-34	22	-2,702	-1,661
Relative Change, 1999-2003	24%	27%	-18%	-21%	36%	-5%	-3%	3%	-10%	-2%
% of Total Employment, 2003	2.0%	5.6%	3.3%	1.8%	1.4%	4.9%	1.5%	1.2%	2.3%	3.4%

TABLE 10B EMPLOYMENT AND CHANGE IN EMPLOYMENT IN BIOTECH INDUSTRIES, 1999-2003

	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State	State
Biotech Employment, 2003	<75	2,480	1,143	<75	<75	1,550	0	<75	678	6,046
Absolute Change, 1999-2003	**	692	347	**	**	189	**	**	21	1,255
Relative Change, 1999-2003	**	28%	30%	**	**	12%	**	**	3%	21%

TABLE 11A TOTAL EMPLOYMENT BY FIRM TYPE, 2003

Firm Type	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State
Single-Site	60,177	132,502	48,291	29,920	26,537	382,786	36,757	29,368	503,507
Multi-Site	79,992	147,326	79,731	21,084	36,333	416,854	37,661	35,048	536,527
% Single-Site	43%	47%	38%	59%	42%	48%	49%	46%	48%
% Multi-Site	57%	53%	62%	41%	58%	52%	51%	54%	52%

TABLE 11B CHANGE IN TOTAL EMPLOYMENT BY FIRM TYPE, 1999-2003

Firm Type	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State
Single-Site Employment	-1,312	4,921	-287	-1,420	-1,532	-37,614	-3,805	-994	-14,573
Rate of Change	-2.2%	3.7%	-0.6%	-4.7%	-5.8%	-9.8%	-10.4%	-3.4%	-2.9%
Multi-Site Employment	3,907	6,936	927	1,586	1,945	13,353	-1,150	-1,531	21,409
Rate of Change	4.9%	4.7%	1.2%	7.5%	5.4%	3.2%	-3.1%	-4.4%	4.0%

low figure suggests that the economy in Kenosha is much more populated by entrepreneurs who have focused on but one location. It may be that there are more new enterprises in Kenosha than elsewhere, but we cannot verify that possibility. It could just as easily be more enterprises that do not have good options for multiple sites.

The transition of employment from single-site to multi-site employers has continued. Employment in single-site employers in eight of the nine areas declined between 1999 and 2003. Furthermore, even though single-site employment grew in Dane County, it did not grow as fast as multi-site related employment, thus creating a further switch to a larger proportion of employment being in multi-site employers in all regions of the state.

What should be noted, however, is that the rate of transition to multi-site employment slowed dramatically in the 1999-2003 period. For example, multi-site employment grew 72% in the 1990s and only 4.9% in the 1999-2003 period. Dane County's multi-site employment growth dropped from over 6% annually to just over 1% annually. Nevertheless, the larger trend continues: employment is increasingly being located in employers that have multiple locations.

Establishment Attrition

In a very trying economic period, one might expect an increase in establishment death and a decrease in the proportion of employment found in firms that were in existence four years prior. There is not a neat pattern among the areas with regard to establishment survival rate (Table 12). In several instances — that is Brown County, Dane County, Fox Cities, La Crosse, Milwaukee, and Rock County — there is either no change or less than one percentage point change in the proportion of employers that had survived the preceding four years and the survival rates for the 1995-1999 period. On the other hand, we do see a decrease in the survival rate in the Rest of the State. What is surprising is that a higher proportion of employers survived in Kenosha than had in the late 1990s. None of these changes is dramatic, but each does say something about the viability of establishments during these periods.

We generally estimate that about 10% of establishments will close each year following their birth. If this is compounded then, we would expect a four-year survival rate in the neighborhood of the 63-65%. This was not achieved during this time period, which suggests a more difficult economy.

We found areas in which the employer survival rate has been steady, increased, and decreased. Only Milwaukee's and the Rest of the State's rates did decrease. We do not know why the others remained stable and five actually increased. Attempting to link these changes to overall employment change does not work: Milwaukee lost employment, as one might expect with the slightly lower survival rate, but Racine and Rock increased survival rates and also lost employment. Obviously, this is not a good predictor of employment change.

Net Employment Gains from Existing Employers, 1999-2003

Despite there being no clear pattern between survival rates and a growing economy, there may be a relationship between employment in the firms that survived the four years and their role in employment growth. One might expect the survivors' employment to decrease because the usual survival mode is to cut expenses. On the other hand, some survivors did more than survive; they took advantage of opportunities and grew their businesses. The question is whether this happened to a sufficient degree to play a significant role in these local economies.

As one looks through the gains and losses among the surviving firms (Table 13), it is clear that the survivors had very different experiences. Some added jobs and some lost jobs. In fact, in two areas the surviving firms lost lots of jobs. In Milwaukee and the Rest of the State, for example, the survivors that lost employment collectively lost 90,624 and 97,510 jobs, respectively. Those are large numbers. The employers survived, but with many fewer employees. On the other hand, another set of survivors added almost 85,000 jobs in Milwaukee and almost 101,000 in the Rest of the State.

The third line reveals the net gains or losses among the survivors. Four of the nine areas suffered from net losses among surviving employers. Surprisingly, one of them, Brown County, did grow despite existing firms losing employment overall. Milwaukee, Racine, and Rock all experienced losses among both existing firms and those that came along since 1999. In Milwaukee's case the existing firms' net loss was only one quarter of the total employment loss for the area. In other words, the existing firms were not the primary contributor to area losses. In Racine the existing firms' net losses were three quarters of the area's net losses. In Rock the existing firms' losses were about half of the

TABLE 12 NUMBER OF PRIVATE EMPLOYERS IN 1995, 1999 AND PERCENT PRESENT IN 1999, 2003

	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State
1995	**5,300**	**11,258**	**4,793**	**2,844**	**2,743**	**38,647**	**3,989**	**3,183**	**60,432**
% Present, 1999	62%	60%	62%	57%	63%	60%	60%	59%	62%
1999	**5,707**	**11,581**	**5,051**	**2,832**	**2,716**	**39,953**	**4,006**	**3,155**	**61,762**
% Present, 2003	62%	61%	62%	59%	64%	59%	62%	60%	59%

TABLE 13 JOBS ADDED AND LOST BY EXISTING EMPLOYERS IN PLACE IN 1999

	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State
Jobs Added									
1999-2003	12,536	29,840	12,926	5,450	6,397	84,708	6,275	5,198	100,990
Jobs Lost									
1999-2003	-14,337	-21,350	-10,780	-5,140	-5,704	-90,624	-9,623	-6,523	-97,510
Change (Existing Employers in Place in 1999)									
1999-2003	-1,801	8,490	2,146	310	693	-5,916	-3,348	-1,325	3,480

TABLE 14 EMPLOYEES GAINED OR LOST BY EMPLOYERS WHO ADDED OR CUT 50+ JOBS, 1999-2003

	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State
Number of Employers	39	85	44	17	21	280	15	17	273
Jobs Added (50+)	4,921	13,151	6,109	2,028	3,029	41,494	2,094	1,926	35,525
Number of Employers	53	70	39	15	12	329	33	20	310
Jobs Cut (50+)	-7,706	-9,838	-6,102	-2,401	-2,346	-46,637	-4,921	-3,112	-41,772
Difference	**-2,785**	**3,313**	**7**	**-373**	**683**	**-5,143**	**-2,827**	**-1,186**	**-6,247**

area's net losses. In these two cases it was the older firms that contributed heavily to the losses. Milwaukee's losses speaks of the difficulty new firms had in this very economically challenging four-year period and also of the significant contribution of permanent closures to these losses.

Overall, the survivors added a net gain of 2,727 jobs across the state in the 1999-2003 period. This modest gain is in sharp contrast to the 1991-1999 period in which existing firms added a net of 91,965 jobs to Wisconsin's economy. The relatively small number added in the more recent period would suggest that it is existing employers that make the difference in an area's economy in a period such as 1999-2003. The survivors basically broke even overall; the state lost employment because the survivors could not contribute sufficiently. But individual areas that had survivors that grew benefited from that growth. For example, Dane received most of its growth from successful existing firms. It was the area with the greatest absolute and relative employment growth among survivors.

Gains and Losses by Employers that Added or Lost at Least 50 Workers

Another issue is that of the role of large-scale gains or losses, defined for this purpose as having added or subtracted at least 50 employees over four years. These need not be large firms; they are just those that experienced a substantial change. The issue is that of their relative role in the change in employment in each area.

The first line of Table 14 shows the number of firms that added at least 50 employees. The numbers range from 15 in Racine County, 17 in Rock and Kenosha Counties, to 273 in the Rest of the State and 280 in Milwaukee. These employers added between 1,926 jobs in Rock County to 41,494 in Milwaukee.

It is very difficult to calculate the relative roles of these large gainers in that many areas lost employment overall. We did calculate what percentage of gross job gains can be attributed to these large gainers. The percentage ranged from 31% in Racine and 33% in the Rest of the State to 47% in Milwaukee and 48% in the Fox Cities. What this suggests is that the concentrated growth played a much more important role in any net job gains in Milwaukee and the Fox Cities. These two areas do have some large firms that may be responsible. We'll look at the role of establishment size in a moment.

What we must also recognize is that some employers also lost large numbers of employees as well. That examination appears in the bottom half of Table 14. In five of the nine areas more firms lost at least fifty employees than added 50 employees. But this fact means little because it is what else happened in the economy that determined the net outcome. In Brown County for example, more establishments lost than gained employment of 50+, and the net impact was a loss of 2,785 jobs. This slowed growth in Brown County, but the County economy did grow over the study period. In Kenosha County, losers outnumbered the growers, yet the net was a job gain as well for the overall employment situation in the metro area. In short, while interesting, there is no clear link between losses or gains of 50 or more jobs and the resultant relative economic health of an area.

Employment by Establishment Size

The issue just raised of the contribution of firms by their size is what is examined next. Table 15 shows the distribution of employment by size of establishment, and Table 16 shows just how many net jobs were added in each region by size of the employer. In the 1990s it was firms with between 20 and 99 employees that added the most jobs absolutely. It was these firms that also contained the largest number of employees of the five size categories.

Before looking at the tables, the readers should be aware that the tables classify employment by that at each individual place of business or activity. Thus, an employer with a single site has one number that represents all employment. Another employer with multiple locations might employ 1,000 persons at five different sites. Each site might have employment of 200 persons. That 200 is the number to which this analysis refers. This disaggregated number gives a more realistic picture of employment by location. It also reveals a better sense of an employer's space needs. There are still some employers that have not made the effort to break out employment at each location, but that number has dwindled over time.

The pattern over several decades has been a diminution of the role of large business. There have been many mergers and acquisitions, but the actual places of business have been diminishing in size. Thus, we would expect that more employment would appear in smaller size categories, and the growth would also be more likely to appear in

TABLE 15A EMPLOYMENT BY FIRM SIZE, 2003

Firm Size by Number of Employees	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State	State
1 - 19	26,383	50,854	22,639	11,512	12,138	152,220	16,346	13,503	269,706	575,301
20 - 99	40,884	78,477	36,447	16,939	18,019	231,363	22,486	18,127	311,592	774,334
100 - 249	24,780	46,587	23,842	9,645	10,086	148,530	13,776	11,360	171,042	459,648
250 - 499	12,228	25,686	14,556	4,725	6,614	80,831	6,026	8,379	107,311	266,356
500+	35,894	78,224	30,538	8,183	16,013	186,696	15,784	13,047	180,383	564,762
TOTAL	**140,169**	**279,828**	**128,022**	**51,004**	**62,870**	**799,640**	**74,418**	**64,416**	**1,040,034**	**2,640,401**

TABLE 15B FIRM SIZE DISTRIBUTION, 2003

Firm Size by Number of Employees	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State	State
1 - 19	19%	18%	18%	23%	19%	19%	22%	21%	26%	22%
20 - 99	29%	28%	28%	33%	29%	29%	30%	28%	30%	29%
100 - 249	18%	17%	19%	19%	16%	19%	19%	18%	16%	17%
250 - 499	9%	9%	11%	9%	11%	10%	8%	13%	10%	10%
500+	26%	28%	24%	16%	25%	23%	21%	20%	17%	21%
TOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

TABLE 16 NET CHANGE IN EMPLOYMENT BY FIRM SIZE, 1999-2003

Firm Size by Number of Employees	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State	State
1 - 19	2,682	3,789	966	452	185	846	-19	250	16,121	25,272
20 - 99	1,995	4,278	2,528	834	758	-5,791	-936	-164	3,861	7,363
100 - 249	581	2,172	-843	-107	-1,200	570	-764	-311	-6,071	-5,973
250 - 499	-21	-2,397	-3,564	540	1,353	-11,211	-1,209	-746	7,405	-9,850
500+	-2,642	4,015	1,553	-1,553	-683	-8,675	-2,027	-1,554	-14,480	-26,046
TOTAL	**2,595**	**11,857**	**640**	**166**	**413**	**-24,261**	**-4,955**	**-2,525**	**6,836**	**-9,234**

smaller size categories. Both points should also be truer in challenging economic times, as employers downsized in order to survive.

A look at the right-hand column in Tables 15a & b show that it is the establishments that have fewer than 100 employees that are the largest employers in Wisconsin. The category with the most employment is that of 20-99 employees. Employment in this size establishment is 35% greater than the next largest category 1-19 employees. This concentration at the small end of the spectrum is different from the middle of the 20th century when the large establishments dominated. Today, those with over 500 employees are still important, but they employ in aggregate about 21% of all employment in the state whereas those with 20-99 employees employ over 29%.

The concentration of employment in smaller establishments does vary across the regions of the state. In most of the regions establishments with fewer than 100 employees account for 46% to 48% of total employment. But Kenosha and the Rest of the State are more heavily inclined toward small establishments: each has 56% of employment in establishments with less than 100 employees. At the other end of the spectrum Dane has 28% of its employment with the largest category, followed by Brown County with 26%. Dane is dominated by state government and the University of Wisconsin and related enterprises. Brown County has some large paper mills, financial service companies, and health care providers. The degree of variation is not large, but it does suggest that these economies are a bit different from the others in the state.

In terms of where growth and decline have come, there are some trends but none are universal (Table 16). For example, the smallest category experienced growth in all but one region, Racine. Employment in the 20-99 category grew in all but Milwaukee, Racine, and Rock. These losses suggest a valid reason why these economies led the state in decline in employment. Those in the 100-249 category grew in only three regions; remarkably, Milwaukee was one, although it was modest (+570). The largest employers lost net employment in seven of nine regions and overall. Oddly, Dane and the Fox Cities experienced substantial growth among the largest employers. Certainly hospitals grew, and likely UW grew, but state government did not. In the Fox Cities paper mills declined, so the change may also be due to hospitals and educational institutions.

Across the state the largest growth in aggregate came from employers with fewer than 20 employees. These added over 25,000 jobs in four years. Those with over 500 employees lost over 26,000 jobs. Those under 100 employees grew modestly, while those between 100 and 500 employees lost almost 16,000 jobs. The growth was clearly in the smaller establishments, continuing the long-term trend.

In Milwaukee and the Rest of the State, the largest employers really lost significant amounts of employment. Some of this is closure, and the rest is downsizing. The loss of 8,675 jobs in Milwaukee and 14,480 in the Rest of the State accounts for almost all of the job loss among those with large employment bases. What is different about these two areas is that Milwaukee lost even more jobs among employers with 250 to 499 employees while the Rest of the State actually gained substantial employment in this category.

What this suggests is that these nine economies are really quite different. Size is not a consistent factor in determining relative health and contribution. Being a large employer does not mean one cannot grow. What matters more is the industry and geographic area in which one is located.

Cities versus the Suburbs

One of the recurring questions is whether there are differences in the health of the central city economies compared to their respective suburban economies. Older cities tend to suffer more than newer suburbs in terms of employment losses during downturns. This occurs because of such factors as the closure of older, more inefficient factories and retail locations. And even without downturns the relative role of many central cities declined as a greater proportion of new job creation occurs in the more easily developed suburbs. To see what happened in Wisconsin by 2003, we turn to Table 17.

The reader should note that the table covers but seven areas. The Fox cities is not included because there is not a clear way to calculate an accurate response and the Rest of the State does not have one central city. We should also note that Rock does not have one central city: it has two, Beloit and Janesville. These are counted together as the central city.

The proportion of employment in the central city ranges from a low 40% in Milwaukee to a high of 84% in Beloit and Janesville in Rock County. There is actually considerable variety across the seven metro areas. It is clear, though,

TABLE 17 PERCENT OF EMPLOYMENT IN CENTRAL CITY AND REST OF AREA, 2003

Area	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State
Central City	67%	73%	-	73%	76%	40%	64%	84%	-
Rest of Area	33%	27%	-	27%	24%	60%	36%	16%	-
TOTAL	**140,169**	**279,828**	**-**	**51,004**	**62,870**	**799,640**	**74,418**	**64,416**	**-**

TABLE 18 CHANGE IN EMPLOYMENT IN CENTRAL CITY AND REST OF AREA, 1999-2003

Area	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State
Central City	569	3,904	-	-683	-668	-17,662	-5,891	-2,619	-
Rest of Area	2,026	7,953	-	849	1,081	-6,599	936	94	-
TOTAL	**2,595**	**11,857**	**-**	**166**	**413**	**-24,261**	**-4,955**	**-2,525**	**-**

TABLE 19 PRIVATE SINGLE-SITE FIRM MOVEMENT TO AND FROM CENTRAL CITIES

	Brown County	Dane County	Fox Cities	Kenosha County	LaCrosse County	Metro Milwaukee	Racine County	Rock County	Rest of State
Moved From Central City									
1999-2003	113	214	-	44	40	562	98	39	-
% 1999 Firms	3.6%	4.0%	-	2.5%	3.0%	5.0%	5.3%	2.2%	-
2003 Employment	1,344	2,227	-	433	302	6,298	661	163	-
Moved To Central City									
1999-2003	97	157	-	31	30	461	35	36	-
% 1999 Firms	7.3%	4.1%	-	4.9%	4.3%	2.2%	2.5%	5.0%	-
2003 Employment	621	1,469	-	239	332	5,982	461	559	-

that Milwaukee is the outlier, with a much smaller proportion than any of the smaller communities. Even Madison, with its ability to annex land, has 73% of all employment. One hundred years ago Milwaukee contained about 90% of the employment, but many factors, including set boundaries for the last 50 years, have changed the distribution of employment in the metro area. It appears that the small proportion of economic activity in the central city is an issue only with the state's largest city.

Changes in Employment in Central City and Suburbs, 1999-2003

The next question is whether this distribution between city and suburbs has been changing in all areas, when there has been so little economic growth. One might expect changes in Milwaukee, with its older businesses more likely to downsize or disappear in tough business times. In other places, it is harder to predict. Table 18 gives some insights.

The prediction on Milwaukee is correct: the City lost 17,662 jobs while the suburbs lost about one-third that number despite containing many more jobs. Actually five of the seven central cities lost employment 1999-2003 while none of the suburban areas did, except Milwaukee's. This speaks to an economy in Metro Milwaukee that proved to be less resilient than those elsewhere. The rates of decline for central cities ranged from –1.4% in La Crosse and –1.8% in Kenosha to –5.5% in Milwaukee and –12.4% in Racine.

Suburban growth helped every metro area except Milwaukee. Even in Racine and Rock, where the metro rate of job loss was greater than Milwaukee, the suburbs added some employment. While the job growth was modest in suburban Rock County (+94), it was substantial in suburban Dane County (+7,953). Madison added 3,900 jobs (+1.9%) while its suburbs added almost 8,000 (+10.4%). In Brown County, Green Bay added 569 jobs (+0.6%) while the suburbs added 2,026 (+4.4%). The suburbs did better than the central cities in all cases. In Rock County the suburbs grew by only 0.9%, but they still grew. Thus, the shift of economic activity to the suburbs continues.

Single-Site Firm Migration to or from the Central City

One way that suburbs can grow is through the migration of employers from the central city. Many persons believe that this is a common occurrence. But is it? That is the question we next explore. Unfortunately, it is impossible to answer this question on all firms. We can only track single, autonomous firms by their location. We cannot tell if a multi-site firm has closed one branch in one location to then open the same branch in a suburban location. Anecdotally that seems to occur, but we cannot confirm or deny it.

Table 19 shows some data that allows examination of this issue. To be fair, it contains data on moves both to and from the suburbs. Contrary to popular opinion, there is not a landslide toward the suburbs. Firms have moved in both directions. It is true that in five of the seven metro areas, more jobs moved to the suburbs than moved to the central city. In La Crosse and Rock Counties, more jobs moved to the central city in the 1999-2003 period.

One of the surprises is that in Milwaukee the migration is almost even in terms of jobs going to or coming from the central city. Only 6% fewer jobs moved to the central city than moved to the suburbs. Elsewhere the differences are larger. In Brown County, for example, more than twice as many jobs moved from Green Bay to the suburbs as moved the opposite way. This mismatch, however, cost the City of Green Bay less than 1% of its employment base.

The migration of firms, at least those with single sites, is not a large factor in the growth or decline of cities or their suburbs. What matters more are the initial location decisions. There are occasional, high profile, large employer moves. But these are the exception rather than the rule.

Differences in Earnings per Worker

The measure of the economy to this point has been jobs: how many jobs have been gained or lost over the four years. A second and at least as important a measure is that of earnings per worker. The goal of most economies is to increase real earnings per worker. That means that over time, taking into account inflation, earnings ideally increase over time. There have been periods in the U.S. when this did not occur. In fact, much of the 1970s and 1980s were periods in which few, real-income gains were realized. This changed in the 1990s. The question is: What happened since 1999?

The question is examined several ways. The first table (Table 20) examines the distribution of earnings in 2003 by the 16 NAICS industries and the nine geographic regions. This just reveals where we were at that point. The second table (Table 21) displays the gains in earnings per worker made during the 1999-2003 period. The gains are in inflation-adjusted dollars, so they reflect real earnings gains. The third and fourth tables (Tables 22 and 23) contain data on the distribution of earnings, notably the percentage of workers who earned more than $30,000 per year in 2003 and the percentage and number of service sector versus manufacturing workers who earned at least $30,000 that year.

Average Earnings per Worker

The average earnings per worker is a term created for a somewhat unique measure of how much workers in each industry earn. It is calculated by dividing the total payroll in each establishment by the number of workers in each establishment. The averages for each employer, weighted by employment, are then merged to form an industry average for each geographic area.

The reader should realize that this is not an average wage figure. It is a figure that combines the earnings of every employee, be it the CEO or the groundskeeper, regardless of whether they worked 7 or 70 hours per week. Thus, we have a crude measure of an average we term earnings rather than confuse it with the more traditional measure of wages. The measure is valid, just not common. But the way it is calculated does create some larger differences across certain industries: retail that specializes in the hiring of part-time employees, for example, will have lower average earnings per worker because so many employees work less than full time. This is then compounded with lower wage rates to really make employment in this industry appear unappealing. Workers in Accommodation and Food Services earnings are low because of both part-time work and their heavy reliance on tips that are not reported in these data.

Table 20 below reveals the average earnings per worker by industry in 2003. All earnings are expressed in 2003 dollars. Looking across any row, the reader can see differences in average earnings by different economic region. When one looks at the bottom row, one can see fairly large differences among the average for all workers in the nine geographic areas. Workers in Milwaukee are at the high end. They earned an average of $37,683. Trailing all of the others were the smaller metropolitan and rural areas of the state at $28,306. That difference of $9,377 indicates that Milwaukee area earnings are 33% higher than those in the Rest of the State. The larger metropolitan areas fall in between the two. The Fox Cities and Dane County are near the high end, and La Crosse is near the low end. The earnings per worker appear quite highly correlated to the relative size of the local economies.

Because agriculture and mining are rather small industries in most of the state, we have combined their numbers with a much larger construction industry. We have excluded as a separate line that for the Unclassified Industries, since we do not know what they are. The small numbers in this category should not affect the final outcomes. And we have not listed the Management of Companies and Enterprises, a new NAICS classification that is still under development. It is very likely that this will prove to be the highest paid industry, but that will have to await confirmation.

The average earnings per worker across the state appears in the right-hand column. The range is dramatic. At the high end are FIRE ($46,877), Wholesale Trade ($44,254), and Professional, Scientific, and Technical Services ($44,061). At the low end is an industry that is composed of Accommodations and Food Services. These are industries that are known for both part-time employment and for low wages. The expectation is that many employees will supplement their low wages with tip income. The reported earnings average $9,856.

Retail Trade under the SIC system used to be identified as the lowest earning sector. Its average now puts it as third lowest. One big definition change, the removal of Food Services from Retail, has made a difference. There are three other industries that have very similar averages in the neighborhood of $20,000 per year: Other Services; Arts, Entertainment, and Recreation; and Administration/Support, Waste Management/Remediation Services. There should now be greater understanding of what industries make it harder for workers to avoid poverty and more appreciation that Retail is not necessarily the low end that many portray it as being.

Another point that should be made is that there are often large differences within many industries across the regions. In Manufacturing, for example, average earnings per worker vary from a low of $38,813 in La Crosse to a high of $52,755 in auto-industry dominated Rock County. In FIRE, the regional center Milwaukee leads with average earnings of $57,098 versus a low of $31,190 in Kenosha, a small region in an industry that is dominated by

TABLE 20 AVERAGE ANNUAL EARNINGS PER WORKER BY INDUSTRY, 2003

Industry	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State	State
Agri., Mining and Construction	35,062	41,230	42,397	36,134	35,422	41,099	34,320	34,711	29,816	35,457
Manufacturing	41,675	44,071	48,824	49,077	38,813	46,372	48,700	52,755	36,875	42,052
Wholesale Trade	43,417	45,392	42,623	41,485	38,012	48,521	36,971	34,138	41,970	44,254
Retail Trade	21,187	22,046	20,261	19,451	18,594	21,268	18,913	20,985	19,175	20,173
Utilities, Trans. and Warehousing	48,488	37,397	38,334	39,111	33,822	37,281	33,727	38,354	33,866	36,852
Information	32,735	45,739	38,231	33,575	38,924	50,593	34,699	26,389	27,980	39,584
FIRE	38,144	49,396	50,151	31,190	37,215	57,098	37,389	35,681	35,298	46,877
Professional and Technical Services	43,658	51,900	47,960	33,406	32,762	48,359	34,490	29,156	33,736	44,061
Administrative and Waste Services	18,954	21,322	24,132	22,624	16,928	20,801	19,039	14,013	21,375	20,844
Educational Services	31,684	38,704	32,571	31,819	33,085	37,961	33,581	31,605	29,922	33,948
Health Care and Social Assistance	34,674	34,663	32,214	30,972	32,497	33,581	35,006	35,954	29,618	32,236
Arts, Entertainment and Recreation	51,523	15,178	13,394	12,829	12,284	28,225	13,332	9,677	14,691	20,474
Accommodation and Food	11,654	11,131	9,614	9,197	8,864	11,171	9,723	9,283	8,686	9,856
Other Services	17,721	26,195	16,856	16,365	16,612	20,544	19,920	15,828	15,405	18,765
Public Administration	35,334	39,999	36,427	38,701	30,220	41,846	38,165	34,907	27,785	34,269
TOTAL	**33,633**	**36,098**	**36,448**	**32,148**	**29,451**	**37,683**	**33,807**	**33,674**	**28,306**	**33,037**

"Management of Companies" industry removed due to break in data

Milwaukee and Chicago. In Professional and Scientific, earnings range from $51,900 in Dane, with its high-end science concentration, to Rock at $29,156, with an economy that is more traditional. This difference, $22,744, is greater than the average earnings in many industries.

At the lower end of the earnings distributions, the differences across regions are not as great. In Retail Trade the difference is only $2,593 between Brown County and La Crosse. In Accommodation and Food Services the greatest difference is $2,969 between Brown and Rock Counties. In Health Care the difference is $6,336 between Rock County and the Rest of the State. What should be remembered, however, is that the difference across all areas is not very large ($9,377), indicating that the highs and lows by industry do even out to some degree across the economies.

With the greater differentiation and new definitions of the NAICS codes, there is much greater variety among the local economies in terms of which industries have the highest earnings per worker. In the 1990s, Manufacturing dominated in terms of average earnings per worker. In the 1999-2003 period, Manufacturing was the sector of highest earnings in three areas (Kenosha, Racine, and Rock Counties), and second in three other economies. Among the other industries that had the highest earnings were Wholesale Trade (Rest of the State), Information (La Crosse), FIRE (Fox Cities and Milwaukee), and Arts, Entertainment, and Recreation (Brown County). Each region had a different mix of industries that led in terms of earnings.

In Brown County, Arts, Entertainment, and Recreation is an industry that may well be influenced by the Packers payroll. The second highest earnings is in the combination of Transportation, Warehousing, and Utilities. All three industries have contributors to the high earnings.

In Dane County, which has the third highest average overall, the highest earnings appear in Professional, Scientific and Technical Services and in FIRE. Both are in the range of $50,000 per worker. It is likely the increased interest in entrepreneurship, high-tech, and biotech has helped elevate earnings in these industries.

The Fox Cities has the second highest average earnings per worker in the state. The leading contributors are FIRE, Manufacturing, and Professional and Technical Services. The heavy dependence on manufacturing employment (23% of all employment), combined with the higher average earnings, helps to propel the area. FIRE and Professional Services' employment has been growing, while Manufacturing has been declining. Nevertheless, Manufacturing still dominates.

Kenosha County earnings are at the bottom end of the eight metro areas. Kenosha is certainly bolstered by Manufacturing and Wholesale Trade. It is Manufacturing that helps more, as it still employs 21% of the workers in the county. The other industries are often average or below average in terms of earnings.

La Crosse is led by the Information industry, followed closely by Manufacturing and Wholesale Trade, all three of which have earnings somewhat in excess of $38,000 per year. Information is a new industry; the others are traditional but have done well enough to help lead the local economy. What the reader should note, however is that every industry but one in La Crosse is below the state average and that it is the only region in the state to average below $30,000 per worker overall.

Metro Milwaukee has several industries, FIRE, Information, Wholesale Trade, and Professional and Technical Services, which have seemingly high average earnings per worker. FIRE earnings led the state, as this is the finance center in the state. Information is related in that Milwaukee has the largest Information industry in the state, and this is the home of many larger IT employers. Given the size of the metro area and its location relative to both the rest of Wisconsin and northern Illinois, it has become a center for higher-end wholesale trade. The average earnings in these top industries, which lie between $48,521 and $57,098, help to place Milwaukee at first in the state in terms of average earnings per worker.

Racine's earnings are lower than Milwaukee's on average, but Manufacturing and Health Care are higher. Most helpful to an economy that still depends heavily on manufacturing (27% of total employment) is the $48,700 average earnings per worker in that industry. Were it not for that combination, the overall earnings average would not be as high. Only Manufacturing, Health Care, and Other Services have earnings that exceed the state averages. Public Administration, FIRE, and Wholesale Trade earnings did contribute but not to the same degree as in many other economies.

Rock County is somewhat similar to Racine in that it is greatly bolstered by the average earnings in Manufacturing. These exceed average earnings in the industry in all regions by a substantial margin. With manufacturing jobs equaling 24% of all employment, the combination helps offset substantially lower than state averages in ten other industries. The one other notable exception is Health Care where the earnings in Rock are about 12% higher than the state average.

The Rest of the State has the lowest average earnings per worker of any area in the state. Earnings in all industries but one, Administration/ Support and Waste Management/Remediation, are lower than that found elsewhere in the state. The Rest of the State consists of numerous smaller economies with lower costs of living and lower wages. Average earnings per worker in industries such as Wholesale Trade ($41,970), Manufacturing ($36, 875), and FIRE ($35,298) are not too far from the state average. But there are just too many industries with large gaps to leave the Rest of the State anywhere but at the bottom of the nine regions in terms of earnings per worker. Oftentimes jobs have located in these smaller economies precisely for that reason.

Changes in Average Earnings

Perhaps of greater interest to readers are not the static average earnings but the changes over time. The 1990s did bring some substantial increases in average earnings per worker. The question is whether the economically challenging 1999-2003 period could do the same. What may surprise many readers is that some of the four-year gains in the recent period far exceeded the "go-go" nineties. One needs to look at the next two tables for details.

Listed below are the statewide average earnings per worker by industry for 1999 and 2003 and the absolute and percentage changes for the years between. Four industries experienced double-digit gains, going as high as 18.2% in Administrative/Support Services. Educational Services, the industry that is the base of the New Economy, experienced the smallest gains, 1.9%.

	1999	**2003**	**State**	**%**
Construction, Mining and Natural Resources	34,668	35,457	788	2.3%
Manufacturing	38,422	42,052	3,630	9.4%
Wholesale Trade	40,778	44,254	3,476	8.5%
Retail Trade	18,655	20,173	1,518	8.1%
Transportation, Warehousing and Utilities	34,589	36,852	2,263	6.5%
Information	36,742	39,584	2,842	7.7%
FIRE	41,335	46,877	5,541	13.4%
Professional, Scientific, and Technical Services	42,126	44,061	1,935	4.6%
Admin./Support, Waste Man./Remediation Services	17,639	20,844	3,205	18.2%
Educational Services	33,304	33,948	643	1.9%
Health Care and Social Assistance	27,675	32,236	4,561	16.5%
Arts, Entertainment and Recreation	19,905	20,474	569	2.9%
Accommodation and Food Services	9,417	9,856	439	4.7%
Other Services (except Public Administration)	17,441	18,765	1,324	7.6%
Public Administration	31,067	34,269	3,202	10.3%
	30,360	**33,037**	**2,676**	**8.8%**

What is very clear is that this was an exceptional time for those who were working, especially those who were working in higher-paying positions. What the reader must realize is that wages and salaries may not have risen rapidly enough for individuals to make the averages increase as fast as they did.

In fact, several possible explanations can be given for the faster rates of increase in real incomes. First is that the rate of inflation was extremely low, so that most increases in earnings resulted in gains in real incomes. Second, when layoffs occurred, those with less seniority were more commonly let go, thereby leaving more senior workers with higher pay as contributors to the average earnings per worker. Third, in specific regions the growing industries were sometimes among those with higher average earnings. Thus, in Dane County for example, two of the faster growing industries in terms of employment were FIRE and Professional and Scientific, two industries with average earnings in the $50,000 range. Fourth, this was a period of rapid productivity gains that were reflected to some degree in the

pay of the workers. Fifth, firms that declined or closed were likely less efficient and paid lower wages. Their loss of employment helped to raise average earnings. Therefore, this combination of factors proved to be very helpful to the employed workers of Wisconsin.

The next question is whether these average gains were concentrated in a few specific regions or industries. Table 21 reveals answers to this question.

The first point that must be noted is that despite a very modest employment decline in the state and losses of employment in three areas, earnings per worker increased everywhere. In some cases those gains were substantial. What many observers may think was a difficult period was not so difficult for those who remained employed, especially those who were earning above-average salaries and wages.

The big winners in absolute dollars were workers in Dane County. Their average real earnings increased by $4,387 in four years. Over eight years of the 1990s, the average gain in Dane County was only $2,119. So earnings more than doubled in half as many years, 1999-2003. In other words, earnings rose four times faster than in the 1990s. An even greater relative increase occurred in Racine: earnings increased but $1,042 in the 1990s and then increased three times that ($3,031) in the 1999-2003 period, a rate of growth that was six times faster. At the opposite end of the spectrum, earnings per worker in Kenosha increased nearly $3,500 in the 1990s and only $898 in the 1999-2003 period. Milwaukee's gains were very similar for the two periods, $3,181 followed by $3,022. But the last four years rate of increase was twice what it was in the 1990s.

In all, in the economic challenges of the 1999-2003 period, average earnings per worker rose faster in eight of the nine regions. Only Kenosha went the other way (largely due to the sizeable decline in Manufacturing employment).

The results were average earnings gains in 1999-2003 that were 156% of the 1990s rate in Brown County, 414%, in Dane, 344%, in the Fox Cities, 276%, in La Crosse, 190%, in Milwaukee, 580%, in Racine, 219%, in Rock, and 356%, in the Rest of the State. In other words, those workers who worked in the 1999-2003 period in most of Wisconsin realized substantially better real earnings gains, on average, recently than they did in the Roaring Nineties. The 1990s produced rapid employment growth. This period was followed by a very modest decline in employment and a substantial gain in average earnings per worker. Even in those communities that lost employment 1999-2003, those who remained employed did substantially better (on average) by 2003 than they were doing in 1999.

There were no industries that lost earnings consistently. Only Construction showed declines in four areas, and Educational Services showed a decline in six regions. Otherwise, it is usually none or one area that suffered a decline in average earnings. Construction may well have seen some declines in the average because of the need to add new workers to meet the high levels of demand for workers during this period. Education may have shown up on the negative side often because of the increase in restrictions placed on teachers' earnings and the addition of new teachers to replace the higher pay level of teachers with seniority that retired.

Manufacturing, the industry that lost the most jobs, showed large increases in average earnings in virtually all regions. That reflects the role of seniority, plus the gains in productivity. Additionally, the firms that were competing on low-value added, commodity products were most likely to disappear, leaving the higher-wage, higher-skill companies to compete.

When we look at individual regions, we do find some anomalies. In Brown County, for example, we see a decline of almost $75,000 in the Arts, Entertainment, and Recreation. We do not know, but we would hypothesize that it might have something to do with the Packers. We note the Fox Cities experiencing a dramatic loss of earnings in Information, unlike any other region. We see losses in Professional and Scientific in Milwaukee and Racine. These declines seem contrary to the valid arguments given for increases in earnings.

Workers Earning More Than $30,000 Per Year

Having seen the many averages, one other issue is that of the distribution of earnings. Some of the higher averages may have been created by the presence of some very highly paid workers, offsetting others that are not. To get a better sense of the distribution of earnings, we take an arbitrary earnings level, in this case $30,000, and calculate the proportion of workers in each industry in each region that has an average earnings at or above $30,000. Each average is based on the average per worker per firm, so it is not a true calculation by individual worker. Nevertheless, it does give a reasonable idea of just how well workers in each area do and in each area how workers in each industry do.

TABLE 21 CHANGES IN ANNUAL EARNINGS PER WORKER BY INDUSTRY, 1999-2003

Industry	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State	State
Agri., Mining and Construction	-915	2,245	1,633	-1,621	-15	1,270	606	-2,977	669	788
Manufacturing	1,328	6,328	4,804	1,009	5,035	4,128	3,497	6,349	3,314	3,630
Wholesale Trade	3,099	4,782	3,429	2,363	-595	3,240	5,141	2,071	4,586	3,476
Retail Trade	1,410	3,174	2,542	995	2,792	58	2,840	2,049	1,756	1,518
Utilities, Trans. and Warehousing	6,564	3,114	1,617	3,033	2,127	711	3,890	2,939	2,572	2,263
Information	1,446	11,130	-4,805	6,353	6,708	4,093	400	4,580	853	2,842
FIRE	5,518	9,803	7,443	5,389	2,097	4,952	7,876	3,252	4,294	5,541
Professional and Technical Services	4,297	8,893	4,237	3,670	1,038	-1,046	-1,676	1,298	2,403	1,935
Administrative and Waste Services	4,461	4,124	3,489	5,890	2,170	2,671	4,779	-1,233	3,467	3,205
Educational Services	-916	706	-625	417	-308	2,042	-492	-158	-29	643
Health Care and Social Assistance	6,032	5,184	3,011	4,761	2,959	4,150	7,014	6,180	4,565	4,561
Arts, Entertainment and Recreation	-74,354	1,939	56	767	740	4,047	585	503	2,020	569
Accommodation and Food	-443	641	663	362	310	607	757	555	437	439
Other Services	1,104	2,651	1,096	524	2,008	1,330	2,227	2,011	876	1,324
Public Administration	1,626	3,484	5,206	3,640	2,188	4,734	3,214	5,125	2,612	3,202
TOTAL	**1,811**	**4,387**	**2,467**	**898**	**2,425**	**3,022**	**3,031**	**2,411**	**2,299**	**2,676**

"Management of Companies" industry removed due to break in data

Two results should be viewed first. One is the distribution of workers earning at least $30,000 in Wisconsin by industry (the extreme right-hand column) and the distribution of workers with average earnings of at least $30,000 by region (Table 22). If we look to the extreme right first, we see that the leading industries, as ranked by the proportion that earn at least $30,000, are Manufacturing (76%), Wholesale Trade (72%), and Professional and Scientific (69%). Those are pretty good proportions. What is dismaying is that 0% of those in Accommodation have an average of $30,000, and only 14% and 18% of those in Arts, Entertainment and Recreation and Retail Trade have similar earnings. In these latter three, very few individuals earn enough to bring their firm's average above $30,000.

The proportions by geographic area are more heartening. The range runs from 41% in the Rest of the State to 61% in Dane County. The Fox Cities at 60% is very similar, and Milwaukee at 58% is not far behind. These communities have industries that pay a sizeable proportion of their workers enough to keep most workers' families out of poverty, and they are the communities with the highest earnings per worker. Keeping families out of poverty is much harder to do in the smaller communities, such as those found in the Rest of the State, where only about 2/5ths of the earnings average at least $30,000 per year. The good news is that it is only in La Crosse and the Rest of the State that less than half of the workers earn at least $30,000 on average. The unfortunate part for the workers of the state is that even in the best of the local economies just over 3/5ths of the workers have average earnings of at least $30,000. It is no wonder that lower earnings are still a challenge for Wisconsin workers.

Readers interested in specific geographic areas should look at Table 22 to see just how well various industries are doing. The percentage of workers in any industry that earn at least $30,000 does vary fairly widely. For example, Educational Services' average ranges from a low of 45% in the Rest of the State to a high of 84% in the Fox Cities. In Manufacturing the percentage earning an average of at least $30,000 varies from a low of 58% in La Crosse to a high of 91% in the Fox Cities. In FIRE, the percent earning at least $30,000 annually varies from a low of 45% in Racine to 75% in its neighbor, Milwaukee. There is not a clear pattern: the results reflect the specific conditions found in each community.

Proportion of Higher-Paid Service Workers

There has been a long-standing debate on the relative merits of service versus manufacturing jobs. One side always looks to manufacturing as the source of decent-paying jobs; services get slammed. But then others look at Health Care, FIRE, Information, and other industries and question whether manufacturing is the only way to higher paying employment. To help resolve this, the report next looks at the question of just how many jobs there are in each sector that have average earnings of at least $30,000 annually. This is yet another slice of what we have been examining.

Again, the reader should be warned that we are dealing with averages of averages. When we say X number of jobs yields earnings of at least $30,000, we are counting a different way: we count the number of jobs with employers whose average earnings across all workers is at least $30,000. We do this by industry and by geographic region.

Table 23 displays the proportion of both Manufacturing and Service Jobs that yield earnings per worker of at least $30,000, on average. It also lists the absolute number of jobs in each of the two sectors that pays at this rate.

There are two very clear themes. The first is that a much higher proportion of manufacturing than service jobs yields earnings of at least $30,000. This occurs in every region and for the state as a whole. The second, and seemingly contrary point, is that the absolute number of service sector jobs that pay at least $30,000 is much higher than the comparable number of manufacturing jobs. For the state as a whole there are 2.3 times more service sector jobs yielding earnings of at least $30,000 than there are manufacturing jobs paying that rate. In Dane County, the ratio is 6:1 service jobs to each higher-paying manufacturing job. That is an extreme. At the low end is Racine, where each higher paying manufacturing job is exceeded by1.2 higher-paying service jobs.

Conditions in many of these communities have changed since 1999. The ratio of higher-paying service to manufacturing jobs has increased in virtually every region. This is due in part to the loss of over 85,500 manufacturing jobs across the state. But it is also due to an increase in better-paying service sector jobs during economic times that were especially challenging to manufacturing. The message is clearly that service jobs that pay reasonably have been and are likely to continue to expand in number. Their growth should be encouraged. It seems far easier to increase their total than it is to increase the number in manufacturing. This is especially true since the source of continued existence in manufacturing involves the substitution of capital for labor.

TABLE 22 PERCENT OF WORKERS THAT EARN $30,000+ ANNUALLY BY INDUSTRY, 2003

Industry	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State	State
Agri., Mining and Construction	65%	73%	76%	63%	64%	73%	59%	54%	44%	59%
Manufacturing	81%	84%	91%	80%	58%	84%	86%	86%	67%	76%
Wholesale Trade	69%	82%	68%	80%	79%	82%	56%	55%	61%	72%
Retail Trade	23%	24%	18%	14%	14%	20%	16%	24%	16%	18%
Utilities, Trans. and Warehousing	85%	70%	72%	66%	58%	58%	59%	80%	62%	64%
Information	66%	84%	75%	76%	54%	81%	67%	40%	36%	63%
FIRE	70%	77%	72%	47%	68%	75%	45%	52%	49%	66%
Professional and Technical Services	75%	80%	70%	49%	60%	76%	51%	40%	52%	69%
Administrative and Waste Services	12%	26%	25%	22%	4%	17%	9%	5%	21%	18%
Educational Services	58%	78%	84%	77%	65%	72%	69%	64%	45%	62%
Health Care and Social Assistance	59%	55%	52%	40%	66%	53%	59%	60%	40%	49%
Arts, Entertainment and Recreation	20%	10%	6%	3%	0%	30%	8%	1%	5%	14%
Accommodation and Food	1%	0%	1%	0%	0%	1%	0%	0%	0%	0%
Other Services	17%	41%	17%	13%	18%	23%	21%	12%	11%	20%
Public Administration	82%	90%	75%	77%	34%	88%	89%	78%	43%	66%
TOTAL	**56%**	**61%**	**60%**	**50%**	**48%**	**58%**	**55%**	**54%**	**41%**	**51%**

"Management of Companies" industry removed due to break in data

$30,000 is 200% of the federal poverty limit for a family of 3

TABLE 23 NUMBER AND PERCENT OF MANUFACTURING AND SERVICE-SECTOR WORKERS THAT EARN $30,000+ ANNUALLY, 2003

	Brown County	Dane County	Fox Cities	Kenosha County	La Crosse County	Metro Milwaukee	Racine County	Rock County	Rest of State	State
Manufacturing										
Number	20,901	22,420	26,508	8,497	4,970	117,599	17,341	13,284	153,619	385,139
Percent	81%	84%	91%	80%	58%	84%	86%	86%	67%	76%
Service Sector										
Number	52,379	137,026	43,313	15,656	23,694	322,284	21,178	19,664	246,666	881,860
Percent	49%	57%	48%	41%	45%	51%	42%	43%	33%	44%

CONCLUSION

The Wisconsin economy is not moribund. It has been challenged by the large decline in manufacturing employment. At the same time several of its service industries have grown, and even within manufacturing, there are specific industries that have added employment. Regardless, manufacturing will matter less and less as a proportion of Wisconsin employment. It is likely to continue to grow in terms of total state domestic product or the value of goods produced. But manufacturing will increasingly be done by fewer workers.

Service industries, on the other hand, should continue to add employment, but in some geographic areas more than others. Dane County is doing very well in the "new economy." It has a smaller manufacturing sector that got smaller. But it expanded significantly in Health Care, Professional, Scientific, and Technical Services, Educational Services, and Finance, Insurance, and Real Estate. Dane County is growing well in the high tech areas of both IT and biotech. The county has clear signs of the knowledge economy. Other regions benefited to varying degrees from growth in these industries, but they all came together in Dane.

But a big question mark is the future of the Milwaukee metropolitan area. It lost almost 25,000 jobs net whereas archrival Dane County added almost 12,000. In Milwaukee it was manufacturing job losses that probably led to retail and wholesale job losses that really hurt the area. But Milwaukee even lost jobs in Information. Given that Milwaukee's economy is 2.9 times larger in terms of employment, there should be substantial concern in the state for what is happening in Milwaukee. Milwaukee and Racine's losses together easily eclipse the growth that occurred elsewhere in the state. These Southeast economies must be addressed. To write them off is poor public policy.

Expansion in Health Care employment across the state is welcome but not of sufficient scale to counterbalance the huge decline in manufacturing. More such industries need to grow significantly if the economy is to change from a deficit to a positive.

For much of the state the overall employment count did not vary widely over the 1999-2003 period. But there have been substantial internal changes. If manufacturing job losses can be stopped, then it is likely that all economies will grow.

There are positive signs. One of the strongest was the gain in average earnings per worker that was substantially faster than that realized in the 1990s. With projections of very low labor force growth in the state for the next 15 years, one concentration of public policy should be on earnings increases. The start of the 21st century has been a good first step in this direction. Continued evolution of the economy should be encouraged, so that increases in earnings can be continued but not at the expense of employment growth, as largely happened 1999-2003. Ideally, real earnings gains will be accompanied by employment growth as well.

As was noted above, several of the tables were inconclusive or were trendless. This is expected because we know that Wisconsin's regional economies are somewhat fragmented and have the tendency to behave uniquely. However, there are trends that are clear amongst some of the more conclusive tables. Demographics, Consumer/Export, Technology, and Existing Firms tables all seem to point to the success of Dane County's New Economy and the failure especially of Southeast Wisconsin's Old Economy. This should suggest more strongly than ever that Wisconsin and Southeastern Wisconsin especially should more resolutely embrace productivity and technology gains to bolster manufacturing and high-end service industry growth.

Appendix A: NAICS Definitions

Major Industries Within NAICS Categories

Agri., Mining and Construction	
111	Crop Production
112	Animal Production
113	Forestry and Logging
114	Fishing, Hunting and Trapping
115	Support Activities for Agriculture and Forestry
211	Oil and Gas Extraction
212	Mining (except Oil and Gas)
213	Support Activities for Mining
236	Construction of Buildings
237	Heavy and Civil Engineering Construction
238	Specialty Trade Contractors
Manufacturing	
311	Food Manufacturing
312	Beverage and Tobacco Product Manufacturing
313	Textile Mills
314	Textile Product Mills
315	Apparel Manufacturing
316	Leather and Allied Product Manufacturing
321	Wood Product Manufacturing
322	Paper Manufacturing
323	Printing and Related Support Activities
324	Petroleum and Coal Products Manufacturing
325	Chemical Manufacturing
326	Plastics and Rubber Products Manufacturing
327	Nonmetallic Mineral Product Manufacturing
331	Primary Metal Manufacturing
332	Fabricated Metal Product Manufacturing
333	Machinery Manufacturing
334	Computer and Electronic Product Manufacturing
335	Electrical Equipment, Appliance, and Component Manufacturing
336	Transportation Equipment Manufacturing
337	Furniture and Related Product Manufacturing
339	Miscellaneous Manufacturing
Wholesale Trade	
423	Merchant Wholesalers, Durable Goods
424	Merchant Wholesalers, Nondurable Goods
425	Wholesale Electronic Markets and Agents and Brokers

Retail Trade	
441	Motor Vehicle and Parts Dealers
442	Furniture and Home Furnishings Stores
443	Electronics and Appliance Stores
444	Building Material and Garden Equipment and Supplies Dealers
445	Food and Beverage Stores
446	Health and Personal Care Stores
447	Gasoline Stations
448	Clothing and Clothing Accessories Stores
451	Sporting Goods, Hobby, Book, and Music Stores
452	General Merchandise Stores
453	Miscellaneous Store Retailers
454	Nonstore Retailers
Utilities, Trans. and Warehousing	
221	Utilities
481	Air Transportation
482	Rail Transportation
483	Water Transportation
484	Truck Transportation
485	Transit and Ground Passenger Transportation
486	Pipeline Transportation
487	Scenic and Sightseeing Transportation
488	Support Activities for Transportation
491	Postal Service
492	Couriers and Messengers
493	Warehousing and Storage
Information	
511	Publishing Industries (except Internet)
512	Motion Picture and Sound Recording Industries
515	Broadcasting (except Internet)
516	Internet Publishing and Broadcasting
517	Telecommunications
518	Internet Service Providers, Web Search Portals, and Data Processing Services
519	Other Information Services
FIRE	
521	Monetary Authorities - Central Bank
522	Credit Intermediation and Related Activities
523	Securities, Commodity Contracts, and Other Financial Investments and Related Activities
524	Insurance Carriers and Related Activities
525	Funds, Trusts, and Other Financial Vehicles
531	Real Estate

532	Rental and Leasing Services
533	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)
Professional and Technical Services	
541	Professional, Scientific, and Technical Services
Management of Companies	
551	Management of Companies and Enterprises
Administrative and Waste Services	
561	Administrative and Support Services
562	Waste Management and Remediation Services
Educational Services	
611	Educational Services
Health Care and Social Assistance	
621	Ambulatory Health Care Services
622	Hospitals
623	Nursing and Residential Care Facilities
624	Social Assistance
Arts, Entertainment and Recreation	
711	Performing Arts, Spectator Sports, and Related Industries
712	Museums, Historical Sites, and Similar Institutions
713	Amusement, Gambling, and Recreation Industries
Accommodation and Food	
721	Accommodation
722	Food Services and Drinking Places
Other Services	
811	Repair and Maintenance
812	Personal and Laundry Services
813	Religious, Grantmaking, Civic, Professional, and Similar Organizations
814	Private Households
Public Administration	
921	Executive, Legislative, and Other General Government Support
922	Justice, Public Order, and Safety Activities
923	Administration of Human Resource Programs
924	Administration of Environmental Quality Programs
925	Administration of Housing Programs, Urban Planning, and Community Development
926	Administration of Economic Programs
927	Space Research and Technology
928	National Security and International Affairs

Appendix B: Definitions of Export-Base and Consumer Demand

Category Definitions for Table 6

Personal Services	
812	Personal and Laundry Services
Retail Services	
44 through 45	Retail Trade
51213	Motion Picture and Video Exhibition
811	Repair and Maintenance
711	Performing Arts Companies
713	Amusement, Gambling, and Recreation Industries
722	Food Services and Drinking Places
Small Scale Business Services (19 or less) and Large Scale Business Services (20+)	
518	Internet Service Providers, Web Search Portals, and Data Processing Services
519	Other Information Services
532	Rental and Leasing Services
541	Professional, Scientific, and Technical Services
561	Administrative and Support Services
Manufacturing	
31 thourgh 33	Manufacturing

Appendix C: Definitions of High-Tech and Biotech

High-Tech Definition from the American Electronics Association and Dun & Bradstreet

333295	Semiconductor Machinery
333313	Office Machinery Manufacturing
333314	Optical Instrument & Lens
333315	Photographic & Photocopying Equipment
333319	Other Commercial and Service Industry Machinery Manufacturing
333997	Scale and Balance (except Laboratory) Manufacturing
333999	All Other Miscellaneous General Purpose Machinery Manufacturing
334111	Electronic Computers
334112	Computer Storage Devices
334113	Computer Terminals
334119	Other Computer Peripheral Equipment
334210	Telephone Apparatus
334220	Radio & TV Broadcasting & Wireless Communications Equipment
334290	Other Communications Equipment
334310	Audio & Video Equipment
334411	Electron Tubes
334412	Bare Printed Circuit Boards
334413	Semiconductor & Related Devices
334414	Electronic Capacitors
334415	Electronic Resistors
334416	Electronic Coil, Transformer, and Other Inductor Manufacturing
334417	Electronic Connectors
334418	Printed Circuit Assembly
334419	Other Electronic Components
334510	Electromedical & Electrotherapeutic Apparatus
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical Systems
334512	Automatic Environmental Controls
334513	Industrial Process Control Instruments
334514	Totalizing Fluid Meter & Counting Devices
334515	Electricity Measuring & Testing Equipment
334516	Analytical Laboratory Instruments
334517	Irradiation Apparatus
334519	Other Measuring & Controlling Instruments
334611	Software Reproducing
335921	Fiber Optic Cables

335999	All Other Miscellaneous Electrical Equipment and Component Manufacturing
336412	Aircraft Engine and Engine Parts Manufacturing
336413	Other Aircraft Parts and Auxiliary Equipment Manufacturing
336414	Guided Missile and Space Vehicle Manufacturing
336415	Guided Missile and Space Vehicle Propulsion Unit and Propulsion Unit Parts
336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing
339111	Laboratory Apparatus and Furniture Manufacturing
339112	Surgical and Medical Instrument Manufacturing
511210	Software Publishers
514191	On-Line Information Services
514210	Data Processing Services
516110	Internet Publishing and Broadcasting
517110	Wired Telecommunications Carriers
517211	Paging Services
517212	Cellular & Other Wireless Telecommunications
517310	Telecommunications Resellers
517410	Satellite Telecommunications
517510	Cable & Other Program Distribution
517910	Other Telecommunications
518111	Internet Service Providers
518112	Web Search Portals
518210	Data Processing, Hosting, & Related Services
541330	Engineering Services
541360	Geophysical Surveying and Mapping Services
541370	Surveying and Mapping (except Geophysical) Services
541380	Testing Laboratories
541511	Custom Computer Programming
541512	Computer Systems Design
541513	Computer Facilities Management
541519	Other Computer Related Services
541690	Other Scientific and Technical Consulting Services
541720	Research and Development in the Social Sciences and Humanities
611420	Computer Training
621511	Medical Laboratories
621512	Diagnostic Imaging Centers

Biotech Definition using NAICS Industries:

From Brookings

325411	Medicinal and Botanical Manufacturing
325412	Pharmaceutical Preparation Manufacturing
325413	In-Vitro Diagnostic Substance Manufacturing
325414	Biological Product (except Diagnostic) Manufacturing
541710	Research & Development in the Physical, Engineering, & Life Sciences

ABOUT THE INSTITUTE

The **Wisconsin Policy Research Institute** is a not-for-profit institute established to study public-policy issues affecting the state of Wisconsin.

Under the new federalism, government policy increasingly is made at the state and local levels. These public-policy decisions affect the life of every citizen in the state. Our goal is to provide nonpartisan research on key issues affecting Wisconsinites, so that their elected representatives can make informed decisions to improve the quality of life and future of the state.

Our major priority is to increase the accountability of Wisconsin's government. State and local governments must be responsive to the citizenry, both in terms of the programs they devise and the tax money they spend. Accountability should apply in every area to which the state devotes the public's funds.

The Institute's agenda encompasses the following issues: education, welfare and social services, criminal justice, taxes and spending, and economic development.

We believe that the views of the citizens of Wisconsin should guide the decisions of government officials. To help accomplish this, we also conduct regular public-opinion polls that are designed to inform public officials about how the citizenry views major statewide issues. These polls are disseminated through the media and are made available to the general public and the legislative and executive branches of state government. It is essential that elected officials remember that all of the programs they create and all of the money they spend comes from the citizens of Wisconsin and is made available through their taxes. Public policy should reflect the real needs and concerns of all of the citizens of the state and not those of specific special-interest groups.