

# **Manufacturing Trends in the U.S., Iowa, and Bordering States**

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# **Manufacturing Trends in the U.S., Iowa, and Bordering States**

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## **Introduction**

The nation's manufacturing sector declined sharply between 1998 and 2003 after demonstrating some growth during several years of the 1990s. While much has been written about the erosion of the country's manufacturing base, the loss of jobs to overseas producers, and the overall competitiveness of U.S. manufacturing, it is important for analysts and community leaders to remember that there will always be a significant presence of manufacturing in the U.S. Stated simply: there are many essential goods that will continue to be manufactured in this country. The majority of the nation's food products, especially those that are perishable will be produced and processed in the U.S. Heavy machinery and machined goods along with any other originally heavy products or products that gain significant weight in the production process will also be manufactured in the U.S. Similarly, manufactured goods that have a regionally specific demand density – farm machinery, horse trailers or specialized livestock pens, for example – will likely remain. Still, it is increasingly apparent that several manufacturing sectors in the U.S. are vulnerable to global competition. This vulnerability plays out differently in different regions of the U.S. and in different states, in particular.

This report profiles major changes in national manufacturing in recent years. This report also looks at Iowa and its bordering states in order to discern just how the state has fared compared to the U.S. and its neighbors.

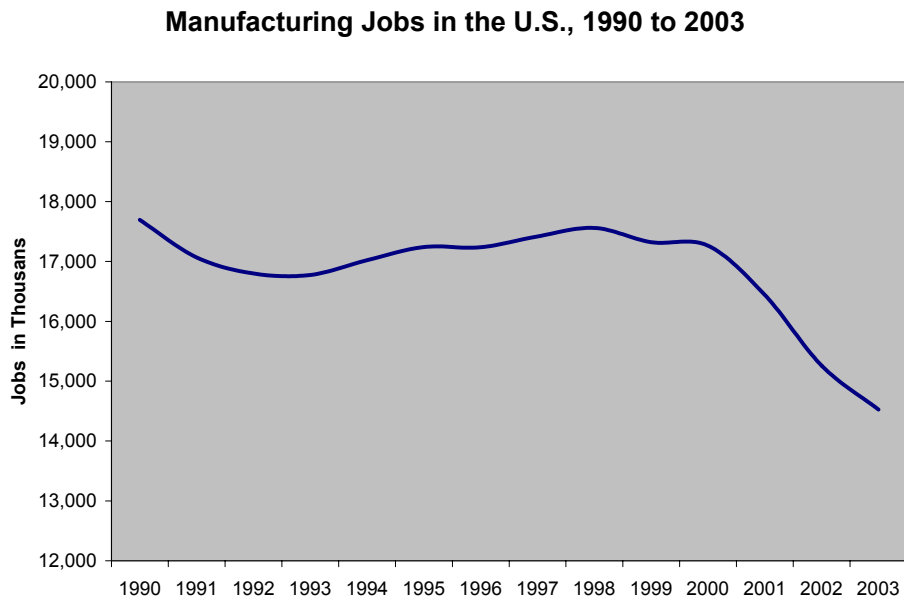
## **National Patterns**

In 2003, according to the U.S. Bureau of Economic Analysis (BEA), 9.1 percent of all jobs in the U.S. were in manufacturing. In 1998, the peak of manufacturing employment during the decade of the 1990s, 12.2 percent of the jobs in the U.S. were in manufacturing. The gains of the 1990s have been reversed in recent years. For the nation, the number of manufacturing jobs declined by 22.4 percent or 4.4 million jobs from 1998 to 2003. Indications for 2004, to the

extent that data were available, indicated that manufacturing jobs have not been added to the economy of late even though the rest of the economy is posting job growth.<sup>1</sup>

Figure 1 displays the trend in manufacturing jobs in the U.S. for the past 14 years. After a noticeable dip in manufacturing jobs through 1992, the sector recovered through 1998, declined slightly through 2000, and then declined sharply through 2003.

**Figure 1**



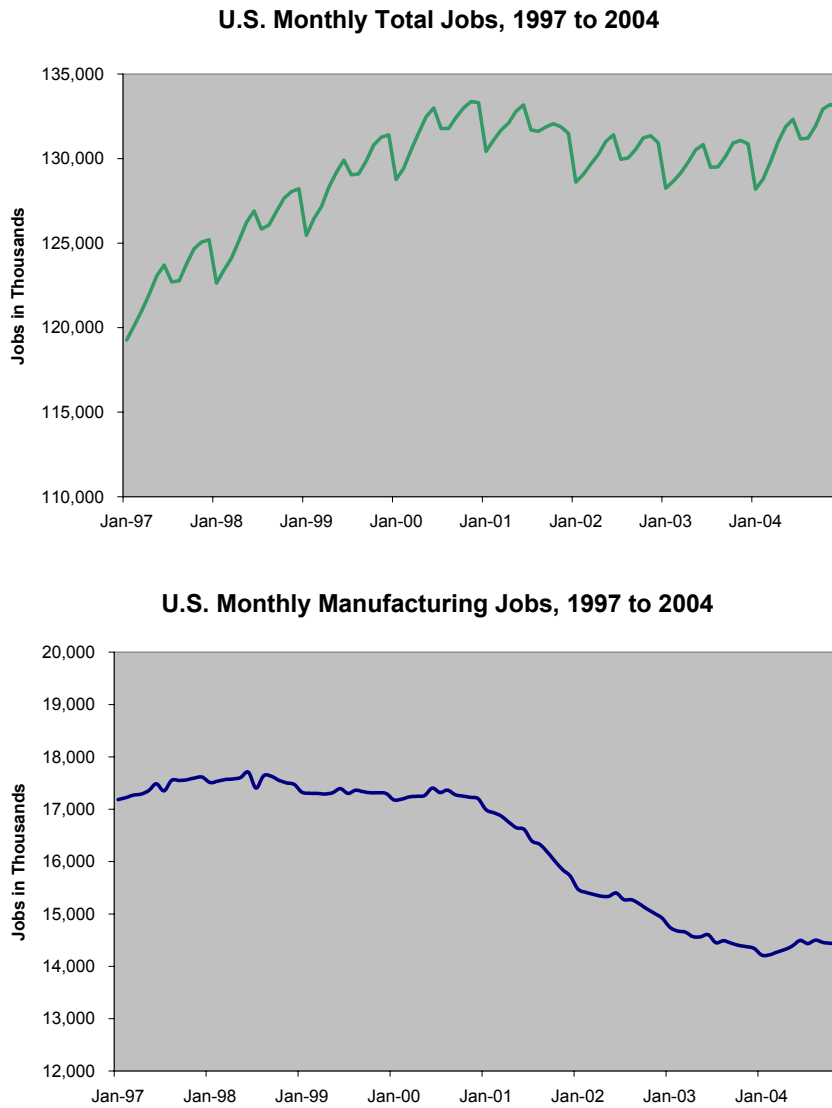
Although there has been total job growth for the nation, December, 2004, jobs were 1.7 percent greater than in December, 2003, manufacturing has not recovered. A more recent depiction of the performance of the manufacturing

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<sup>1</sup> There are two primary sources of jobs data used in this report. Most of the trend analysis and the comparative analysis relies on U.S. Bureau of Labor Statistics (BLS) compilations. The U.S. Bureau of Economic Analysis (BEA) also compiles information about the economy. The BEA numbers of jobs in the U.S. exceed those posted by the BLS because the BLS numbers do not include sole proprietors or partnerships. On an annual basis, the BEA numbers are preferred, as that agency takes care to fill-in gaps in job statistics reporting. On a detailed basis, however, the BLS data are preferred because they offer much more industrial detail. In addition, the BLS has reconciled its job statistics historically so that they align with the now standard North American Industrial Classification System (NAICS) back to 1990. The BEA only has NAICS data from 2001 on.

sector in light of the total economy is contained in Figure 2. The contrast between the whole economy and manufacturing is stark over this more compressed time frame, and it is evident that at least for the time being, the U.S. manufacturing sector is quite stagnant. For example, during the 1997 through the 2000 period, even though the U.S. economy added nearly 17 million jobs, the manufacturing sector remained essentially flat.

**Figure 2**

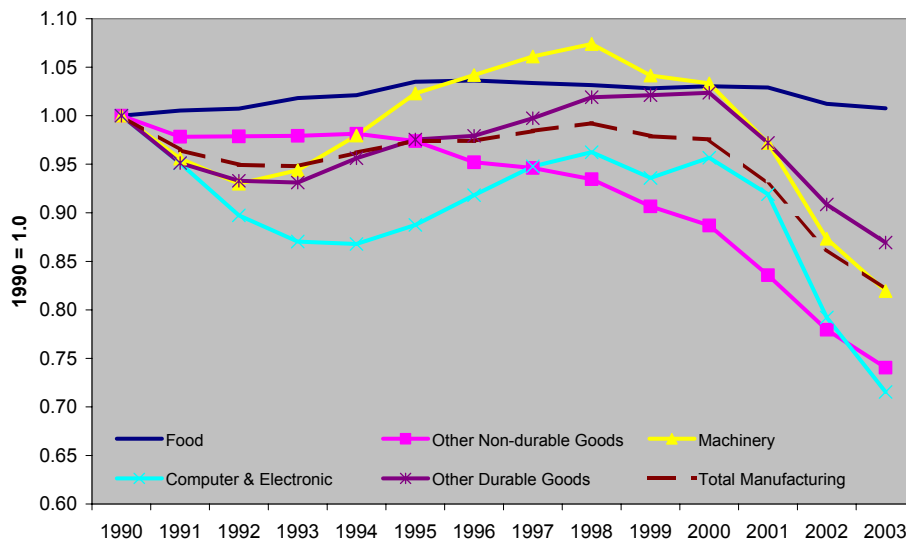


Different manufacturing sectors fared differently over this period of adjustment. Figure 3 details manufacturing job changes compared to job levels in 1990.

Total manufacturing jobs declined to an index value of .95 in 1993 (or 95 percent of its 1990 level), and recovered to .99 by 1998 before declining sharply to .82 (or 82 percent of 1990 jobs). The food sector grew through 1996 and then slowly declined to its 2003 value of 1.01. It is the only broad sector on this index that is above 1.0. In contrast, all other non-durable manufacturing posted persistent declines, especially after 1996, with a 2003 index value of .74 (or 74 percent of 1990 job levels). The machinery sector grew sharply between 1993 and 1998, reaching a high value of 1.07 before declining very sharply to its 2003 value of .80. The computers and electronics sector declined very strongly through the early 1990s, grew smartly through 2000, and then collapsed to its 2003 value of .72. All other durable goods manufacturing in the U.S. grew slowly from 1993 to 2000, where it attained an index level of 1.02 before declining to its end of 2003 value of .87.

**Figure 3**

**Index of Manufacturing Job Change, 1990 = 1.0**



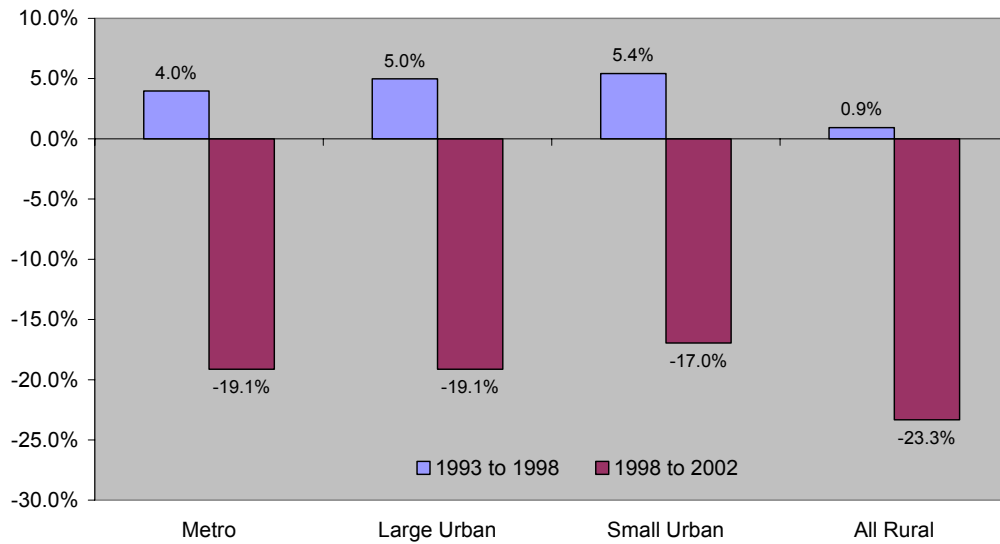
When we look at major characteristics of manufacturing job change in the U.S., we are also interested in how those changes affect different areas of the U.S. One of the ways in which we can gauge patterns of change is to control for the level of urbanization of a local area.<sup>2</sup>

<sup>2</sup> We break our counties in the U.S. into four intuitively clear sub-groups. **Metropolitan counties** contain a central city of 50,000 or more and are where the majority of people and jobs in the U.S. are found. **Large urban counties** are non-metro areas that contain at least 20,000 persons or more living in urban places. **Small urban counties** are those that have fewer than 20,000

Figure 4 displays, for those counties for which data were not suppressed<sup>3</sup>, the major changes in manufacturing employment that accrued during two major recent periods of change: 1993 to 1998 and 1998 to 2002.

**Figure 4**

**Percentage Changes in Manufacturing Jobs by County Types**



The 1993 to 1998 period yielded manufacturing job growth in all of our county types. The nation’s metropolitan counties, which had 80 percent of manufacturing jobs in 1993, grew by 4 percent by 1998. Large urban counties added 5 percent more manufacturing jobs, and small urban added 5.4 percent. Rural manufacturing jobs, however, grew by just under 1 percent.

In the 1998 to 2002 period, in sharp contrast, all sectors suffered large losses. Among metros and large urban areas it was 19.1 percent, for small urban areas in was 17 percent, and for rural areas the percentage reduction in manufacturing jobs was 23 percent – the nation’s most rural areas gained on a percentage basis the least manufacturing jobs between 1993 and 1998 and lost the most thereafter.

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residents living in cities but have at least one community of 2,500 or more. Finally America’s **rural counties** have no community with a population of at least 2,500 persons.

<sup>3</sup> These are BEA data. That agency suppresses the reporting of data for counties in which there are either few firms or few employees in order, ostensibly, to protect the confidentiality of the firm or firms in that area.

Table 1 shows us which manufacturing sectors performed, comparatively, the worst and the best over two distinct recent periods: 1993 to 1998 and 1998 to 2003. In the earlier period, a time in which all manufacturing in the U.S. grew by 786,300 jobs (or 4.7 percent), the sectors with the fastest growth rates were magnetic media at 29.3 percent, machine shops and threaded products at 25.4 percent, and semi-conductors and electronic components at 25.1 percent. The top three sectors in manufacturing job growth were motor vehicle parts at 140,400 jobs, semi-conductors and electronic components at 130,400 jobs, and machine shops and threaded products at 75,200 jobs.

In this earlier period, footwear had the most percentage loss in jobs at 43.1 percent, followed by cut and sew apparel at 29.2 percent, and apparel knitting mills at 21.1 percent. The most numerical losses were in cut and sew apparel at 213,000 jobs, followed by aerospace products and parts at 45,400 jobs, and fabric mills at 32,100 jobs. Eight of the bottom 20 industries were linked to apparel, accessories, fabrics, or textiles.

Performance in manufacturing in the 1998 to 2003 period is in stark contrast to the earlier one. In just 5 years, manufacturing jobs declined by 3.035 million, a 17.3 percent loss. Yet, a few sectors gained jobs. By far the greatest rate of growth in jobs was posted in the pharmaceuticals and medicines sector at 19 percent. The remaining top 4 were in food processing led by dairy products at 4 percent, other food products at 3.5 percent, and animal slaughtering and processing at 3.3 percent. Numerical gains were greatest in pharmaceuticals and medicines at 46,900 jobs, followed by animal slaughtering and processing at 16,500 jobs, and cement and concrete products at 6,200 jobs.

The top losers continued to be concentrated in apparel and related industries. Cut and sew apparel declined by 52.6 percent, footwear manufacturing by 49.7 percent, and leather and hide tanning and finishing at 48.1 percent. The greatest numerical losers were 271,100 lost jobs in cut and sew apparel, 188,000 jobs lost in semiconductors and electronic components, and 91,300 jobs in fabric mills. Industries related to metal production also posted strong losses in this grouping. It is of interest to note, as well, that all of the 130,400 jobs in the semiconductors industries posted in the earlier period were wiped out, plus an additional 57,600 jobs.

**Table 1**

**Manufacturing Sectors Top and Bottom 20 Sectors, 1993 to 1998 and 1998 to 2003**

1993 to 1998			1998 to 2003		
<b>Top 20 Sectors by Percentage Change</b>	Job Change 1993-1998 (in Thousands)	Percentage Change 1993-1998	<b>Top 20 Sectors by Percentage Change</b>	Job Change 1998-2003 (in Thousands)	Percentage Change 1998-2003
Magnetic media manufacturing and reproduction	13.4	29.3%	Pharmaceuticals and medicines	46.9	19.0%
Machine shops and threaded products	75.2	25.4%	Dairy products	5.2	4.0%
Semiconductors and electronic components	130.4	25.1%	Other food products	5.1	3.5%
Motor vehicle bodies and trailers	33.4	24.5%	Animal slaughtering and processing	16.5	3.3%
Coating, engraving, and heat treating metals	32.6	23.3%	Cement and concrete products	6.2	2.9%
Other wood products	65.4	22.1%	Plywood and engineered wood products	1.0	0.9%
Cement and concrete products	37.3	20.8%	Medical equipment and supplies	-1.5	-0.5%
Motor vehicle parts	140.4	20.7%	Beverages	-1.1	-0.6%
Plywood and engineered wood products	19.1	20.4%	Other transportation equipment	-0.7	-1.8%
Railroad rolling stock	5.9	20.3%	Other furniture-related products	-1.0	-1.9%
Architectural and structural metals	65.8	19.9%	Ship and boat building	-3.9	-2.6%
Industrial machinery	27.5	19.3%	Architectural and structural metals	-16.6	-4.2%
Forging and stamping	21.9	17.6%	Bakeries and tortilla manufacturing	-13.4	-4.4%
Office furniture and fixtures	25.9	17.6%	Motor vehicles	-16.1	-5.7%
Other furniture-related products	7.8	17.4%	Lime, gypsum, & nonmetallic mineral products	-7.1	-7.6%
Communications equipment	36.1	17.2%	Household and institutional furniture	-33.3	-8.0%
Metalworking machinery	41.9	17.0%	Grain and oilseed milling	-5.7	-8.4%
Agricultural, construction, and mining machinery	34.1	16.5%	Soaps, cleaning compounds, and toiletries	-12.2	-9.3%
Foundries	27.5	14.1%	Fruit and vegetable preserving and specialty	-19.0	-9.4%
HVAC and commercial refrigeration equipment	22.5	13.8%	Animal food	-5.6	-10.1%
<b>All U.S. Manufacturing</b>	<b>786.3</b>	<b>4.7%</b>	<b>All U.S. Manufacturing</b>	<b>-3,035.3</b>	<b>-17.3%</b>
<b>Bottom 20 Sectors by Percentage Change</b>			<b>Bottom 20 Sectors by Percentage Change</b>		
Resin, rubber, and artificial fibers	-6.4	-4.4%	Foundries	-58.0	-26.0%
Grain and oilseed milling	-3.5	-4.9%	Industrial machinery	-45.9	-27.0%
Other chemical products and preparations	-7.0	-4.9%	Other nonferrous metal production	-27.7	-27.1%
Tobacco and tobacco products	-2.3	-5.7%	Other general purpose machinery	-99.4	-27.4%
Fruit and vegetable preserving and specialty	-13.7	-6.3%	Pulp, paper, and paperboard mills	-57.4	-27.6%
Audio and video equipment	-4.0	-7.0%	Audio and video equipment	-14.7	-27.6%
Aerospace product and parts	-45.4	-7.3%	Metalworking machinery	-83.3	-28.9%
Dairy products	-11.2	-7.9%	Semiconductors and electronic components	-188.0	-28.9%
Iron and steel mills and ferroalloy production	-13.5	-8.6%	Iron and steel mills and ferroalloy production	-42.0	-29.2%
Pulp, paper, and paperboard mills	-20.8	-9.1%	Computer and peripheral equipment	-96.4	-29.9%
Textile and fabric finishing mills	-11.8	-9.2%	Fiber, yarn, and thread mills	-31.0	-35.6%
Fiber, yarn, and thread mills	-9.2	-9.5%	Railroad rolling stock	-12.5	-35.8%
Leather and hide tanning and finishing	-5.4	-11.1%	Textile and fabric finishing mills	-41.9	-36.0%
Basic chemicals	-31.1	-12.8%	Communications equipment	-89.4	-36.3%
Fabric mills	-33.1	-13.0%	Accessories and other apparel	-13.6	-36.9%
Seafood product preparation and packaging	-8.4	-15.1%	Fabric mills	-91.3	-41.3%
Accessories and other apparel	-7.2	-16.3%	Leather and hide tanning and finishing	-17.9	-41.4%
Apparel knitting mills	-23.2	-21.1%	Apparel knitting mills	-41.6	-48.1%
Cut and sew apparel	-213.0	-29.2%	Footwear	-19.7	-49.7%
Footwear	-30.0	-43.1%	Cut and sew apparel	-271.1	-52.6%

There is another way to characterize the changes that have occurred in manufacturing in the U.S. over the past decade or so. We can think of the “shifting” that has happened in different industries. Shifting occurs when an industry grows faster or slower than the average for all firms in a group. It allows us to calculate which industries are accumulating greater shares of industrial activity and which are losing. We calculate shifts by figuring how many more jobs an industry grew by or declined by than were expected, where the expected value is the average change for the whole group. During growth periods, a positive shift occurs if your industry grows faster than the national average. If your industry grew slower than the national average, you had a negative shift. During periods of decline, a positive shift occurs if your industry declines at a slower rate than the national average. As a consequence, there would be more jobs in your industry than would have been expected had it behaved like all



industries in your group; hence, a shift in your direction. If you declined faster than the national average you would have posted a negative shift. The sum all shifts for all industries in our group always equals zero. Table 2 and Figures 5 and 6 demonstrate the actual job changes and manufacturing job shifts that occurred in the U.S. over the 1993 to 1998 and the 1998 to 2003 time periods.

**Table 2**

**Broad Manufacturing Sector Employment Changes and Percentage Shifts, 1993 to 1998 and 1998 to 2003.**

	1993-1998		1998 to 2003		
	Actual Change in Thousands	Percent of All Positive (+) or Negative (-) Shifts	Actual Change in Thousands	Percent of All Positive (+) or Negative (-) Shifts	
Apparel	-243.5	-45.1%	Apparel	-326.3	-32.3%
Chemicals	-32.3	-12.7%	Computer and electronic products	-470.0	-23.0%
Textile mills	-54.2	-12.1%	Machinery	-358.4	-14.5%
Food manufacturing	20.3	-8.2%	Textile mills	-164.2	-13.6%
Paper and paper products	-14.8	-7.1%	Primary metals	-164.8	-8.1%
Leather and allied products	-35.2	-6.5%	Electrical equipment and appliances	-131.7	-4.4%
Petroleum and coal products	-11.7	-2.9%	Leather and allied products	-37.7	-3.5%
Electrical equipment and appliances	15.8	-1.8%	Printing and related support activities	-147.9	-0.7%
Miscellaneous manufacturing	24.3	-1.4%	Textile product mills	-37.3	0.0%
Beverage and tobacco products	1.8	-1.3%	Paper and paper products	-105.9	0.3%
Primary metals	23.1	-0.9%	Petroleum and coal products	-19.9	0.5%
Textile product mills	9.8	0.0%	Beverage and tobacco products	-8.3	4.2%
Printing and related support activities	42.7	0.9%	Wood products	-73.1	4.8%
Nonmetallic mineral products	44.2	3.4%	Plastics and rubber products	-126.9	5.4%
Furniture and related products	65.8	6.1%	Fabricated metal products	-261.1	5.9%
Plastics and rubber products	93.8	8.6%	Furniture and related products	-67.7	6.4%
Wood products	85.1	9.6%	Nonmetallic mineral products	-42.7	7.5%
Transportation equipment	163.3	11.7%	Transportation equipment	-301.6	8.6%
Computer and electronic products	174.9	15.4%	Miscellaneous manufacturing	-68.9	8.6%
Machinery	183.1	19.1%	Chemicals	-84.7	13.0%
Fabricated metal products	230.0	25.2%	Food manufacturing	-36.2	34.8%
All Manufacturing Jobs	786.3		All Manufacturing Jobs	-3,035.3	

During the 1993 to 1998 period, almost 60 percent of the positive shifts were localized in fabricated metal products, machinery, and computerized electronic products (see Figure 5). In the process, those industries added 588,000 manufacturing jobs. In contrast, 70 percent of the negative shifts were in apparel, chemicals, and textile mills. Those industries lost, combined, 330,000 jobs. The reader will notice that a few industries that actually grew during this time posted negative shifts. Their shifts are negative because they grew at a slower rate than all manufacturing sectors combined. As they lagged the overall average, there was a comparative “shifting” of manufacturing jobs to sectors that were growing more rapidly – their competitive positions as measured by jobs were eroding.

**Figure 5**

**Positive and Negative Job Shifts, 1993 to 1998**

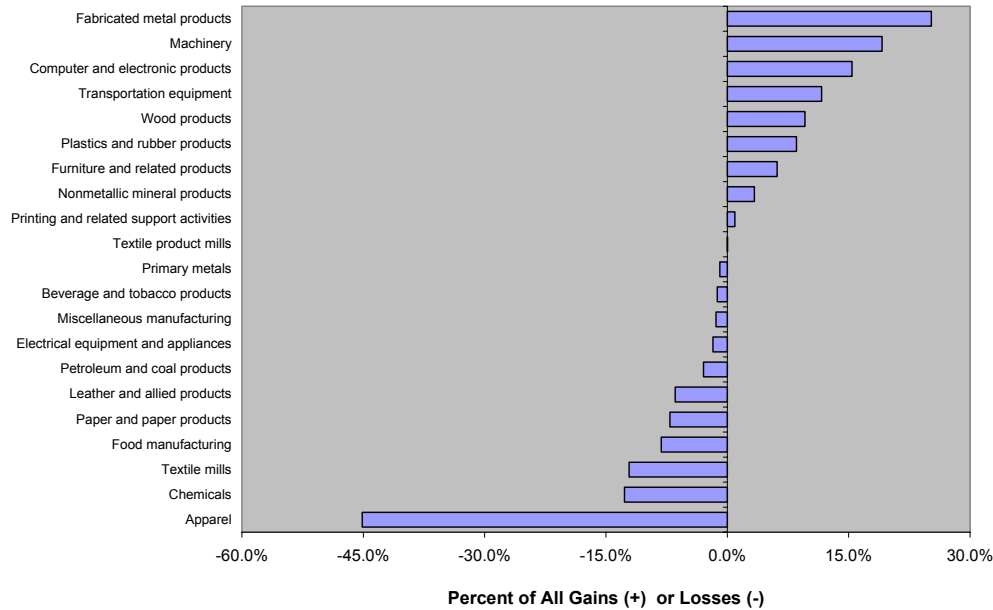
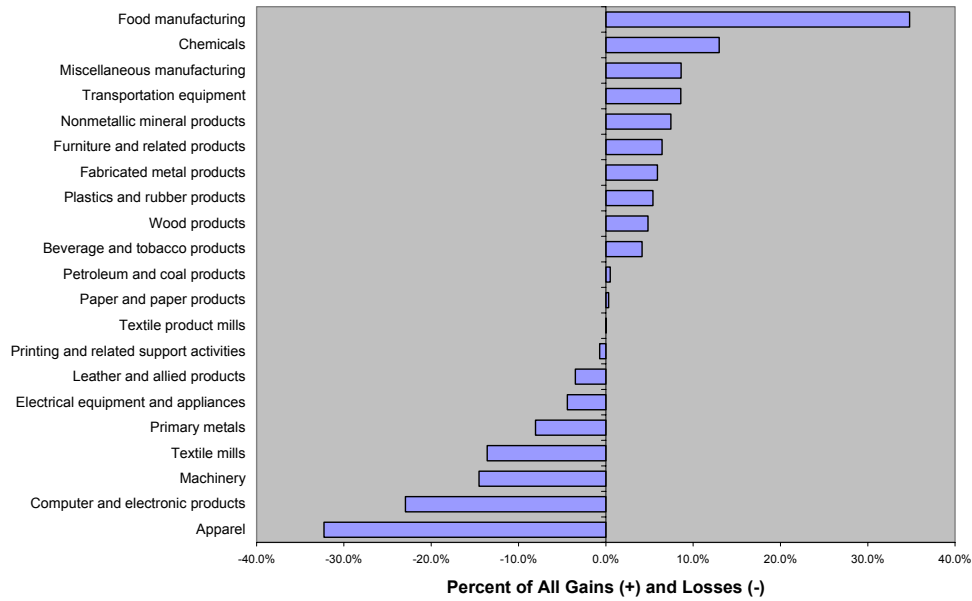


Figure 6 displays the shifts that have occurred in broad manufacturing sectors during the 1998 to 2003 period, a time of massive declines in manufacturing in the U.S. Here, industries that declined more slowly than the national manufacturing average (-17.3 percent) will post positive job shifts. Slightly more than 56 percent of positive shifts were localized in food manufacturing, chemicals, and miscellaneous manufacturing. These three sectors lost a combined 189,800 jobs. Nearly 70 percent of the negative shifts were concentrated in apparel industries, computer and electronic products, and in machinery production. These three sectors lost, combined, 1,151,700 jobs. Even though all of the “positive” shift industries posted losses, they lost at rates that were much lower than the overall average; hence, in terms of the composition of all manufacturing jobs, there was a comparative “shifting” of jobs towards those industries that declined more slowly.

Comparing Figures 5 and 6 we see that computers and electronics products and machinery production were the second and third greatest positive shifts in the earlier period and that they were the second and third greatest negative shifts in the latter period.

**Figure 6**

**Positive and Negative Job Shifts, 1998 to 2003**



**Iowa Patterns**

Iowa had strong manufacturing job growth during much of the 1990s. While national manufacturing grew by 4.7 percent, Iowa’s growth in manufacturing jobs was a very robust 13.6 percent. Figure 7 aptly portrays the strong growth in the state during the 1993 through 2000 period. One also sees the magnitude of loss realized in the 2000 to 2003 period – nearly all of the manufacturing jobs gained during the 1990s were lost in three short years.

**Figure 7**

**Manufacturing Jobs in Iowa, 1990 to 2003**

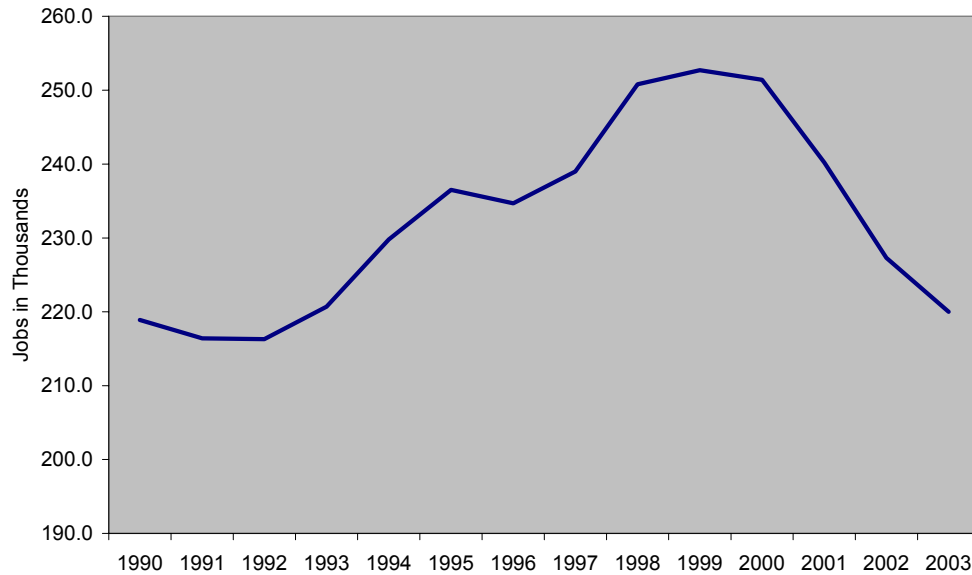


Table 3 summarizes manufacturing growth and decline rates over the period measured. During the 1993 to 1998 period, Iowa added 30,100 manufacturing jobs. Importantly for Iowa, 25,400 of those jobs were in the durable goods sectors of production, jobs that generally pay comparatively well. The two sectors with the strongest percentages of growth were wood products at 51 percent and fabricated metal products at 26.4 percent. Food manufacturing, a large fraction of Iowa's manufacturing base grew much more slowly at just 3.6 percent.

Iowa manufacturing grew at nearly three-times the rate as the rest of the nation during the 1993 to 1998 period, and its rate of decline during the 1998 to 2003 period was about 30 percent less than the U.S. average. The state lost 30,800 manufacturing jobs, or 12.3 percent of the 1998 amount. The highest percentage losses were found in agricultural, construction, and mining machinery at 25.5 percent and in computer and electronics equipment at 24 percent. The highest numeric loss was realized in fabricated metal products at 4,800 and in all other durable goods at 4,300. Gains were posted in just two areas: wood products manufacturing grew by 1,500 jobs or 15 percent, and animal slaughtering jobs grew by 2,100 or 8.1 percent

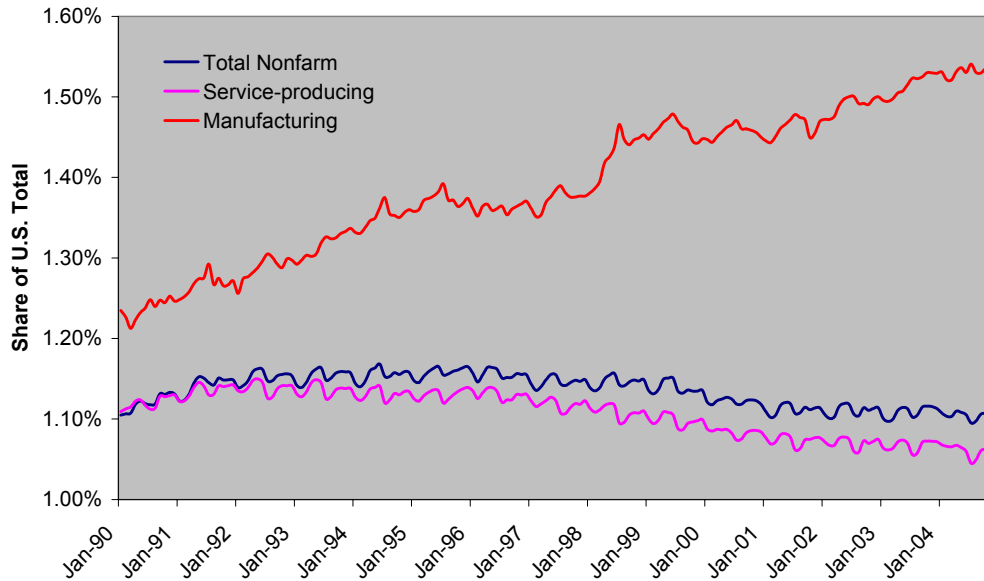
**Table 3****Manufacturing Employment Change in Iowa and the U.S.**

	1993 to 1998		1998 to 2003	
	Iowa	US	Iowa	US
Manufacturing	13.6%	4.7%	-12.3%	-17.3%
Durable goods	20.0%	10.2%	-14.2%	-17.8%
Wood products	50.7%	16.2%	14.9%	-12.0%
Primary metals	24.3%	3.7%	-16.1%	-25.7%
Fabricated metal products	26.4%	15.2%	-15.7%	-15.0%
Machinery	12.7%	13.8%	-21.8%	-23.7%
Agricultural, construction, and mining machinery	4.3%	16.5%	-25.5%	-21.6%
Other machinery	24.5%	13.3%	-17.5%	-24.1%
Computer and electronic products	9.5%	10.6%	-24.0%	-25.7%
Transportation equipment	22.4%	8.5%	-9.4%	-14.5%
Furniture and related products	22.1%	11.4%	-4.3%	-10.6%
Other durable goods	19.6%	4.8%	-13.4%	-13.1%
Nondurable goods	5.0%	-3.2%	-9.5%	-16.5%
Food manufacturing	3.6%	1.3%	-0.2%	-2.3%
Grain and oilseed milling	1.5%	-4.9%	-3.0%	-8.4%
Animal slaughtering and processing	-0.4%	11.4%	8.1%	3.3%
Other food manufacturing	11.3%	-2.7%	-11.9%	-4.8%
Plastics and rubber products	17.7%	11.0%	-16.9%	-13.5%
Other nondurable goods	1.6%	-7.5%	-19.8%	-22.4%

As Iowa's rate of growth exceeded the national experience during the 1993 to 1998 period, and its rate of decline lagged the U.S. thereafter, Iowa's competitive position in, or its share of, U.S. manufacturing has increased over time. This pattern is displayed clearly in Figure 8. Iowa's share of all manufacturing jobs grew from 1.2 percent of the U.S. total in 1990 to over 1.53 percent by 2004. During the same 1990 to 2004 (3<sup>rd</sup> quarter) period, Iowa's U.S. total job share grew slightly during the 1990, but ended where it started at 1.11 percent. Service producing job shares declined from 1.11 percent to 1.06 percent. Over this period, manufacturing jobs in Iowa as a fraction of the U.S. total increased, and its fraction of all Iowa jobs increased as well.

**Figure 8**

**Iowa Shares of U.S. Nonfarm Employment**

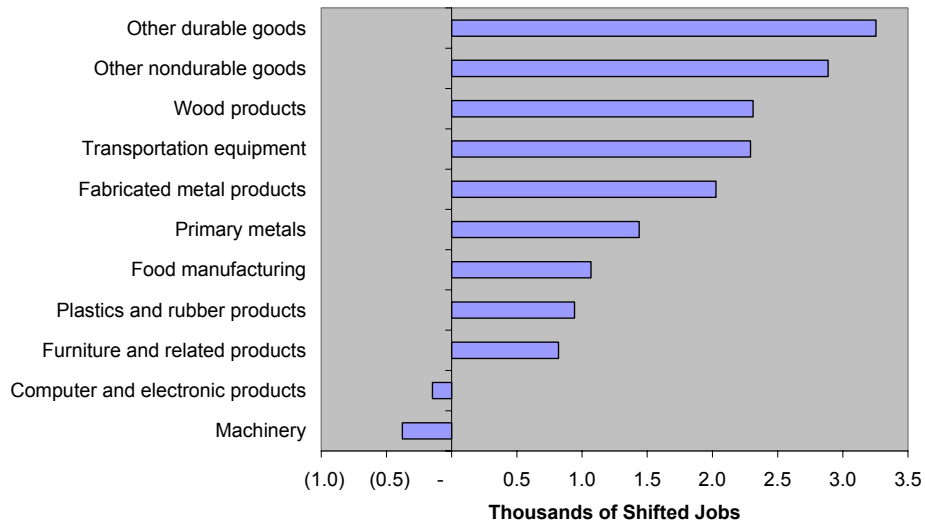


As a consequence, there has been a decided pattern of manufacturing job shifting into Iowa. Figure 9 demonstrates the broad industries into which net shifting occurred during the 1993 to 1998 period. This competitive advantaged ranged from about a 1,000 jobs in furniture and related products on up to over 3,300 jobs shifted into other, unspecified durable goods manufacturing. Competitive losses during this time were realized in computer and electronic products along with machinery manufacturing.

Again, even though manufacturing declined in Iowa during the 1998 to 2003 period, it decline more slowly than the nation; hence, there is a continued net shifting of manufacturing jobs in the U.S. into Iowa. Those results are displayed in Figure 10. Here we see that job losses notwithstanding, Iowa realized positive manufacturing job shifts from just 300 jobs in all other nondurable manufacturing to over 2,700 jobs in the furniture and related products manufacturing sector. Net erosions were realized in machinery manufacturing, all food manufacturing, and in transportation equipment.

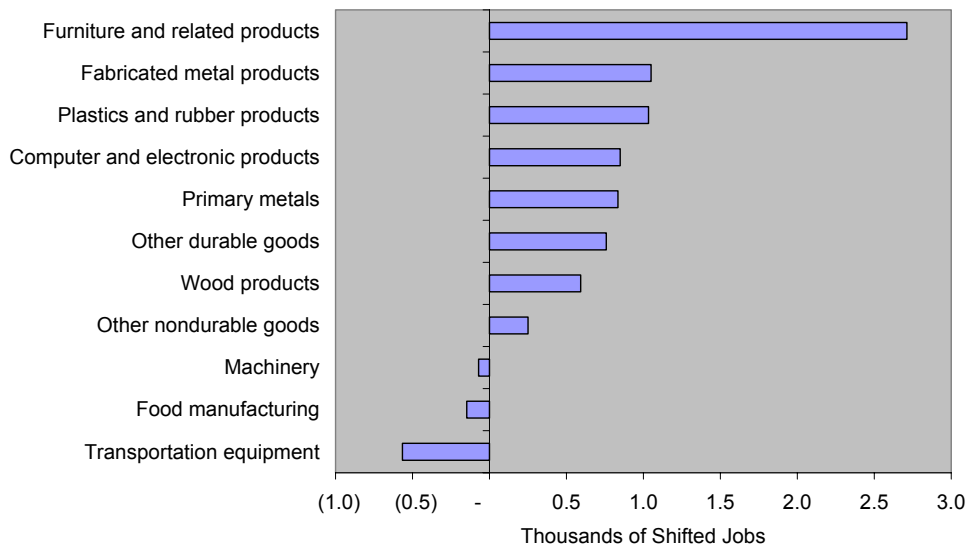
**Figure 9**

**Job Shifts in Iowa Manufacturing Compared to the U.S.,  
Selected Industries, 1993 to 1998**



**Figure 10**

**Job Shifts in Iowa Manufacturing Compared to the U.S.,  
Selected Industries, 1998 to 2003**



In all, and by broad manufacturing sector, Figures 9 and 10 give us a good clue as to the nature of manufacturing change in Iowa as compared to the nation. Those two figures also allow us to gauge, at least for the time being, categories of

manufacturing in which Iowa appears to be competitive, even after a national decline in manufacturing jobs. One must temper these considerations, however, in light of the overall manufacturing changes occurring in the nation: if the state is realizing increases in shares of manufacturing categories that have, otherwise, been declining nationally, that is an indication that those comparative increases may only be temporary.

### **Iowa and Surrounding States**

Concerns about manufacturing competitiveness have local, regional, national and global dimensions. Practically, however, we are very interested in how Iowa is doing compared to its neighbors. Compared to the nation, in good times and bad, the state is increasing its shares of many important manufacturing categories. Recognizing that there is highly intense competition in the Midwest to attract and retain investment in manufacturing and manufacturing jobs, we have compared Iowa's overall growth to all of its border states (Illinois, Wisconsin, Minnesota, South Dakota, Nebraska, and Missouri).

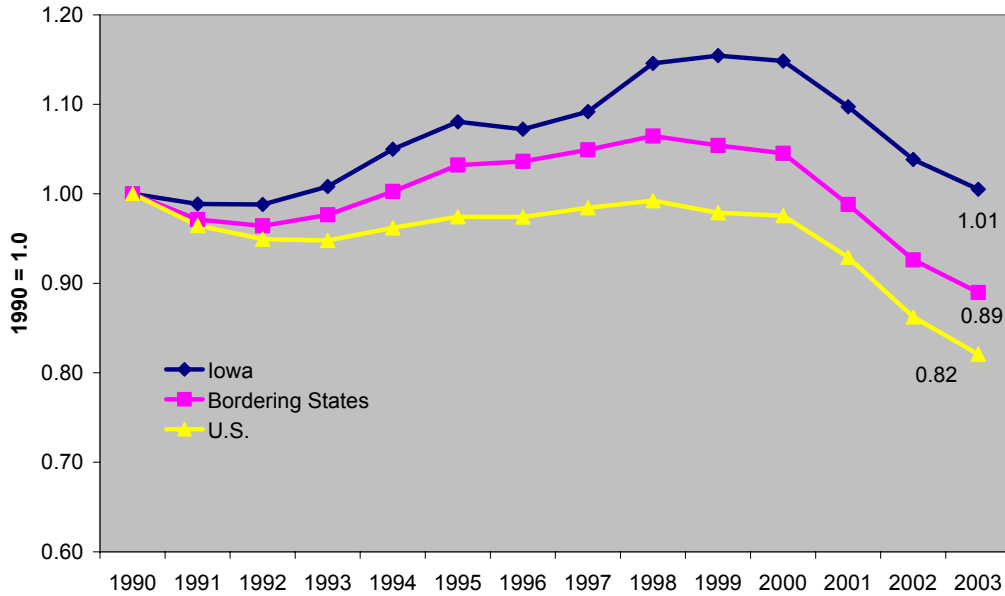
Figure 11 shows the manufacturing job growth and decline that occurred in Iowa, its neighboring states, and the U.S. from 1990 through 2003. In this figure, the job amount for each group in 1990 is the index value (1.0). The graph tracks the percentage change over the years relative to a 1990 baseline value.

All three groups realized erosions in manufacturing jobs during the early 1990s, but Iowa and its neighboring states began to grow before the U.S. as a whole and they grew at a much sharper pace than the U.S. through 1998-1999. Iowa distanced itself from its neighbors in the 1997 to 1998 period before, like the other groups, turning downward after 1999. The ending positions of the groups are noteworthy. The U.S. ended at .82 or 18 percent fewer jobs than it had in 1990. Iowa's neighboring states ended at .89 or 11 percent fewer jobs. Iowa ended at 1.01, or at the same level that it had in 1990.



Figure 11

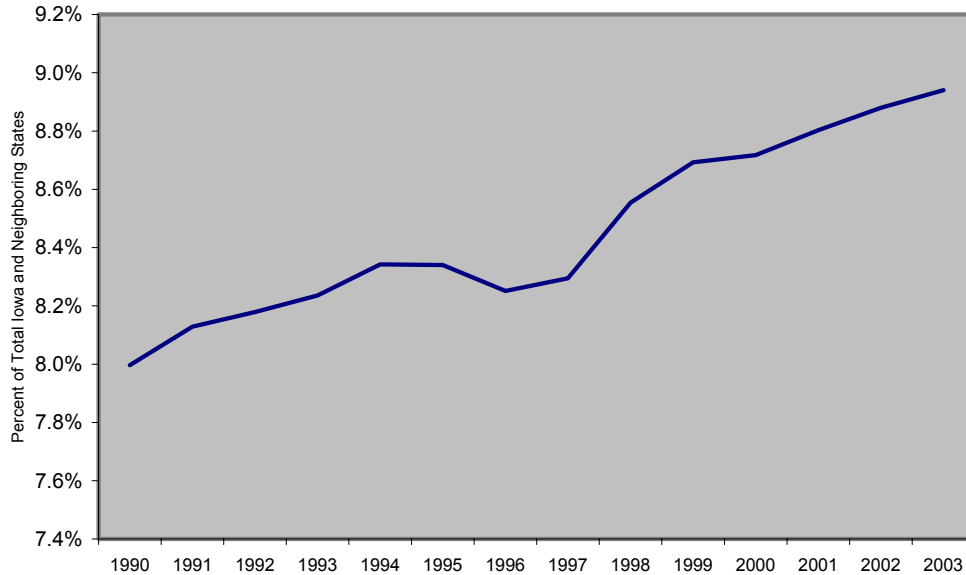
Total Manufacturing Employment



It is obvious that Iowa has gained some ground on the nation and on its neighboring states. In 1990 Iowa manufacturing accounted for 8 percent of total manufacturing jobs in this group of states. See Figure 12. By 2003 that share had grown to 9 percent. Notably, except for a minor erosion in shares in 1995, the overall trend for Iowa vis a vis its neighbors has been persistently upward.

**Figure 12**

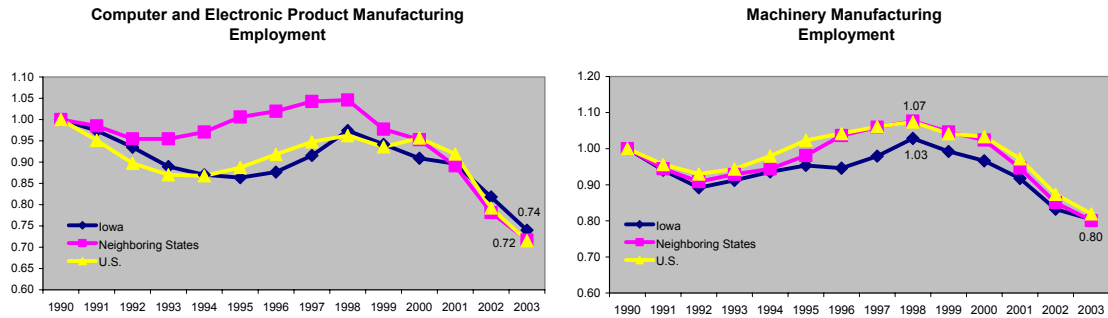
**Iowa's Share of Its and Neighboring State  
Manufacturing Jobs**



Iowa's performance can be measured against several important categories of manufacturing to ascertain its historical strengths and weaknesses in some major categories. In Figure 13 we see that Iowa and the U.S. lost ground during the early 1990s in computer and electronic product manufacture, recovered some during the latter 1990s, but then eroded sharply thereafter. The neighboring states all fared much better than Iowa, but when declines began in the late 1990s, the surrounding states fell precipitously. By 2003, Iowa's index value had fallen to .74 or 26 percent fewer manufacturing jobs in this sector than in 1990, while the U.S. and the neighboring state's values declined to .72 or 28 percent less.

In Figure 13 we also look at one of the categories that many believe Iowa to hold a competitive edge. During the early 1990s, all groups lost machinery manufacturing jobs. All began to grow by the 1992, but both Iowa's neighboring states and the U.S. grew much more rapidly through 1998. The U.S. and its neighboring states had 1998 values of 1.07 (7 percent growth over 1990), while Iowa's value was just 1.03 (3 percent growth). All, however, eroded sharply, thereafter, ending at .8 (or 20 percent fewer jobs than in 1990).

**Figure 13**



Iowa and its neighboring states are major food and kindred product manufacturers owing significantly to their very strong agricultural economies. Indeed, one minor bright spot in all U.S. manufacturing change over the years has been its ability to maintain its food processing jobs. In Figure 14 we see that Iowa added food processing jobs during the early 1990s, lost quite a lot of that growth during the 1996 and 1997 period before recovering to a 2003 index value of 1.09. The U.S. ended at 1.01, and all of Iowa's neighbors scored 1.03. The major erosions after 1998 experienced by other manufacturing are not evident in this broad sector of production.

**Figure 14**

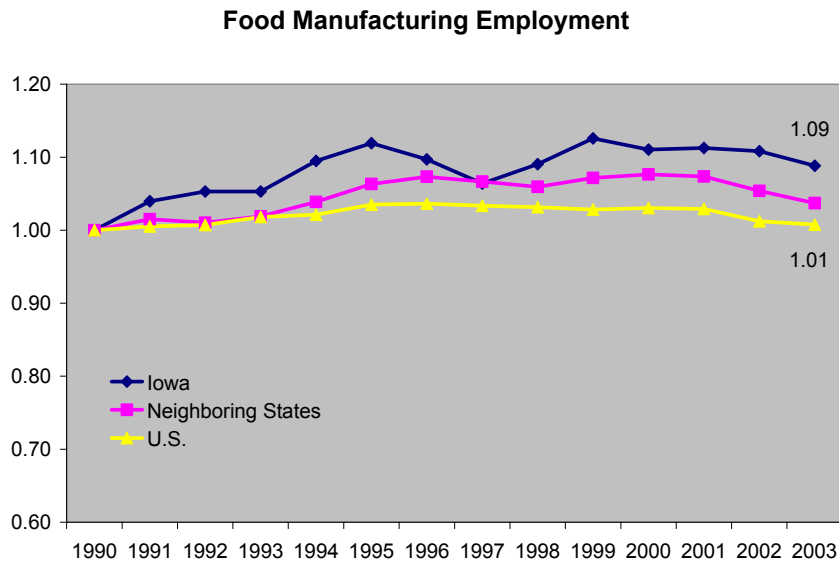
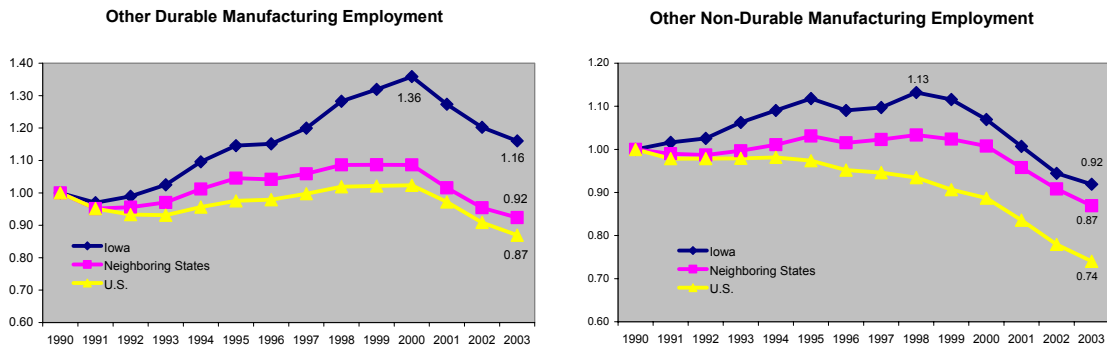


Figure 15 gives a very good summary of the remainder of durable and nondurable manufacturing job growth that occurred in Iowa, the region, and the nation. Iowa demonstrated very robust growth in all other durable manufacturing jobs

during the decade of the 1990s. By 2000 its index value was 1.36 or 36 percent above its 1990 level. Up to that time, the U.S. and the neighboring states showed only minor growth. Jobs eroded sharply beginning in the late 1990s, however, leaving the U.S. with an index value of .87, the neighboring states at .92, but Iowa still, despite declines, had an index value of 1.16.

All other nondurable manufacturing fared poorly at the national level during the entire measurement period. In 2003 it was just 74 percent of its 1990 levels. Among neighboring states declines took place after 1998, and they ended up in 2003 with an index value of .87. Iowa's other nondurable jobs grew during the 1990s to an index value of 1.13, but declined sharply to .92 at the end of the measurement period.

**Figure 15**



**Conclusions**

Manufacturing in the U.S., in the Midwest, and in Iowa has changed substantially over the years. The U.S. lost a very large number of manufacturing jobs over the 1998 to 2003 period. Recent job statistics do not indicate any meaningful recovery in manufacturing jobs, and it is uncertain just which kinds of manufacturing firms will remain competitive in the U.S. or continue yield to global pressures and relocate to other countries.

Iowa, while it too has realized strong manufacturing job losses, grew much faster than the nation during the 1990s and declined more slowly than the nation during the most recent downturn. As a consequence, comparatively, the state's competitive position vis a vis the nation and the Midwest in manufacturing jobs

has improved. The extent to which these shifts either benefit or hinder Iowa regarding its future growth remains to be seen.

As an economic development strategy, all regions or states must necessarily pay attention to their industrial strengths, irrespective of overall national trends. For Iowa, manufacturing cannot be ignored or taken for granted. The state also, however, must be attentive to cues given it by national and global economic conditions and trends. If an area's industrial mix contains a high fraction of jobs in industries that are, nationally, not growth industries, then the region's overall competitiveness will be expected to lag. One cannot assess, therefore, the state's manufacturing positions without also assessing the state's positions in other sectors.

Iowa's overall competitive position in manufacturing jobs has increased over the years. Iowa's overall competitive position in nonmanufacturing jobs has declined. Nationally U.S. manufacturing is eroding and nonmanufacturing sectors are growing. This factor alone suggests the state will realize slower total job growth than the nation over the next few years.

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