



Wisconsin's Export Industries -Analysis and Recommendations-

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Note: The views presented in this paper reflect those of the author. They do not necessarily represent those of the International Division or the Wisconsin Department of Commerce.

Section I - Executive Summary

The production of specialized, complicated precision machinery is the essential core of Wisconsin's export success. It is what we do best and where we compete most successfully in the international arena.

Instruments are our strongest sector. This sector is the most productive, the second largest and the fastest growing of our major export sectors. We should consider a very broad range of options to support its continued growth. This should include incentives for locating and expanding production facilities in Wisconsin, supporting conferences and educational programs to bring sector leaders to the state and providing industry-supported export incentives. Wisconsin needs to be synonymous with "instrument friendly". Our ability to help grow this sector will have important repercussions for the State's future. **We should attempt to make Wisconsin the center of America's and the world's instrument industries.**

Industrial Machinery is Wisconsin's leading export sector. **We lead the nation in the export of marine outboard engines and natural gas engines.** We are also an important producer of other large engines and the 3rd largest producer of internal combustion engines but only a minor producer of diesel engines. **This is a major, high productivity sector; the state needs to insure its long-term success.** Actual exports are probably underreported since many engines actually exported will be reported as vehicle or equipment exports rather than engine exports. Executive level state officials need to maintain regular contact with management of major producers to insure consideration of Wisconsin as a location for expansion.

Although electrical machinery is an important export sector for Wisconsin, we are a minor player nationwide in this industry. This is in part because Wisconsin has no significant production of semiconductors or telecommunications equipment. These two sectors were part of the global boom of the 90's and today comprise over half of all U.S. electrical machinery exports; Wisconsin contributes less than 0.1 % to that total. It should be noted, however, that **Wisconsin is globally competitive in a number of niche electrical machinery sectors such as transformers, generators, electric motors, switches and welding equipment.** Our products tend to compete at the top of the line and are vulnerable to lower cost producers who can compete on the basis of price/quality tradeoffs.

It should be noted that the U.S. automated data processing equipment sector - dominated by California and Texas - appears to be in major transition. Rockwell (Allan-Bradley) is the dominant exporter in this sector in Wisconsin. It is not completely clear how decisions made in Texas are and will impact production and exports from Milwaukee. An ongoing dialogue between Rockwell and executive levels of State government and Forward Wisconsin would help insure appropriate state policies and programs.

Wisconsin is an important player in the hydraulics industry (pumps, centrifugal compressors, drying & filtering, refrigeration and air conditioning equipment). We have a large number of exporters in this highly competitive field. About 5.35% of Wisconsin exports come from these areas.

Wisconsin's exports of transportation equipment fall into three categories. Much of Wisconsin's vehicle production is exported to Canada or Mexico as part of the North American Autopact market. **Military transportation, construction and mining equipment exports are global in nature and can be highly volatile.**

While this report focuses primarily on manufactured products, **it would be prudent to explore the expansion of service exports.** For example, programs designed to bring foreign students to study at Wisconsin colleges and universities with underutilized capacity could provide an import source of export earnings. Assuming a foreign student spends \$100,000 over four years

for a Wisconsin college education, recruiting 1,000 students annually would create \$100 million in export income for the state at minimum cost. In addition, experience has demonstrated over and over again that the creation of such ties is even more profitable for the state in the long term. An added spin-off could be the creation of an additional workforce for our summer tourist industry.

Several major Wisconsin firms have already created company-financed programs to bring students to specific Wisconsin colleges in order to solve long-term problems of employee shortages in critical work specialties. Tax credits for such programs could be a valuable incentive.

Finally, additional foreign students can help create a more international atmosphere within Wisconsin which, like much of the American heartland, is isolated from exposure to foreign cultures. **In a global "knowledge economy", our ability to maintain and grow jobs in the higher education sector may be a critical factor in the long-term success of the State's economy.**

Section II - Preliminary Strategic Recommendations

- 1. Create a program to insure that senior State Executives and CEOs of important export industries and other key decision makers (i.e.; educators, union officials, key legislators) have regular occasions to discuss key issues involving industrial and export growth to insure appropriate dialogue before action.**
- 2. Authorize a study to provide recommendations on how Wisconsin can retain and increase its role in the global instrument industry.**
- 3. Authorize a study to make recommendations on how Wisconsin can strengthen its "export" education industry.**

Section III - Introduction

This analysis is based primarily on information available in the June 2001 State edition of the World Trade Atlas and the 1997 Economic Census for Wisconsin, both products of the U.S. Census Bureau.

This paper explores in greater depth what we export, where in Wisconsin we make export products and the global markets for our products. This paper attempts to identify what sectors and sub-sectors are growing, where we fit into the broader US export economy and where well paying jobs are being created in the state. This is a preliminary analysis. Data should be confirmed and analyzed further before acting on any of the preliminary conclusions in this report.

Section IV - Export Productivity

One of our first steps was to construct a data table that laid out export productivity per employee for major export groups. This was done by simply dividing the total dollar exports per sector for 1999 by the number of employees of Wisconsin producers (1997 data). The same data also provided the number of firms in each respective area. This data is provided in Table A below. It should be noted that the data has limitations. For example, the use of 1997 employee levels and 1999 export data creates distortions. Then too, the product headings used are subjective. I combined many products into the generic heading of "Food Products" and Wisconsin farmers were not counted in employee numbers. In the forest products area, I used a different approach and listed paper products, furniture and wood products into separate categories.

Table A below makes clear that:

The productivity in Wisconsin's Instrument sector is in a commanding position with respect to other major export industries. Employees in the instrument sector produce 227% more exports per capita than any other major sector and 424% more than the State average.

Only three other sectors exceed the State average. They are machinery (183%), transportation equipment (177%) and electrical machinery (114%).

These four sectors comprise 63.7% of all exports.

Six other export sectors are significant and combined account for 19.7% of Wisconsin exports. These sectors and their export productivity opposed to the state average are: food products (85.5%), chemicals (80.6%), plastic & rubber products (77.4%), paper products (75%), leather products (64.8%) and textile & apparel (58.2%).

Five remaining major export sectors, which combine for 5.5% of all exports, are significantly below the state average. These sectors - furniture; stone, glass and clay; wood products; printing and publishing; and fabricated metals are not major export industries. They are long established industries which, in many cases, primarily produce for domestic markets.

The sectors listed below comprise 92% of Wisconsin exports. It should be noted that transportation equipment might have ranked higher if another annual set of data was used. 1999 was not a particularly good year for transportation equipment exports and the data selected, therefore, probably understates the industry average. Similarly, the data for food products may be exaggerated since it includes extensive wheat shipments from the port of Superior. Our conclusion from the data in this chart is that **the production of complicated & precision machinery is what Wisconsin exports are all about.** Having identified the most productive export sectors, we will examine these sectors in greater detail.

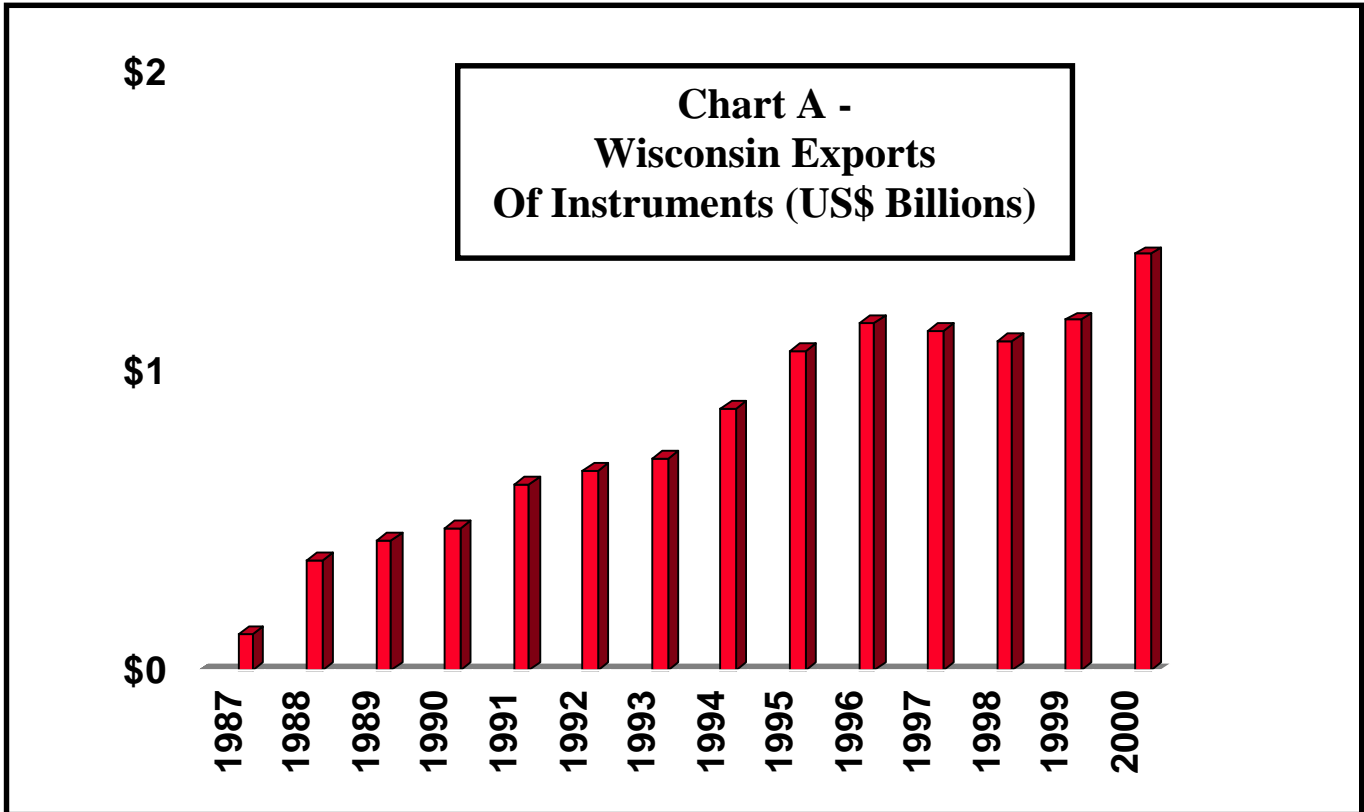
Table A
Wisconsin Exports Productivity
\$ Exports per Employee

<u>Industry</u>	<u>\$ Exports Per Worker</u>	<u>%Total 1999 Exports</u>
1. Instruments	\$61,316	12.1%
2. Machinery	\$26,395	35.2%
3. Transportation Equipment	\$25,622	8.2%
4. Electrical Machinery	\$16,497	8.2%
Wisconsin Average	\$14,459	
5. Food Products	\$12,366	9.1%
6. Chemicals	\$11,648	0.9%
7. Plastic & Rubber Products	\$11,194	3.7%
8. Paper Products	\$10,838	5.2%
9. Leather Products	\$ 9,369	0.8%
10. Textile & Apparel	\$ 8,414	3.1%
11. Furniture	\$ 4,101	0.9%
12. Stone, Glass & Clay	\$ 3,918	0.6%
13. Wood Products	\$ 3,257	1.1%
14. Printing & Publishing	\$ 2,377	1.3%
15. Fabricated Metals	\$ 2,107	1.6%

Section V - Instruments

There are 231 instrument companies within the state of Wisconsin. The majority are in the medical field. The industry is concentrated in the greater Milwaukee and Madison areas but manufacturing facilities are located statewide. Data for this industry is shown in Chart A below. **The data makes clear that Wisconsin is a national and world leader in this area. It should also be noted that exports from this sector are balanced globally. This is not a North American/NAFTA regional export sector; that region took only 21.4% of exports while Western Europe accounted for 37.8% of exports and East Asia for 27.9%**

HS 90 exports are **Wisconsin's second largest source of exports and exports in this category have grown faster than any other major export category for the past decade.** Exports in 2000 were \$1.394 billion overall, up +18.93%. Wisconsin is the #11 exporter among US states in this category with 3.1% of the US total. **In the first half of 2001 Wisconsin exports grew by 15.6% while overall US exports in this category grew by only 8.4%. California, with 24.5%, has more than three times the market share of the next exporting state. However, \$1.087 billion of Wisconsin's total or 77.97% are in the five medical instrument sub-categories listed below. These categories comprised most of the Wisconsin export growth in the medical instrument area in 2000.**



Statistical Data

Wisconsin Exports of Medical Instruments & Related Materials -2000

Major Wisconsin Exporters: GE Medical, Nicolet, Criticare, Datex-Ohmeda, Ocenco, Rogan, SIMS-BCI, GLI, Fotodyne, Gammex,

Major Exports by four-digit HS Code

		Exports Wisconsin	%f U.S. Total	
	Ranking - US States			
HS9018 Medical instruments		\$569 million	6.26%	#4
HS9022 X-Ray Apparatus		\$396 million	23.67%	#1*
HS9027 Physical or Chemical Analysis		\$ 65 million	4.67%	#16
HS9019 Mechano-Therapy Machines		\$ 34 million	1.90%	#3
HS9030 Oscilloscopes & Spectrum Analyzers		\$ 23 million	1.65%	#24

*Data for first six months of 2001 showed Wisconsin rapidly moving ahead of California.

Major Exports by six-digit code:

HS902214 X-Ray Medical &Dental	\$211.6 million	46.5%	#1
HS901813 Magnetic Resonance Imaging Apparatus	\$186.5 million	57.5%	#1
HS9027380 Spectrophotometers	\$ 31.1million	10.77%	#3
HS901930 Ozone, Oxygen & Respiration Apparatus	\$ 23.2 million	6.9%	#4
HS901811 Electrocardiographs	\$ 19.0 million	13.85%	#2

#2 - HS 9018 (Medical Instruments) # 4 among US states with \$569 million in exports in 2000 (California 19.4%, Mass 10.3%, Texas 9.5%, Wisconsin 6.3%). Total US exports \$9.1 billion.

HS901813 (**Magnetic Resonance Imaging Apparatus**) **#1 among US states with \$219.6 million in exports** in 2000 (57.5 % of all US exports). Wisconsin exports up 17.7%. US exports up 28.3%. In 1999 Wisconsin exports were up 24.4% as opposed to a US non-Wisconsin growth of 5.12%.

HS901812 (**Ultrasound Apparatus**) **#3 among US states** with \$74 million in 2000 exports (Washington 40.1%, Calif. 23.9%, Wisconsin 14.3%). Wisconsin exports up 61.6 % in 2000 (up 68.4% in 1999). US exports down -9.2% in 2000 (up 6.97% in 1999).

HS901811 (**Electrocardiographs**) **#2 among US states** with \$23.2 million in exports (California 15.8%, Wisconsin 13.9%. Total US exports \$168 million. Wisconsin exports up 22.03%, US exports down -19.18%. In 1999 Wisconsin exports were up 15.78% while US exports were down -4.08%.

#5 HS 9022 X-Ray Apparatus Wisconsin was #2 among US states in 2000, with 23.67% or \$395.6 million (23.67%) of all US exports. **During the first six months of 2001, Wisconsin assumed the #1 position in this category.** Wisconsin exports rose by 43.6% to \$395.6 million (26.5% of the US total while California exports rose only 1.32% and California's share of overall US exports fell 3.9%). Illinois is in third position with just over 10% of export market share. Wisconsin exports were up 23.1% in 2000. The two subcategories listed below comprise 82.3% of Wisconsin exports in this area. **Growth in all other 9002 categories has been exceptionally strong.**

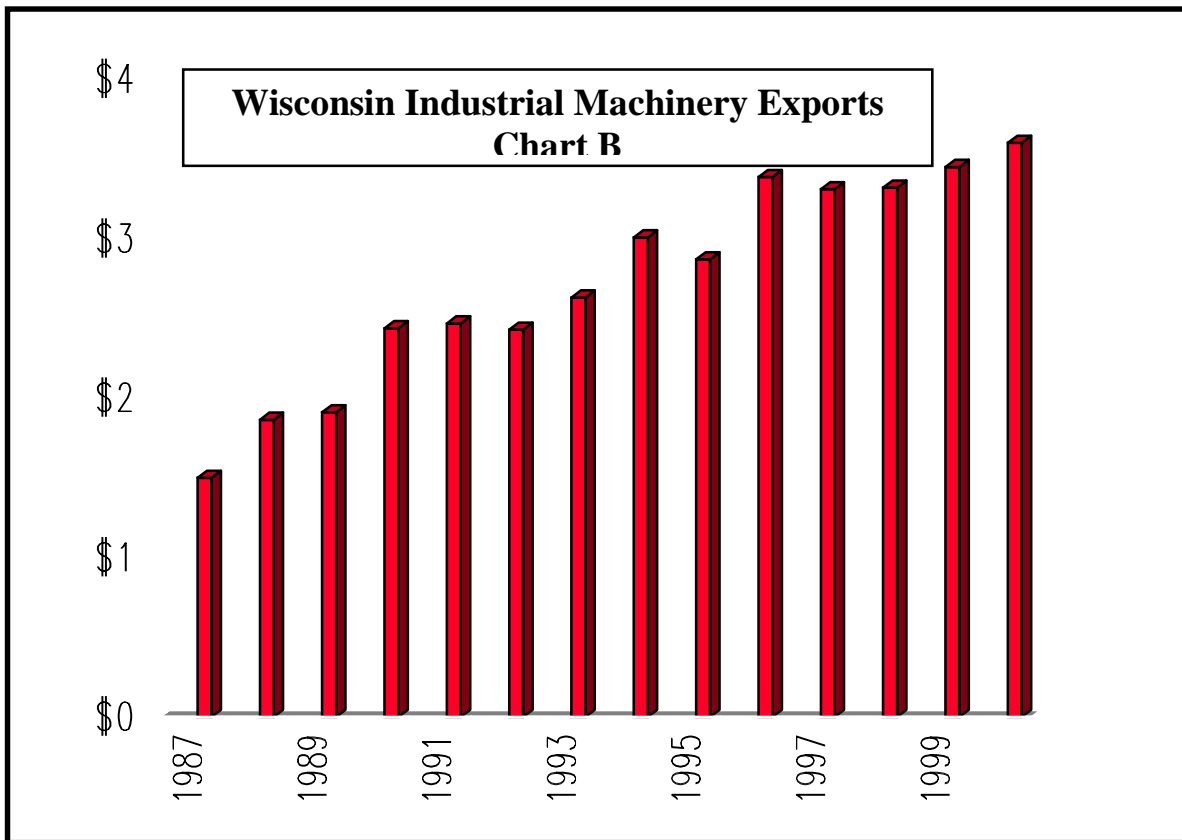
HS902214 **X-Ray Medical & Surgical - Wisconsin #1** \$211.6 million (46.3%) of US exports of \$455.4 million. Wisconsin exports up 9.5%; US exports down -18.2%. The first six months of 2001 has seen a major turnaround in 902214 exports. For the first six months of 2001, Wisconsin exports were up 56.5% while US exports were up 33.5%. Wisconsin's exports of \$142.9 million were 49.5% of the U.S. total.

HS902290 **Other X-Ray apparatus (including parts & accessories) - Wisconsin #2** with 21.92% or \$114.0 million of US exports of \$520.4 million. Illinois was #1 with \$126.4 million, California #3 with \$85.7 million. Wisconsin exports up 5.6%, Illinois +12.7% California +24.9%, US up 6.61%. In the first half of 2001 Illinois and Wisconsin were almost exactly even, with Illinois exporting \$68.3 million to Wisconsin's \$68.2 million. Illinois growth was only 9.8% as opposed to Wisconsin's 28.5% and Wisconsin would regain its #1 position by the end of 2001 if short-term export growth patterns continue.

HS902290 Other X-Ray Apparatus	\$114.0 million #2
HS901812 Ultrasound Apparatus	\$ 74.2 million #3
HS902212 Computed Tomography Apparatus	\$ 44.0 million #1

Section VII. Industrial Machinery

Industrial Machinery is Wisconsin's single largest export industry and its second most productive in terms of dollars of exports produced per employee. HS 84 Exports of Machinery were #3.6 billion, which comprised 34.3% of all exports in 2000. Wisconsin is 11th among US state with 2.26% of the national export total. **Almost half of Wisconsin's exports of HS 84 items in 2000 were to NAFTA countries (47.6%).** Western Europe accounted for another 22.4% while East Asia accounted for 14.1%. Shipments to non-metric countries such as Canada (44.1%), Australia (3.7%) and the UK (5.3%) are important. Exports are down 1.96% in the first half of 2001; this is in part a reflection of a high dollar (which makes our exports less competitive) and low growth rates in the world's developed countries.



Major Industrial Machinery Components

A. Engines

Wisconsin Exports of Small Engines, Motorboat Engines, Other Engines and Engine Parts - 2000

Wisconsin Exporters: Briggs & Stratton, Generac, Harley Davidson, Tecumseh, Waukesha Engine, Chrysler Corporation, Siemens, Fairbanks- Morse, OMC, Kohler

Major Exports

Wisconsin exports of engines and parts comprised 25.42% of all machinery exports and 8.7% of all Wisconsin exports. Wisconsin is the leading U.S. producer of outboard & the second largest producer of inboard boat motors. Wisconsin is the leading producer of natural gas powered engines and the fifth largest producer of engines over 1,000 cc. Wisconsin's production and export of smaller engines has shrunk dramatically in the past year. The state is not a major producer of diesel engines.

Exports of HS8407, HS 8408 and HS 8409

These three categories comprise spark-ignition reciprocating or rotary internal combustion piston engines, compressed ignition (diesel) internal combustion engines and parts for both of the above mentioned categories. Wisconsin makes almost no diesel engines for export. Spark-ignition engines are Wisconsin's largest export and parts for those engines are our third largest export by 4-digit HS code. Together the two were responsible for 8.7% of all Wisconsin exports in 2000. It should also be noted that Wisconsin exported \$120.7 million in harvesting machines (HS 8433) about 65% of which is composed of lawn mowers, riding lawn mowers and golf carts which use small gasoline engines.

	<u>2000 Exports</u>	<u>Wisconsin Ranking</u>
HS8407 Internal Combustion Engines	\$656.977 million	#4
HS8408 Diesel Internal Combustion Engines	\$ 7.343 million	#17
HS8409 Parts for HS8407 & HS8408	\$253.307 million	#6
Total	\$940.975 million	

Exports by six-digit code

Wisconsin is a major producer of motorcycle engines (Harley Davidson in Milwaukee), pleasure boat engines (Mercury Marine in Fond du Lac & Outboard Marine in Milwaukee), natural gas powered engines (Waukesha Engine in Waukesha) and gas turbine engines (Siemens in West Allis). Wisconsin is also a major producer of small engines (Tecumseh, Briggs & Stratton,

Generac & Kohler) used in lawn mowers and portable generators. Chrysler makes automobile and jeep engines in Kenosha. Fairbanks Morse makes large diesel engines in Beloit.

HS840734 Engines exceeding 1,000cc	\$402.715 million	#5	07.27%
HS840790 Natural Gas Powered Engines			
Or Engines to be installed in			
Agricultural Equipment	\$ 98.287 million	#1	24.44%
HS840721 Outboard Marine Engines	\$147.076 million	#1	51.86%
HS840729 Inboard marine Engines	\$ 4.797 million	#2	10.12%
HS840732 Engines, less than 250cc	\$ 0.432 million	#1	4.89%
HS840731 Engines , less than 50cc	\$.013 million	#16	

Exports of engines over 1,000cc were up 20.81%. Almost all (99+%) go to Canada.

Natural gas powered engines and engines to be installed in agricultural equipment were down - 9.45% while US exports were up 20.4%. Although Wisconsin remains the nation's largest export producer, market share has dropped substantially.

Outboard marine engine exports were up 47.15% while US exports were up 27.72. By contrast, Wisconsin inboard marine engine exports were down -24.78% while US exports were up 10.16%. The past several years have seen Wisconsin move into a dominant market share position for outboard engines and Oklahoma totally dominating the inboard market.

Marine inboard and outboard engines, small engines for lawnmowers, compressors and generators and Natural Gas powered engines are world-class Wisconsin products.

B. Automatic Data Processing Equipment & Parts (HS8471 &HS84730)

The total value of Wisconsin export shipments of automatic data processing equipment and parts has declined from \$467.2 million in 1998 to \$411.9 million in 2000. These products constituted 4.8% of all Wisconsin exports in 1998 but only 3.9% in 2000.

Exports of automated data processing units dropped sharply from \$475.4 million in 1997 to \$143.6 million in 2000. Exports for the first half of 2001 are at similar levels to the first half of 2000 which likely indicates that export levels have stabilized. During the same three-year period, the export of ADP parts increased from \$58.1 million in 1998 to \$268.3 million in 2000. This would appear to indicate major changes in assembly location. Automated Data Processing Equipment HS8471 now comprises 4.0% of Wisconsin exports in 2000; it accounted for 12.3% of the state's total exports in 1998. Wisconsin now produces only 0.46% of the U.S. export total. Sales are primarily developed countries with very large swings in the past few years. China has quickly become an important customer. The data would imply major restructuring within the industry worldwide.

***Wisconsin Exports of Automatic Data Processing Equipment 2000
HS 8471 & HS8473***

Wisconsin Exporters: Rockwell Automation (Allen-Bradley)

#HS8473 Parts for Automatic Data Processing Machines

HS847330 Parts for ADP units of type HS8471 \$263.2 million

Wisconsin exports of ADP parts have risen rapidly (+179.2% in 2000) to \$268.3 million; this six-digit category comprises 98.1% of all HS8473 exports. It would appear that these parts were formerly assembled in Wisconsin and exported as units.

#HS8471 Automated Data Processing Machines, magnetic or optical readers, machines for transcribing data. #24 among US states with \$143.6 million dollars in exports; US \$30.9 billion with California 45.1%, Texas 11.5%. **Wisconsin exports -56.7%; US exports +15.8**

Major Exports by Six-Digit Code

HS8471150 Other digital (not 847141 or 49) Processing Units \$69.4 million #10

Wisconsin exports were down 34.3%; US exports up 17.2%. Wisconsin exports in the first half of 2001 were \$29.7 million, a drop of 28% over the same period in 2000. Exports in this category have dropped substantially.

HS847180 Other ADP Units including Control & Adaptor Units \$24.7 million #26

Wisconsin exports up 423.5% in 2000. Wisconsin exports of \$26.1 million for the first half of 2001 up 749% over same period in 2000.

HS847170 Other ADP Storage Units \$20.5 million #23

Exports in this category have plummeted from \$149 million to 20.5 million in one year while total U.S. exports rose from \$4.3 to \$4.7 billion. Wisconsin has fallen from 5th, to 15th to 26th over the past three years. Exports for the first six months of 2001 show a further -3.8% fall.

HS847149 Other digital ADP systems exported as Systems \$12.6 million #26

Wisconsin exports have fallen drastically in the past three years from \$249 million to \$192 million to \$53 million to \$12.6 million. Wisconsin exports have fallen while at the same time U.S. exports have risen to \$4.7 billion. California and Texas have 63.5% of all US exports. Wisconsin has fallen from 6th to 15th to 26th in the past three years. Many other states have seen sharp drops in this category, but none so significant as Wisconsin.

C. Centrifuges, Centrifugal Dryers and Filtering & Purifying Machinery

This category is Wisconsin's 7th largest export and accounts for 2.14% of the Wisconsin export total. In 2000 Wisconsin had \$224.9 million in exports or 6% of the US total of \$3.76 billion which places the state as 6th nationwide. US exports were up 17.9%; Wisconsin exports were

up 2.8%. In the first six months of 2001, Wisconsin exports were up 15.4% as opposed to 14.9% for the U.S. as a whole. **Canada dominates the market with 72.8% of all exports.** Sales to China are still small, but growing very rapidly.

Wisconsin Exporters: - Nelson Industries, Megtec Systems, ASI Advance Systems, Modern Equipment, Aqua-Chem, AO Smith, Sta-Rite, In-Sink-Erator, US Filter

The following three categories comprise 91.7% or \$206.1 million of Wisconsin's exports.

HS842139 Filtration & Purification Devices for Gases including Catalytic Converters Wisconsin is #3 among the states with 13.7% or \$150 million of US exports of \$1.1 billion. Wisconsin exports were up 4.64%; US exports were up 18.47%. Michigan (24.4%) and Texas (16.9%) are the two major producers.

HS842121 Water Filtration & Purification Devices Wisconsin is #11 among the states with 3.8% or \$24.8 million of US exports of \$652.6 million. Wisconsin exports were down 22.1%; U.S. exports were up 11.3%.

HS842199 Parts Wisconsin is #11 with 3.5% or \$31 million of US exports of \$886.8 million. Wisconsin exports up 13.4%; US exports up 29.9%.

D. Pumps, Air Conditioning & Refrigeration Equipment (HS8413 , HS 8414 HS 8415 and HS 8418)

Wisconsin exported \$96.3 million in pumps used for liquids and \$97.371 million in air or vacuum pumps in 2000. Air conditioning equipment accounted for \$60 million and refrigeration equipment accounted for \$136.7 million. Increases over the previous year were 7.9%, 37%, 17.5% and 54.2% respectively. The four areas totaled \$390.3 million or 3.7% of Wisconsin exports. **Wisconsin is a worldwide competitor in these fields with important customers in every part of the world.** Export growth continued in all four fields with air conditioning showing the strongest gains.

In the liquid pump category major exports were as follows: parts 30.9%, centrifugal pumps 26%, rotary pumps 16.7%, other reciprocal pumps 11%, fuel and lubrication pumps 4.3% and concrete pumps 3.6%. In the air category, the major exports were compressors 39.5%, parts 23.8%, fans 19.7% and refrigeration compressors 9.7%.

Air conditioning is primarily larger units and not automotive or window unit air conditioning; freezers are also primarily larger units and not home refrigerators, freezers or refrigerator freezers. **Refrigeration is a strong export growth area with over 54.2% growth in 2000. East Asia is responsible for 60% of all exports with Canada taking 18.8% and Latin America another 10.5%**

Wisconsin Exporters: Sta-Rite, Alpha Laval, Bosch, Oilgear, Wacker, Weil, McNally, Applied Power, Wisconsin Hydraulics, Warman, Federal, Manitowoc, Sub-Zero, Trane, Vilter, Zerozone

E. Other Important Machinery Exports

Harvesting Machinery (\$120.7 million), Dishwashing Machines (\$92 million), Transmission Shafts (\$91 million), Paper and Pulp Making Machinery (\$84 million), Packaging Machinery (\$78 million), Taps, Cocks & Valves (\$67 million), Printing Machinery (\$58 million), Temperature Control Machinery (\$54 million) and Gas Turbines (\$48 million). Most of this machinery is exported on a global basis.

Section VIII. Transportation Equipment

In this section we deal with both transportation equipment which is listed under HS 84 industrial machinery and HS 87 transportation equipment. HS 84 items tend to be construction & mining equipment as well as cranes while HS 87 is used for cars, trucks, tractors, motorcycles, and bicycles. Wisconsin is 4th in HS 84 and 16th in HS 87. The two combined equal \$760.9 million or 7.9% of Wisconsin exports. Major producers include P&H, Bucyrus, Case, Manitowoc, Riggers, Barko Hydraulics, Gehl. Wisconsin is a worldwide competitor in HS 87 and sales vary greatly in most markets (not Canada) in any given year.

A. HS 8425 to HS 8531 Transportation Equipment & Parts

This area comprises a machinery family used to move and lift objects such as bulldozers, scrapers, cranes, power shovels, forklifts, elevators and conveyors. Much of this equipment is used by the construction, mining and shipping industries. Wisconsin exports are concentrated in HS 8429 (\$82.9 million/42.9%) and parts for HS 8425-29 (\$127.1 million/29.8%). Total Wisconsin exports were \$425.8 million in 2000. This is 4.1% of Wisconsin's total exports and 3.3% of U.S. total exports of \$12.883 billion in these sectors.

HS8429 Self-Propelled Bulldozers, Graders, Levelers. Scrapers, Tamping Machines - Wisconsin is #3 with 8.1% or \$183 million of US exports of \$3.3 billion. Wisconsin exports up 13.5%; US exports up 15.1%. Illinois has 32% of US exports and North Dakota, South Dakota, Texas Iowa, Florida and North Carolina are also major producers. The seven states have 80% of US exports.

HS842952 360 Degree Rotating Backhoes, Clamshells. Shovels & Draglines

Wisconsin is #3 with 14.1% or \$83.8 million of US \$595 million. Wisconsin unchanged; US up 16.9%. Major US producers are Illinois, South Dakota, North Carolina, North Dakota and Florida. This is a global market for Wisconsin producers and annual statistics will vary widely from country to country.

HS842951 Front End Shovels, Excavators and Shovel Loaders Wisconsin #5 with 5.2% or \$40.8 million of US \$784 million. Wisconsin up 81%; US up 10.7%. Illinois is responsible for 36.2% of exports; North Dakota, Florida, Iowa, and North Carolina are all major exporters. This to is a global market.

HS842959 Other Mechanical Shovels, Backhoes, Draglines & Clamshells Wisconsin is #3 with 15.1% or \$44.6 million of US total of \$295 million. US up 11.9%; Wisconsin up

15.1%. Texas, Iowa, Illinois & WI major producers, Florida is also an important producer. This is primarily a North American market.

HS842940 Tampers, Road Rollers Wisconsin #4 with 8% or \$8.4 million of US \$105.7 million. Wisconsin down 18.7%; US up 2.2%.

HS 842911 Tracklaying Bulldozers & Angledozers Wisconsin is #6 with \$4.1 million or 2% of US \$208 million. Illinois & Iowa dominate; most of this market is in the Americas.

HS 8431 Machinery Parts for Derricks, Cranes ForkLifts, Elevators, Conveyors, Bulldozers, etc. Wisconsin was #6 with 1.7% or \$127 million of a US total of \$7.4 billion. Texas with 48.9% and Illinois with 18.4% of all exports dominate this overall sector.

HS 843149 Parts for HS8426, 29,30 Wisconsin is #3 with 5.9% or \$85.7 million of US exports of \$1.453 billion. US exports up 26.8%; Wisconsin exports down 14.1%. Illinois is #1 with 33.6% of exports; Texas is #2 with 23.4%.

HS433141 Parts Solely for Buckets, Shovels, Clamlines & Draglines Wisconsin is #9 with 0.63% or \$15.90 million of US \$1 billion. Illinois has 72.6% of this market and Florida 14%.

HS 843139 Parts for Elevators & Conveyors Wisconsin is #7 with \$10.3 million in exports.

HS843143 Parts for Oil & Gas Drilling Wisconsin exported \$17.3 million or 0.54% of US total. Texas has 80.1%.

B. HS 87 Transportation Equipment

Overall, Wisconsin exported \$860.7 million in HS 87 transportation equipment in 2000. This placed Wisconsin 16th among US states. Exports were up 8.8% in 2000. **Wisconsin is a producer of passenger vehicles and semi-trailers for the North American market and a producer for the world market in other HS 87 categories.**

Wisconsin exported \$244.1 million in HS 8708 vehicle parts in 2000. Major categories include brakes, body parts, road wheels, mufflers & exhaust systems. Canada and Mexico are 76.1% of this market.

Wisconsin exported \$178.2 million dollars in HS 8703 motor vehicles in 2000. \$176.5 million were vehicles with over 3,000cc engines and over 98.7% of these vehicles went to Canada. These are vehicles produced at the Janesville GM plant.

Wisconsin exported \$116.2 million in trucks in 2000. Exports have dropped from \$297.3 million in 1997 to \$189.1 million in 1998 to \$136.2 million in 1999. Export markets are Canada (62.9%) and the Middle East (21.2%). Major exporters are Oshkosh Truck & General Motors. Large truck orders outside Canada are highly volatile.

Wisconsin exported \$117.8 million in agricultural tractors, with Canada (48.8%) the largest national market.

Wisconsin exported \$31.5 million in special purpose vehicles in 1999. Fire fighting vehicles comprised \$19.2 million. Producers include Pierce, 3-D and US Tanker.

Motorcycle exports were \$12 million in cycles and \$17.5 million in parts. Harley Davidson is the major manufacturer.

Bicycle exports were \$25.3 million with an additional \$13.1 million in parts. Primary markets were Europe, Canada and Taiwan; Trek is the major producer.

Section VIII - Electrical Machinery (HS85)

Overall, Wisconsin exported \$865 million in electrical machinery in 2000. This was 8.2% of the state's overall export total. Wisconsin was 26th among US states and our exports only equaled 0.58% of the U.S. total of \$148.3 billion. Wisconsin exports were up 8.9%; U.S. exports were up 22%.

U.S. exports are dominated by integrated circuits and telecommunications equipment. These two items totaled \$74.7 billion - just over half of all U.S. electrical machinery exports. Wisconsin exports in these areas were only \$62 million - less than one-tenth of one percent of the U.S. total. California and Texas dominate these two sectors.

Wisconsin's single largest export product in this category is in power supplies for ADP units with \$104.4 million in exports or 2.47% of the U.S. total. Other major categories include electrical motors and generators (\$69.3 million), electrical generating sets (\$62.5 million), brazing, soldering & welding machinery (\$52.5 million), printed circuits (\$51.7 million), batteries (\$56.9 million) and switches (\$98.0 million). Wisconsin also exported \$69 million in recorded sound media. Important producers include Advance Transformer, Badger Transformer, Johnson Electric Coil, SNC, Square D, Falk, Giddings & Lewis, Dumore, Badger Electric, Emerson, Louis Allis, and Marathon Electric. **Wisconsin is a worldwide competitor in many niche HS 85 products.**

HS8504 Electric Transformers Wisconsin is #10 with \$106 million in exports or 3.19% of US total of \$3.336 billion. Texas (19.72%) and California (18.55%) are the largest producers. US up +6.97%; Wisconsin down -15.15%.

HS850440 Rectifiers & Inverters (Converts AC/DC) Wisconsin #6 with \$67 million or 4.16% of US total of \$1.614 billion. Wisconsin down -20.37%, US up 6.12%.

HS850490 Parts for HS 8504 Wisconsin is #15 with \$12.985 million or 1.85% of US exports of \$701.538 million. Wisconsin down -2.02%; US down -2.16%

HS850440 Other Electric Inductors Wisconsin #14 with \$2.714 million or 0.90% of US total of \$301.801 million. US up 28.77%; Wisconsin up 18.23%

HS8504 Other Transformers less than 1 kVA Wisconsin #23 with \$1.519 million or 0.59% of US \$257.788 million/ Wisconsin down -61.65%; US up +23.26%

HS850421 Liquid Dielectric Transformers Wisconsin is #2 with \$7.240 million or 9.35% of US exports of \$77.419 million. Wisconsin exports have fallen from \$14.382 million to \$12.359 million to \$7.240 million in the past two years and Wisconsin's share of US exports has fallen from 15.47% to the present 9.35%. Texas has seen an even bigger drop from #1 to #8.

HS 850432 Other Transformers 1-16 kVA Wisconsin is #38 with \$1.719 million or 3.16% of US total of \$56.578. US down -4.03%; Wisconsin up +132.51 %.

HS850433 Other Transformers 16-500kVA Wisconsin is #1 with \$9.216 or 16.29% of US total of \$56.578 million. Wisconsin up + 35.54%; US down -2.48%.

HS850434 Other Transformers larger than 500kVA Wisconsin is #6 with \$1.100 million or 3.02% of US total of \$36.485 million US up 67.22%; Wisconsin had no exports in this category in 1998. Florida and Rhode Island have 70% of US exports.

HS850422 Liquid Dielectric Transformers exceeding 650 kVA Wisconsin is #7 with \$1.460 million or 5.33% of US total of \$27.366 million. US up 22.99%; Wisconsin down -7.105. Wisconsin has dropped from \$3.585 to \$1.571 to \$1.460 over past two years.

Section IX - Paper Products

Paper products at \$555 million are Wisconsin's 5th largest export and comprise 5.3% of the State's total exports. Wisconsin is #1 in facial tissues, tablecloths & napkins, toilet paper and sanitary napkins & tampons and a major producer of coated & uncoated papers. Most of Wisconsin's finished household product exports go to the North American market.

HS 4818 Toilet Paper, Paper Napkins, Sanitary Napkins & Tampons, Cleansing & Facial Tissues Wisconsin is #1 with \$156 million or 15.5% of US exports of \$1 billion. Wisconsin up 15%; US up 6.6%. Texas and Ohio closely follow Wisconsin.

HS 481840 Sanitary Napkins & Tampons Wisconsin is #1 with \$109.7million or 18.7% of US total of \$587 million. Wisconsin up 5.5%; US down 2%.

HS 481820 Facial & Cleansing Tissues Wisconsin is #1 with \$21.8 million or 14.7% of US exports of \$148 million. Wisconsin exports up 50.34%; US exports up 128.7%.

HS 481810 Toilet Paper Wisconsin is #1 with \$8.7 million or 10.5% of US total of \$83 million. Wisconsin up 58.7%; US up 24.4%.

HS 481330 Table Napkins & TableCloths Wisconsin is #1 with \$12.3 million or 32.8% of US total of \$37.4 million. Wisconsin up 27.5%; US up 27.1%.

HS 4810 Coated Papers the vast majority of Wisconsin's 2000 exports of \$109.4 million were writing papers with 91% of all exports going to Canada.

HS 4802 Uncoated Papers Wisconsin's 2000 exports of \$69.3 million were primarily writing paper. This is a global product with 41% going to Canada.

HS 4811 Coated or Impregnated Paper Rolls or Sheets. Exports of \$52.9 million to NAFTA and Europe.

HS 4803 Toilet or Facial Tissue Stock \$31.8 million. A global product.

HS 4804 Uncoated Kraft Papers \$31.5 million

Section X - Plastics

Plastics are Wisconsin's 6th largest export sector and 2000 exports of \$400 million were 3.8% of total exports. Plastic plates and sheets of propylene and polymer, bags, medical disposables, boxes and basic plastics (primary styrenes), comprised most exports. Plastics exports were up 19.65% in 2000.

Section XI - Iron & Steel Products

Wisconsin exported \$155 million in iron & steel products in 2000. This included cookware (\$31.4 million), pipes, tubes, fittings, nuts, washers, screws, bolts, chains & sanitary ware. Canada, Japan & Mexico account for 72% of all exports.

Part II Wisconsin Exports 2000

Total Exports - \$10,508,413,000

Section I - Industrial Goods

	Exports 2000	Percentage of Total Wisconsin Exports
<u>Machinery</u>		
Small Engines & Parts	\$915 million	
ADP and Parts	\$412 million	
Pumps, AC, Refrigeration	\$390 million	
Self propelled dozers, forklifts, Cranes and mining equipment & Parts	\$369 million	
Centrifuges	\$225 million	
Harvesting Machinery	\$120 million	
Other Machinery	\$1.168 billion	
Total	\$3.599 billion	34.25%

Instruments

Medical Instruments	\$569 million	
X-Ray	\$396 million	
Other medical/lab instruments	\$234 million	
Non-Medical Instruments	\$195 million	
Total	\$1.394 billion	13.26%

Electrical Machinery

Static converters & power		
Supplies for ADP Machines	\$104 million	
Electric Motors & Generators	\$ 90 million	
Recorded Sound	\$ 68 million	
Generating Sets	\$ 62 million	
Welding Machines	\$ 61 million	
Integrated Circuits	\$ 51 million	
Switches	\$128 million	
Batteries & Storage Cells	\$ 68 million	
Printed Circuits	\$ 29 million	
Other	\$204 million	
Total	\$865 million	8.23%

Transportation Equipment

Parts & Accessories	\$276 million	
Semi tractors & trailers	\$188 million	
Passenger Vehicles	\$178 million	
Trucks	\$116 million	
Other	\$103 million	
Total	\$861 million	8.19%

Paper & Paperboard

Toilet Paper	\$156 million	
Coated Paper & Paperboard	\$109 million	
Uncoated writing paper	\$ 64 million	
Other	\$226 million	
Total	\$555 million	5.28%

Plastics

Plates and Sheets	\$130 million	
Boxes, bags, Sacks	\$ 62 million	
Other	\$208 million	
Total	\$400 million	3.81%

Books & Newspapers

Newspapers	\$ 78 million	
Books	\$ 52 million	
Other	\$ 37 million	
Total	\$167 million	1.59%

Iron & Steel Products

Table & Kitchen Items	\$ 31 million	
Other	\$124 million	
Total	\$155 million	1.48%

Miscellaneous Chemicals

Finishing Agents Used in Textiles or Paper	\$ 30 million	
Diagnostic/Lab Reagents	\$ 29 million	
Insecticides	\$ 12 million	
Other	\$ 37 million	
Total	\$108 million	1.03%

Pharmaceuticals

Total	\$ 57 million	0.55%
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Other Industrial

Misc. Articles of Base Metals	\$ 80 million	0.76%
Tools/Cutlery	\$ 53 million	0.51%
Aircraft Parts	\$ 63 million	0.60%

Section II - Agricultural Products

Cereals

Wheat	\$154 million*	
Maize (Corn)	\$ 32 million	
Other	\$ 6 million	
Total	\$192 million	1.83%

- Presumably non-Wisconsin grains shipped from Superior or Milwaukee

Miscellaneous Grains & Seeds

Soybeans	\$141 million	
Ginseng	\$ 16 million	
Other	\$ 6 million	
Total	\$163 million	1.56%

Meat

Beef	\$100 million	
Turkey	\$ 10 million	
Other	\$ 16 million	
Total	\$126 million	1.19%

Prepared Meats & Fish

Sausage	\$ 48 million	
Other	\$ 7 million	
Total	\$ 55 million	0.59

Hides & Skins

Cowhides	\$ 57 million	
Tanned leather	\$ 25 million	
Other	\$ 7 million	
Total	\$ 89 million	0.85%

Preserved Foods

Canned Sweet Corn	\$ 48 million	
Other	\$ 14 million	
Total	\$ 62 million	0.59%

Miscellaneous Foods

Sauces & Condiments	\$ 17 million	
Other	\$ 33 million	
Total	\$ 53 million	0.50%

Other Major Food & Agricultural Products

Food Waste	\$ 50 million
Baking Related	\$ 50 million
Dairy/Eggs/Honey	\$ 43 million
Beverages	\$ 18 million
Bovine Semen	\$ 18 million
Furs	\$ 17 million
Live Trees & Plants	\$ 17 million

III. Wood and Forestry Products

Wood

Total	\$ 82 million
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Wood Furniture

Total	\$ 15 million
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Part III Manufacturing by Wisconsin Location 1997 Census

Executive Summary: The Milwaukee/Racine area showed a loss of 99 (12.4%) manufacturing establishments with more than 20 employees between 1992 and 1997 while Kenosha and the Milwaukee suburbs showed an increase of 76 companies. This movement has clear implications for low-income Milwaukee groups.

The older-industry Manitowoc/Sheboygan and Beloit/Janesville/Madison corridors showed no manufacturing growth. In the Fox Valley, the Green Bay/ Appleton metropolitan area grew by over 11%, while the Oshkosh/Fond du Lac area showed no growth. Southwest and most of West Central Wisconsin, including La Crosse and Eau Claire saw little numerical growth.

The Wisconsin counties closest to the Minneapolis/St. Paul have grown by over 21%. Wausau and Marathon County grew by 16.7% while neighboring Central Wisconsin cities were essentially no-growth areas.

Northern Wisconsin fell slightly backward. Industrial location statewide appears slightly less reliant on urban location and while percentage growth in many rural counties is large, actual numerical growth is small. Growth areas in Wisconsin appear to be north of traditional population concentrations.

Winners	Losers	No Change
Minneapolis St. Paul border NW Milwaukee suburbs Wausau Area Southeast rural areas Indian Reservations? Green Bay/Appleton Kenosha	Milwaukee Racine Route 53 & Superior Grant County Northern Wisconsin Sheboygan	Beloit Madison Janesville La Crosse Eau Claire/Chippewa Falls Fond du Lac/Oshkosh Waukesha

End Executive Summary

Note: This section is based on a comparison between 1992 and recently released 1997 economic census data. It does not attempt to provide information on industrial growth in categories other than number of companies with 20 or more employees. For example, in a particular county one company could grow from 20 to 60 employees while a second 20-employee company could move from the county. The data in this paper would show only the fall from 2 to 1 companies without reflecting on an actual increase in manufacturing jobs).

The 1997 census showed a fall of total establishments from 10,087 to 9,936 (-1.5%) but a growth of establishments with more than 20 employees from 3,819 to 3,905 (+2.25%). Wisconsin manufacturers had 562,479 employees in 1997, a 3% growth over the 546,000 employees reported in the 1992 census.

South East Wisconsin

Milwaukee lost 84 companies (-13.1%) during the period, shrinking from 640 to 556 companies.

Racine lost 15 companies (-9.6%) falling from 156 to 141 companies.

Waukesha was essentially stable with a 3.8% growth rate from 447 to 464 companies.

Washington and Ozaukee counties to the north of Milwaukee showed gains of 34.1% and 16.2%. Washington grew from 94 to 126 companies while Ozaukee grew from 86 to 100 companies.

Kenosha grew by 18.8% from 69 to 82 companies.

Jefferson added 4 companies, growing from 78 to 82 while Dodge County grew from 76 to 81. This was 9.3% total for the two counties

Summary: Inner core Milwaukee and Racine lost 99 companies while the counties immediately surrounding added 76 companies while the outer ring Dodge/Jefferson added 9. In short businesses continued to move out of the inner core with the north and northwest being the favored direction.

South-central & Southwest Wisconsin

Rock County remained unchanged at 81 companies, as did Green County (29). Dane County fell from 194 to 187 companies, a decline of 3.6%.

Southwest Wisconsin (Richland, Sauk, Grant, Iowa and Lafayette Counties) showed a decline from 62 to 58 companies (-6.4%) with Grant County dropping from 26 to 21 companies (-19.2%)

In the Greater La Crosse area, La Crosse County (56 companies) and Monroe County (20 companies) to the immediate west showed no change. Vernon (8 to 12), Jackson (6 to 8) and Tremplealeau (21 to 24) showed important gains. Overall the greater La Crosse area showed an increase from 111 to 120 companies (8.1%)

The agricultural & tourist counties to the north and west of Dane county (Sauk, Juneau, Adams, & Columbia) were essentially stable with some small growth. Overall number of companies increased from 116 to 121 (4.3%).

Summary: Traditional Manufacturing is not expanding in the Beloit-Janesville-Madison corridor while the Wisconsin area of the Dubuque region (Grant County -19.2%) has contracted sharply. Other parts of the region, which concentrate primarily on agriculture and tourism, saw little significant numerical change.

Fox Valley

The Fox Valley (Fond du Lac, Winnebago, Outagamie and Brown Counties) is an important industrial region. The four county region grew from 488 companies in 1992 to 520 companies. The more southerly Fond du Lac and Winnebago counties only grew by one company from (224 to 225 while 31 new companies (264 to 295 or 11.7%) were added to Outagamie and Brown County.

Green Lake, Waushara, Waupaca, and Shawano Counties, immediately to the west of the Fox Valley counties grew from 86 to 96 (+15.1%)

Keywaunee and Door County, primarily rural tourist areas saw a growth from 28 to 35 companies, a growth of 25%.

Summary: The lower half of the Fox Valley corridor is not growing, but the northern part of the corridor shows both impressive numerical and percentage growth.

Sheboygan/Manitowoc/Calumet Area

The Sheboygan area has lost 7 companies (124 to 117) while Manitowoc has gained 6 (85 to 91). Rural Calumet country has jumped from 25 to 31 companies (+24%)

Comment: The long established manufacturing area of Sheboygan is not a growth center but the Manitowoc Calumet area is showing healthy growth.

The Northeast

Iron, Vilas, Forest, Florence, Oneida, Langlade, Menominee, Oconto and Marinette comprise this non-industrial region. Menominee grew from 1 to 4 companies; Oneida fell from 21 to 15. The region had 114 companies in 1992 and 110 in 1997.

Greater Marathon Area

Marathon County grew from 84 to 98 companies in the 5-year period (16.7%)

Portage & Wood Counties (Wisconsin Rapids, Marshfield & Stevens Point) only grew by one company with Wood County losing 3 companies while Portage added four. Marquette County, to the south on the I-39 corridor grew from 9 to 12 companies. Lincoln County to the north (Merrill) lost 4 companies from 27 to 23 while neighboring Price County declined from 20 to 18 companies.

Comment: Wausau is outdoing its rivals in central Wisconsin.

Eau Claire & the western I-94 Corridor (Clark, Eau Claire, Chippewa, Dunn, Pepin, Buffalo)

This region has shown very moderate growth in manufacturing. The central Eau Claire/Chippewa area has grown from 71 to 76 companies while Clark & Dunn have grown from 44 to 50 companies. Agricultural Pepin & Buffalo appear unchanged. Overall company growth is from 122 to 133 (9%).

Minneapolis & St. Paul's Wisconsin Hinterlands

Pierce, St. Croix and Polk have seen a rise from 88 to 103 companies. All but one of these companies have been in the later two counties where the increase is 21.3%

Comment: There appears to be a movement from Minneapolis/St. Paul across the state line.

The Route 53 Corridor

Barron, Rusk, Washburn, Sawyer, Douglas, Burnett, Bayfield and Ashland counties had 98 companies in 1992 and 103 in 1997. Sawyer County, home of the Lac Courte Oreilles Indian Reservation saw an increase of four from 7 to 11 while Burnett County, home of the St. Croix Indian Reservation saw a jump from 9 to 12. The Superior Shore was down slightly and the Route 53 corridor was essentially unchanged.

Wisconsin Manufacturing - Top Counties 1997 Census

County	Manufacturing	Major Cities	% of WI total	20+ Manufacturers	
<u>Top 10</u>					
1. Milwaukee	\$16.5 billion	(Milwaukee)	14.1%	556	14.2%
2. Rock	\$10.1 billion	(Janesville/Beloit)	8.6%	81	2.0%
3. Waukesha	\$ 9.4 billion	(Waukesha, Oconomowoc)	8.0%	464	11.9%
4. Winnebago	\$ 6.0 billion	(Oshkosh, Neenah)	5.1%	166	4.3%
5. Outagamie	\$ 5.3 billion	(Appleton)	4.5%	127	3.3%
6. Racine	\$ 5.3 billion	(Racine)	4.5%	141	3.6%
7. Dane	\$ 4.8 billion	(Madison)	4.1%	187	4.8%
8. Sheboygan	\$ 4.2 billion	(Sheboygan)	3.6%	117	3.0%
9. Marathon	\$ 3.2 billion	(Wausau)	2.7%	98	2.5%
10. Dodge	\$ 3.2 billion	(Beaver Dam)	2.7%	81	2.0%

Top 10 counties are responsible for \$68 billion or 58% of all manufacturing and have 2,018 or 51.7% of all manufacturers with 20 or more employees. Rock County has a disproportionate number of large companies. Beloit Corp, Fairbanks Morse, Hormel (Beloit) and Alliant Techsystems, General Motors, Gillette, Hufcor, SSI, and Seneca Foods (Janesville) all have large operations in Rock County

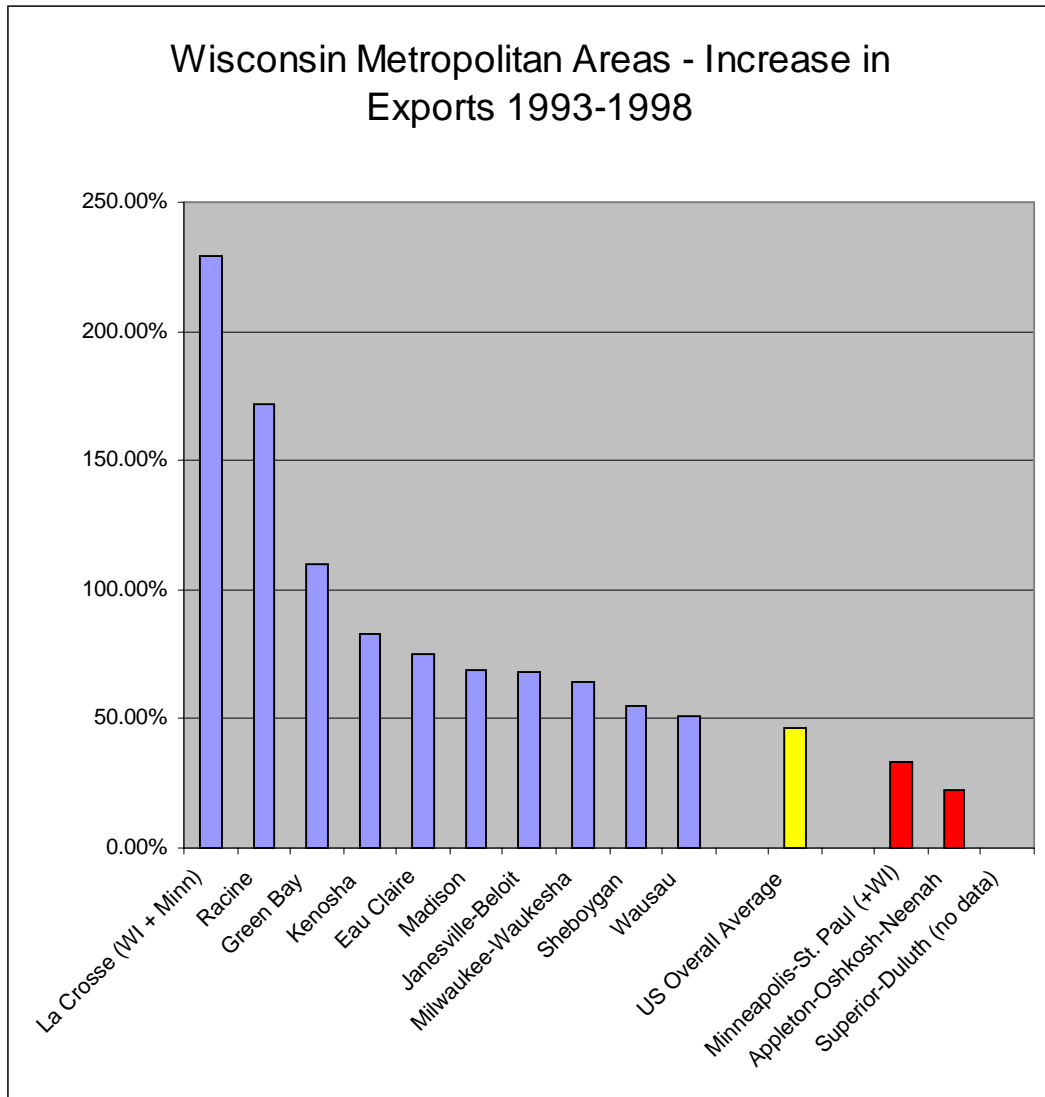
Second 10

11. Ozaukee	\$2.8 billion	(Port Washington, Cedarburg, Mequon)		100	
12. Wood	\$2.5 billion	(Wisconsin Rapids, Stephens Point, Marshfield)		45	
13. Jefferson	\$2.4 billion	(Fort Atkinson)		82	
14. Manitowoc	\$2.1 billion	(Manitowoc, Two Rivers)		91	
15. Fond du Lac	\$2.1 billion	(Fond du Lac)		59	
16. Kenosha	\$2.0 billion	(Kenosha)		82	
17. Washington	\$2.0 billion	(West Bend)		126	
18. Eau Claire	\$1.6 billion	(Eau Claire)		37	
19. Walworth	\$1.5 billion	(Whitewater, Delavan, Lake Geneva)		91	
20. La Crosse	\$1.4 billion	(La Crosse, Onalaska)		56	

Second 10 are responsible for \$20.4 billion or 17.3% of all manufacturing. The top 20 counties combined account for 75.3%

21. Portage	\$1.3 billion	(Stevens Point, Portage)	30
22. Waupaca	\$1.2 billion	(Waupaca, Clintonville)	40
23. Sauk	\$1.1 billion	(Reedsburg, Baraboo, Sauk City/Saul Prairie)	50
24. Calumet	\$1.0 billion	(Chilton, New Holstein)	31
25. Chippewa	\$1.0 billion	(Chippewa Falls)	39

The next five add \$5.6 billion (4.8% of the state's manufacturing). The top 25 account, therefore, for 80.1% of all manufacturing with the remaining 47 counties responsible for 19.1%. The only major cities which are not listed in the counties above are Menominee (#27 Dunn County) and Superior which is part of the larger Greater Duluth/Superior area of Minnesota and Wisconsin.



If you try to visualize Wisconsin's Industrial areas, you can follow Highways 94 (Kenosha, Racine, Milwaukee, Waukesha) and 90 (Beloit, Janesville, Madison north from Illinois). Highways 41 (Fond du Lac, Oshkosh, Neenah and Appleton) and 43 (Sheboygan and Manitowoc) north from Milwaukee rejoin in Green Bay. Interstate 90/94 from Madison link to La Crosse on the Mississippi and to the Eau Claire-Minneapolis corridor. Route 39 north from Madison leads to the Stevens Point and Wausau areas. Which are, in turn, linked east and west to Green Bay and Eau Claire.

Wisconsin Manufacturers - 1997 Census

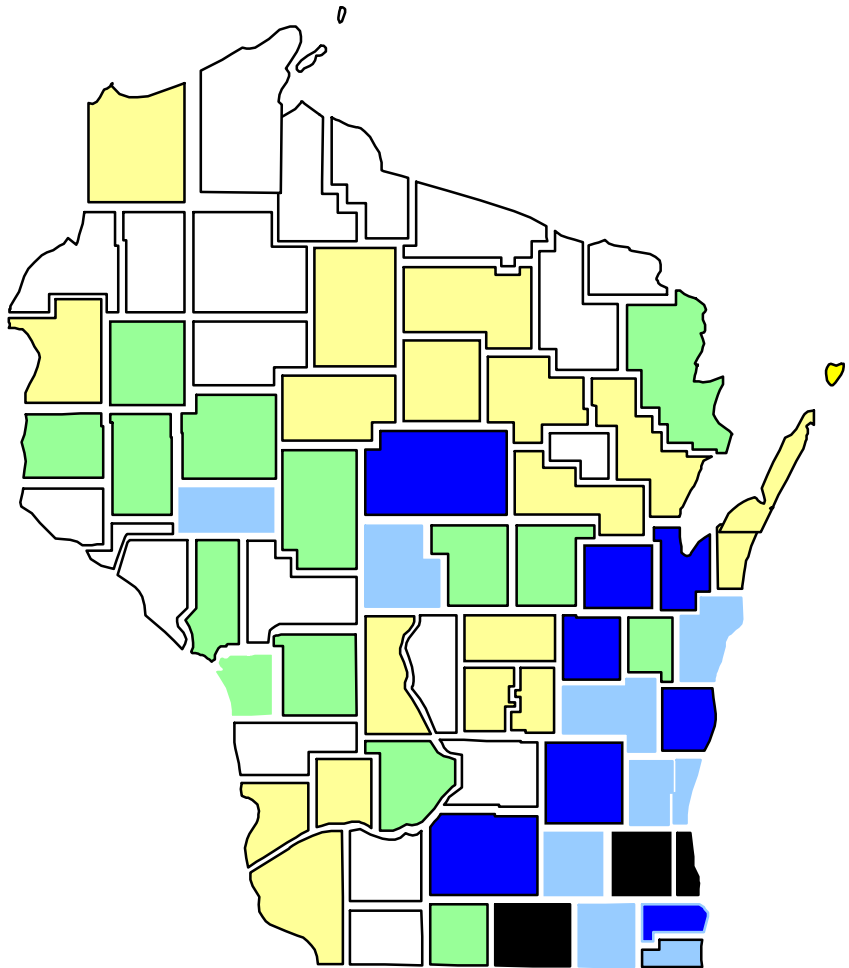
The map below shows the concentrations of manufacturing within Wisconsin by \$ production of manufactured products.

Leading Manufacturing Counties 1997 Census

<u>County</u>	<u>\$billion</u>
7. Milwaukee	\$16.5
8. Rock	\$10.1
9. Waukesha	\$ 9.4
10. Brown	\$ 6.5
11. Winnebago	\$ 6.0
12. Outagamie	\$ 5.3
13. Racine	\$ 5.3
14. Dane	\$ 4.8
15. Sheboygan	\$ 4.2
16. Marathon	\$ 3.2
10. Dodge	\$ 3.2

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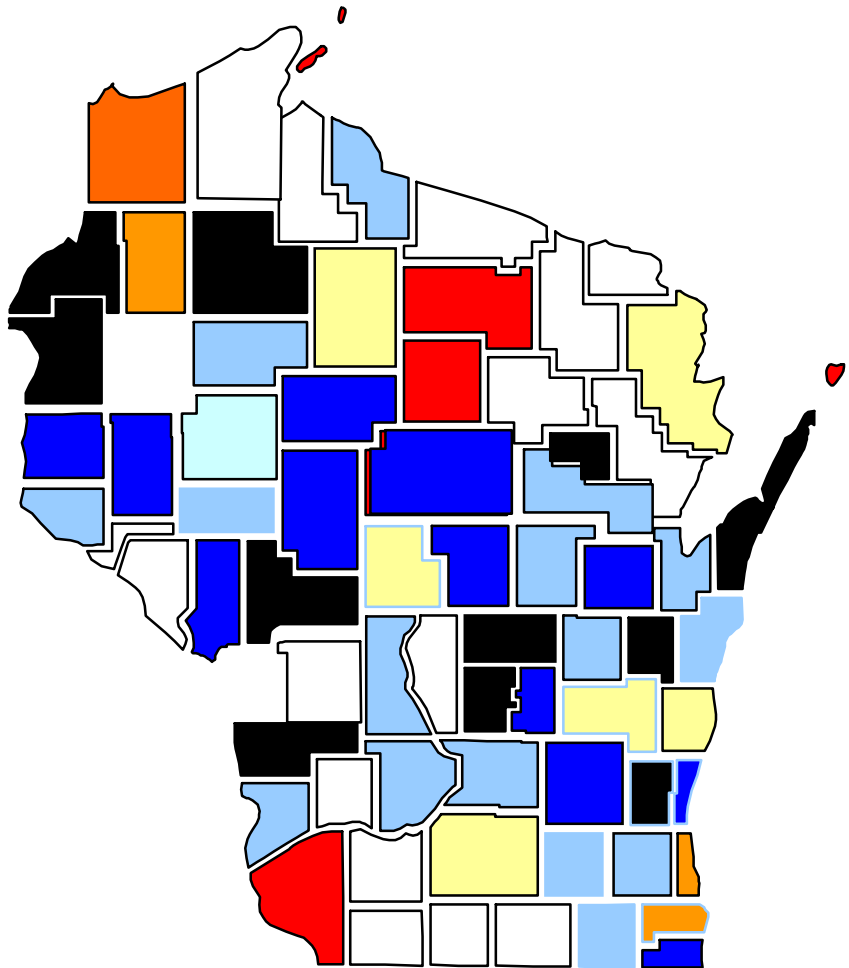
- \$9 billion plus - + black
- \$3 - \$6.5 billion - blue
- \$1.5 - \$3 billion - light blue
- \$.75 billion - \$1.5 billion - green
- \$250 million to \$750 million - pale yellow
- \$250 million or less - white



Wisconsin Manufacturers - 1997 Census

The map below shows the increase or decrease of manufacturing firms within Wisconsin with 20 or more employees.

Increase or decrease in Number of Manufacturing Establishments with more than 20 employees by County 1997 Census	
<u>Growth Leaders</u>	
County	Number
1. Washington	+32
2. Outagamie	+18
3. Waukesha	+17
4. Ozaukee	+14
5. Brown	+13
6. Kenosha	+13
7. Marathon	+12
<u>Declines</u>	
1. Milwaukee	-24



Code:	
Greater than 20% -	black
+10% to +20% -	blue
+1 to +10% -	light blue
no change -	white
-1% to -10% -	light yellow
-10% to -20% -	orange
greater than -20% -	red

Part IV Movement of Wisconsin Exports 2000

Wisconsin Exports Shipped by Air \$2,719,533,969

Wisconsin Exports Shipped by Sea \$2,712,855,587

Wisconsin Exports Shipped by Other \$5,076,023,220

EXPORTS SHIPPED BY OTHER THAN SEA OR AIR (48.3%)

NAFTA EXPORTS

	<u>Canada</u>	<u>Mexico</u>	<u>%of Total Exports Shipped</u>	
Air	\$154.7 million	\$55.7 million	5.69%	2.05%
Sea	\$ 23.5 million	\$ 5.0 million	0.87%	0.19%
Other	\$5.076 billion	\$ 613 million	77.98%	12.08%

As the data above demonstrates, the vast majority of exports to our NAFTA partners Canada and Mexico are shipped by truck and rail. Shipments to these two markets comprise 90.06% of all exports in this category; Western Europe comprises 8.76%; other 1.18%.

EXPORTS SHIPPED BY SEA (25.8%)

East Asia	34.65%
Western Europe	22.73%
South & Central America and the Caribbean	15.55%
North Africa, Middle East & Turkey	9.54%
Australia & New Zealand	5.71%
NAFTA	1.06%

EXPORTS SHIPPED BY AIR (25.9%)

Western Europe	45.67%
East Asia	30.30%
NAFTA	7.74%
South & Central America & the Caribbean	6.25%
Australia & New Zealand	3.36%
North Africa, Middle East & Turkey	3.22%