

capital area

manufacturing

past • present • future

Capital Area

MICHIGAN WORKS!™





Dear Friends:

Manufacturing is the cornerstone upon which Michigan's economy was built over 100 years ago, and it is the foundation upon which we will create the Michigan economy of the 21st century. We burst into the 20th century on the strong backs and innovative spirits of the men and women who made Michigan the center of industrial excellence with their visionary designs and revolutionary inventions, and we will again charge into this new century riding the wave of their energy.

At this very moment, however, manufacturing faces mounting challenges from foreign competition, unfair international trade policies, and skyrocketing health care costs. Because of these challenges and others, the manufacturing sector in Michigan has been particularly hard hit by the recent economic downturn, which has had a dramatic impact on our state's overall economic health. I am determined to grow our economy and attract and keep good jobs in our state, and doing so requires that our manufacturers have the tools necessary to survive and thrive in this 21st century economy. Reports such as "Manufacturing – Past, Present and Future" help shed light on the challenges facing Michigan manufacturers and spark the conversations to engage all community members.

In my State of the State address in January I laid out a seven-point plan to grow jobs and improve the quality of life in Michigan, the first step of which is to address the issues that are most threatening to the businesses that made us great - Michigan's manufacturers. These issues were identified during the Michigan Manufacturing Matters Summit that I convened in December. The bipartisan group of labor and business leaders who met with me identified nine specific actions in our consensus agenda, which is now a critical element of my plan for the year ahead.

In the coming year, we will give workers better opportunities to learn new skills, provide access to capital for new businesses, and make health care more accessible and affordable in order to support this vital sector of our economy. Manufacturing is woven into the fabric of our Michigan character. Keeping that fabric strong is a key goal for me and my administration this year and every year.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jennifer M. Granholm". The signature is stylized and cursive.

Jennifer M. Granholm
Governor

Dear Colleagues:

It is critical we as a region examine manufacturing and the role it plays in our workforce and create a forum for open dialogue between businesses, government and the community. I commend the Capital Area Manufacturers Council, our partner in this report, for its dedication to improving the manufacturing business climate and I thank our other partners, the Regional Economic Development Team and the State of Michigan Department of Labor and Economic Growth Bureau of Labor Market Information and Special Initiatives, for making the report and seminar possible.


The topic of outsourcing is frequently addressed in our local media, but more difficult to highlight is the impact of productivity on the tri-county region's manufacturing employment. By looking back over the past 30 years in manufacturing, "Manufacturing – Past, Present & Future" is able to analyze technology and productivity's influence and predict the future of our manufacturing workforce.

Please contact us if you have questions about the study or have suggestions related to the issues raised by the report. Thank you for your interest.

Sincerely,

A handwritten signature in black ink, appearing to read "Douglas E. Stites". The signature is stylized and cursive.

Douglas E. Stites
Chief Executive Officer
Capital Area Michigan Works!



Capital Area Manufacturing: Past, Present and Future

Introduction

As in other parts of the country, concern exists regarding the future of manufacturing employment in the capital area. Fewer jobs exist than in the recent past. Are the jobs lost attributable to the business cycle or are they gone forever? "Manufacturing: Past, Present and Future" presents a summary of recent trends in manufacturing in Ingham, Eaton and Clinton counties as community and business leaders try to maintain the region's strong tradition with the production of goods.

Since the official end of the most recent recession in November 2001, employment gains for the U.S. economy have been nonexistent and there is an ongoing debate about the health of the nation's labor market and the ability of workers to find jobs. The manufacturing sector is receiving much of the attention because of the 1.5 million national employment reduction from November 2001 to March 2004, including 2,700 manufacturing jobs lost in the capital area. The regular reporting on the manufacturing job losses by the media sustains an intense focus on manufacturing.

The overriding concern is the potential permanent loss of employment in manufacturing. Many believe the jobs lost will never return because they are outsourced overseas, lost to competition or eliminated through productivity gains. The merits of trade agreements such as the North American Free Trade Act (NAFTA) and the World Trade Organization (WTO) are hotly debated. There is talk of "manufacturing czars" in the nation's capital, governors are hosting manufacturing summits and local regions are forming "save our jobs" task forces, all efforts designed to stem the job hemorrhage in the employment sector that produces goods.

There are many good reasons why manufacturing is the object of intense attention. The main one is that the production of goods is wealth-building: goods produced in a country, or a local region, are sold elsewhere and bring income and wealth to the area where they are produced. In turn, jobs in a variety of supplier and service-producing industries are created. As a general "job multiplier" rule, each manufacturing job creates four jobs in its support. In addition, wages are generally higher in manufacturing than other economic sectors. In many instances, workers with relatively low skills earn high wages and quality fringe benefits. Finally, manufacturing is an industry where productivity is growing at a healthy rate. Producing more goods with less people allows wages and benefits to grow and is a key factor in raising living standards.

The manufacturing tradition in the capital area of Michigan is strong and enduring. "Scientific American" first noted the beginnings of goods production when it reported on the development in Lansing of the Reo steam carriage in May of 1892. Large plants employing thousands of workers emerged in the 1890s producing carriages, wheelbarrows, farm implements, cooking stoves, cigars and other goods. P.F. Olds and Sons became fascinated with the internal combustion engine, and by 1897, the Olds Motor Vehicle Company was formed. By 1910, Lansing was home to some of the world's largest auto companies.

The history of the capital area as an automobile manufacturing center now exceeds 100 years. The highway billboard on Interstate 96 approaching Lansing from the east proudly proclaims the area as the "Car Capital of the World." The reputation is deserved. More than 550,000 motor vehicles were assembled in the capital area in 2002. General Motors recently built its first new assembly plant in North America in fifteen years in the Lansing region and another new GM plant is under construction.

Significant manufacturing trends in the capital area

Executive summary

- * From 1994 to 2003, approximately 7,000 manufacturing jobs disappeared. Only 21 percent of those job losses are tied to trade.
- * The production value of output per worker increased by \$507,000 between 1970 and 2003.
- * Worker productivity in local plants increased from 14 vehicles per worker in 1970 to 48 vehicles per worker in 2002, an increase of 243 percent.
- * The number of manufacturing firms grew from 329 to 420 between 1970 and 2000. The number of nonmanufacturing firms grew from 5,100 to 10,200.
- * In 1970, manufacturing represented 25 percent of total employment in the capital region. By 2003, it fell to a 10 percent share.
- * More than 50 percent of the tri-county region's manufacturing jobs are in the auto industry, compared with 39 percent in Michigan and 12 percent nationally.
- * Since manufacturing peaked at 44,100 in 1979, employment has fallen by more than 20,000 jobs. More than 80 percent of the decline is in the automotive sector.
- * Although the capital area is recognized as a manufacturing center, manufacturing only accounts for 10 percent of the total jobs base, near the 11 percent share for the U.S., but well below the 17 percent share for Michigan.

“Since 1995, manufacturing employment has dropped 11 percent in the U.S. - and 15 percent in China. Where did all those jobs go? To a ‘country’ called productivity.”

Thomas J. Donohue
USA Today, March 15, 2004

The manufacturing sector in the capital area

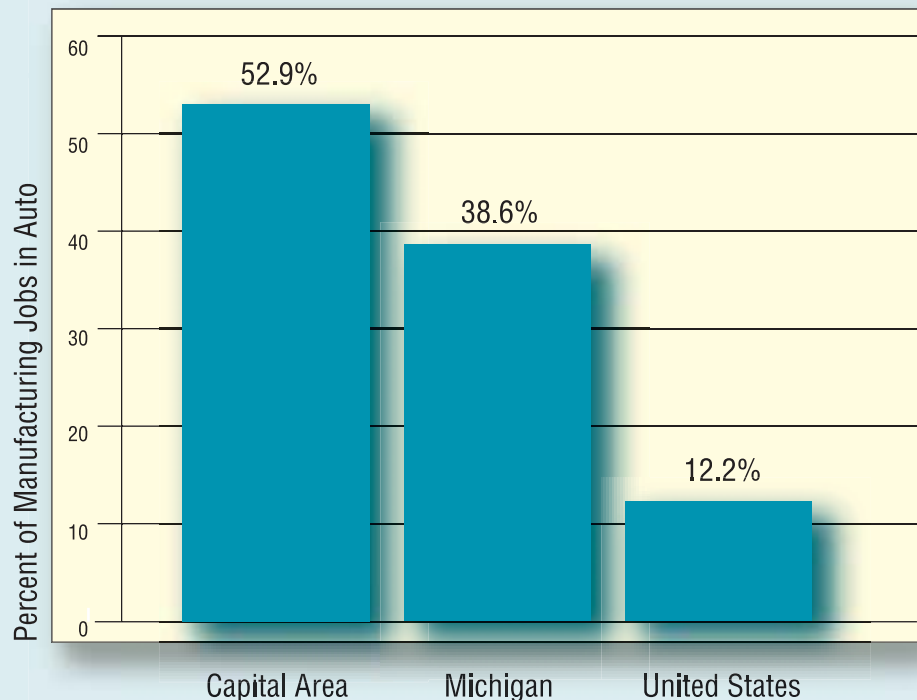
Although the capital area is a significant North American manufacturing center, the share of manufacturing jobs here is not extraordinary when compared with the United States and Michigan. Manufacturing accounts for only 10 percent of the total jobs base, near the 11 percent share for the U.S. but well below the 17 percent share on a statewide basis. The region's status as the seat of government for Michigan, the presence of a major university and the concentration of warehouse distribution centers all influence the jobs composition and lessen the share of employment for the production of goods.

During 2003, the local manufacturing sector employed 23,800 workers. The level is comparable to the 26,200 employed in retail trade, the 24,700 in educational and health care services and the 21,500 in professional and business services. In contrast, manufacturing is only about one-third the size of the government sector (72,000 employees) in the capital area.

Although the automobile industry only accounts for 5 percent of all industry jobs in the capital area, it dominates the tri-county area's manufacturing sector. The share of manufacturing jobs concentrated in this "auto" sector is significant – 53 percent of local manufacturing jobs are in the automobile industry versus 39 percent in Michigan and only 12 percent nationally. Manufacturing in the capital area is also heavily tied to the "big ticket" items produced in the business cycle-sensitive durable goods sector. Durables goods accounts for 80 percent of the manufacturing jobs locally. As a consequence, manufacturing employment trends in the capital area have been, and will continue to be, intertwined with developments relating to the production of automobiles and other durable goods.

Fifty-three percent of local manufacturing jobs are in the automobile industry versus 39 percent in Michigan and only 12 percent nationally.

Manufacturing jobs in capital area are highly concentrated in automobile manufacturing 2003



Other significant components of manufacturing in the capital area include the following industrial categories with their employment in 2002:

- Metals manufacturing – 3,300
- Machinery manufacturing – 1,700
- Printing – 1,500
- Plastics and rubber products – 1,200
- Chemicals - 800
- Food manufacturing - 800

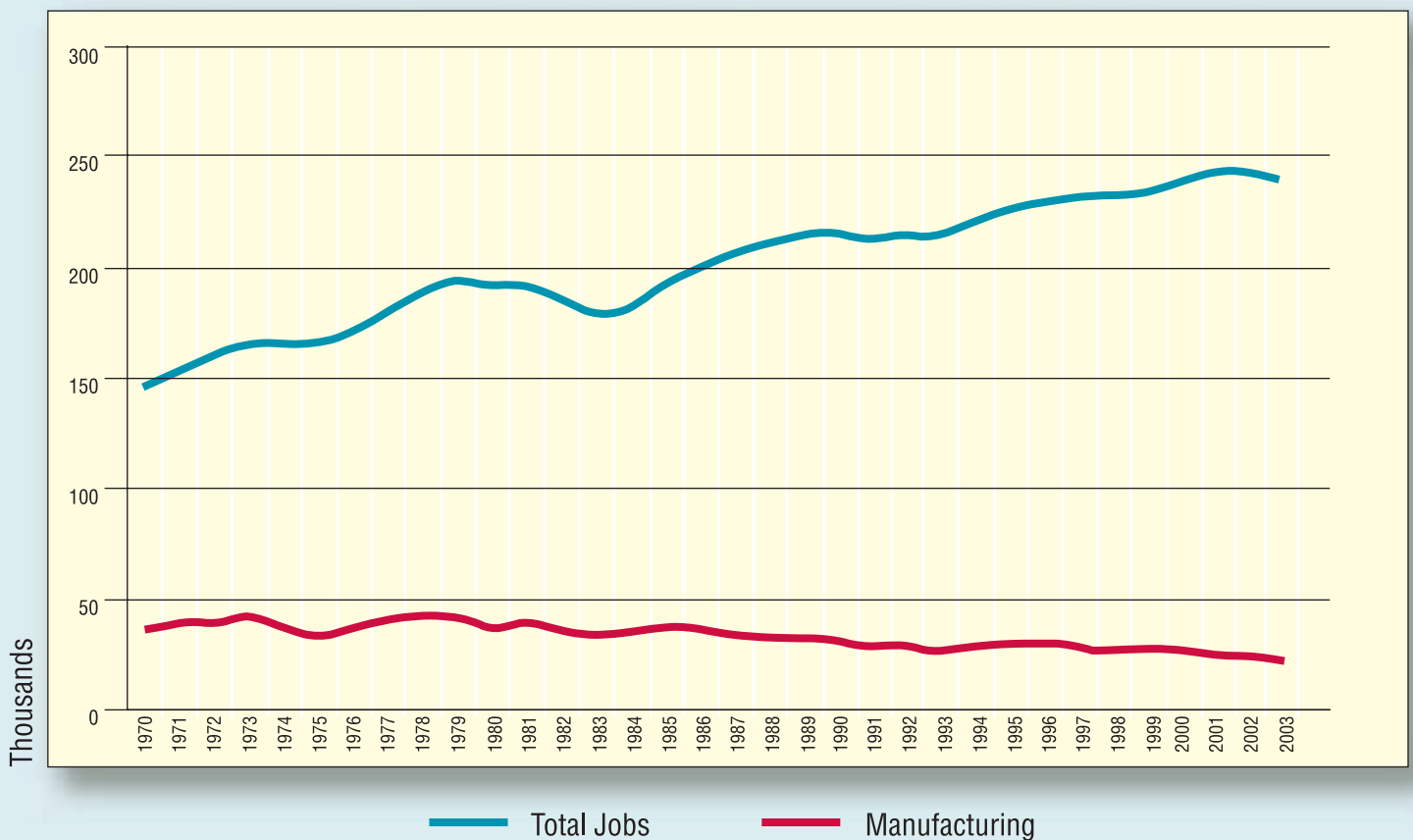
Manufacturing employment is declining in the capital area

As with the nation and Michigan, manufacturing employment in the capital area region is experiencing a long-term decline. Locally, manufacturing employment is at its lowest point in 24 years. Although there have been slight increases along the way, the general decline began after 1979 and continues through 2003.

Considering trends since 1970, jobs lost in the manufacturing sector total 13,200, a 36 percent decline through 2003. The manufacturing trend is in stark contrast to overall employment patterns. Total wage and salary jobs in the capital area grew by 64 percent during the period.

Eighty percent of the manufacturing employment losses since the 1979 peak are in the automotive manufacturing sector.

Total jobs grow as manufacturing employment declines
Number of jobs in capital area – 1970-2003



Although manufacturing jobs are declining on a wide scale geographically, the 36 percent loss in manufacturing in the capital area is much more pronounced than in the nation and Michigan. Manufacturing employment across the country fell by 19 percent between 1970 and 2003 while in Michigan the job loss in goods-related employment was 25 percent during the period.

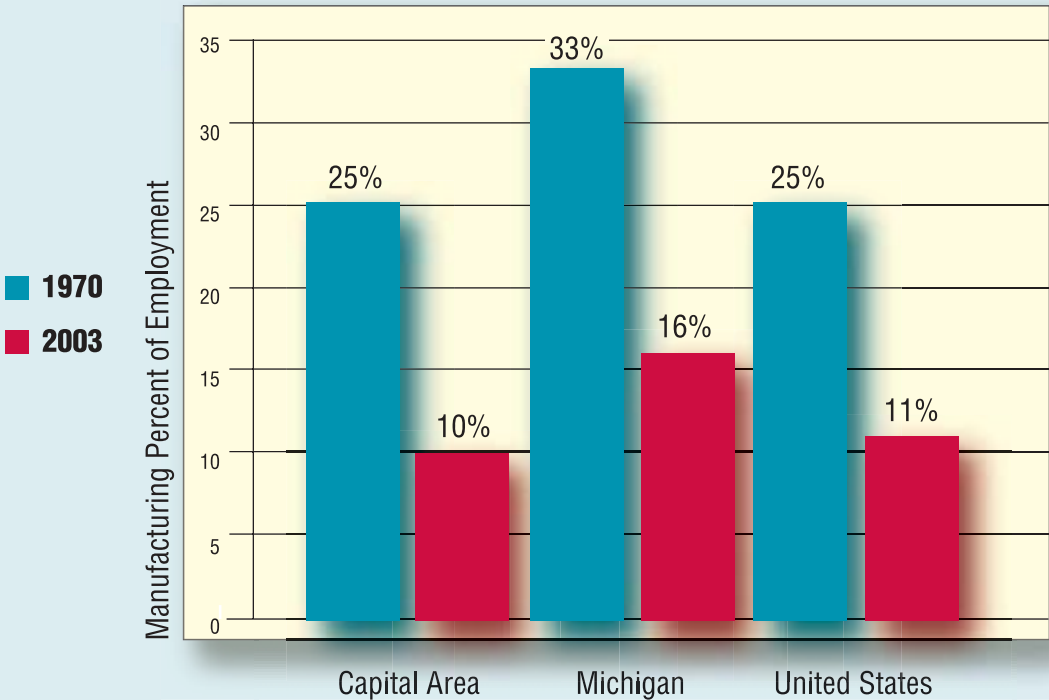
Comparing manufacturing employment shares of total employment provides additional evidence that the job loss in goods production is widespread. From 1970 to 2003, the capital area declined from a 25 percent share to a 10 percent share of total employment. During this period, the proportion of jobs in manufacturing in Michigan fell from 33 to 16 percent. The share of manufacturing jobs in the United States dropped from 25 to 11 percent.

“About 20 percent of Michigan’s gross domestic product or total output is based on trade and an estimated 12 million American jobs are related to U.S. exports.”

– Michael J. Pisani
Assistant Professor, International Business,
Central Michigan University

(Detroit News, March 25, 2004)

Decline in manufacturing share of jobs is widespread



Employment losses in the capital area are more pronounced when peak employment is considered. Manufacturing reached a high point of 44,100 in 1979. Since then, approximately 20,000 jobs have been lost through 2003, a decline of 46 percent. The major factor in this loss is the employment decline in the auto industry. Of the 20,300 jobs lost, 16,900 were in the auto sector. In percentage terms, more than 80 percent of the manufacturing jobs lost were in the automotive manufacturing sector of transportation equipment.

Capital area manufacturing employment change 1979-2003

Industry Sector	1979 Peak	2003	Absolute Change	Percentage Change
Manufacturing	44,100	23,800	- 20,300	- 46%
Transportation Equipment	29,500	12,600	- 16,900	- 57%

Between 1970 and 2003, manufacturing employment declined from a 25 percent share of all jobs to 10 percent

Job gains and losses occur simultaneously

An in-depth analysis of the manufacturing sector firm by firm shows job expansion and job elimination co-exist. Between 1993 and 2003, there was a net employment loss of approximately 8,000, however, 136 firms hired 5,300 workers while 317 firms eliminated 13,300 jobs. In addition, during 1993 to 2003:

- 193 firms employing 7,400 workers closed or moved from the area. The losses represented 55 percent of all losses during the period.
- 140 start-up or relocation firms emerged, adding 2,700 new jobs. The new firms accounted for 51 percent of all employment gains.
- 220 firms were present for the entire ten-year period –
 - 96 firms added 2,600 workers, accounting for 49 percent of all job gains.
 - 124 firms reduced jobs, losing 6,000 workers and accounting for 45 percent of all employment declines on a firm-by-firm basis.
 - Small firms (employing fewer than 50 workers) were responsible for 60 percent of job gains while large firms (employing more than 100 workers) accounted for 89 percent of the employment contractions.

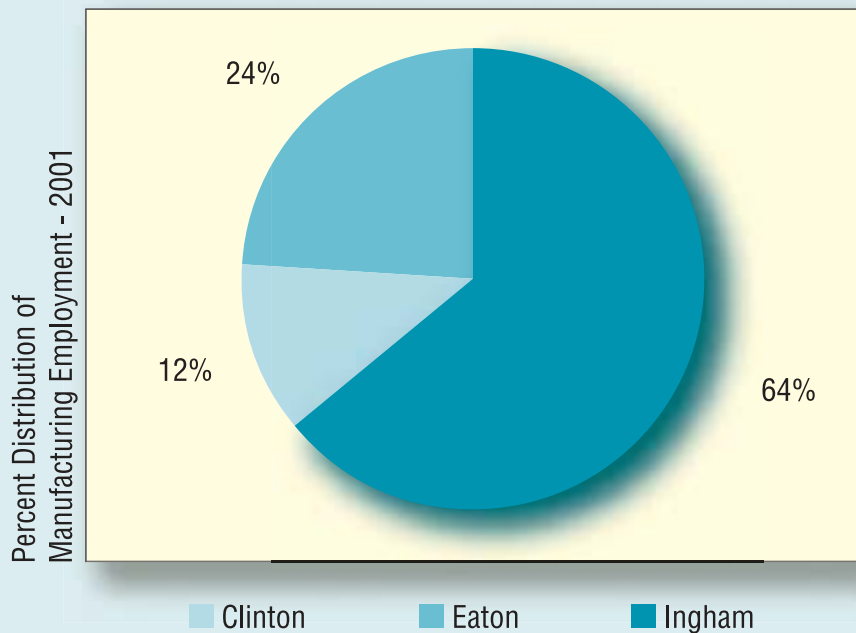
Ingham County's share of manufacturing jobs declines

Among the three counties comprising the capital area, Ingham County is the manufacturing hub geographically. Sixty-four percent of the jobs involving the production of goods reside in the county. Eaton County is home to 24 percent of the manufacturing jobs in the region. Clinton County accounts for the smallest share of manufacturing with only 12 percent.

“Manufacturing goods are trans-portable and thus compete globally. Unlike retail and service industries that compete with the competitor down the street, manufacturing competes with the world. Today the major competition is coming from China, Japan, South Korea, Canada, Mexico, India and Central and Eastern Europe.”

– Richard E. Dauch, Chairman,
National Association of Manufacturers

Ingham County accounts for two-thirds of manufacturing jobs



In terms of the geographic concentration of jobs, the most remarkable change is the decline in the share of jobs in Ingham County. Employment fell by more than 19,000, or 57 percent. In 1970, the county accounted for 89 percent of the manufacturing jobs in the tri-county region, much higher than the 64 percent in 2001. The reduction in manufacturing dominance is not just a result of the jobs decline in Ingham County. Both Clinton and Eaton counties showed substantial job advances in manufacturing at 110 percent and 67 percent, respectively. The decline in the Ingham County manufacturing employment base is tied to losses in the automotive sector.

“With this summer’s addition of the new Cadillac STS, the Lansing factory will be producing three different Cadillacs on a single assembly line: The CTS, the SRX crossover vehicle and the STS, and there is space set aside for a fourth vehicle.”

– Lansing State Journal, February 22, 2004

Manufacturing employment by county

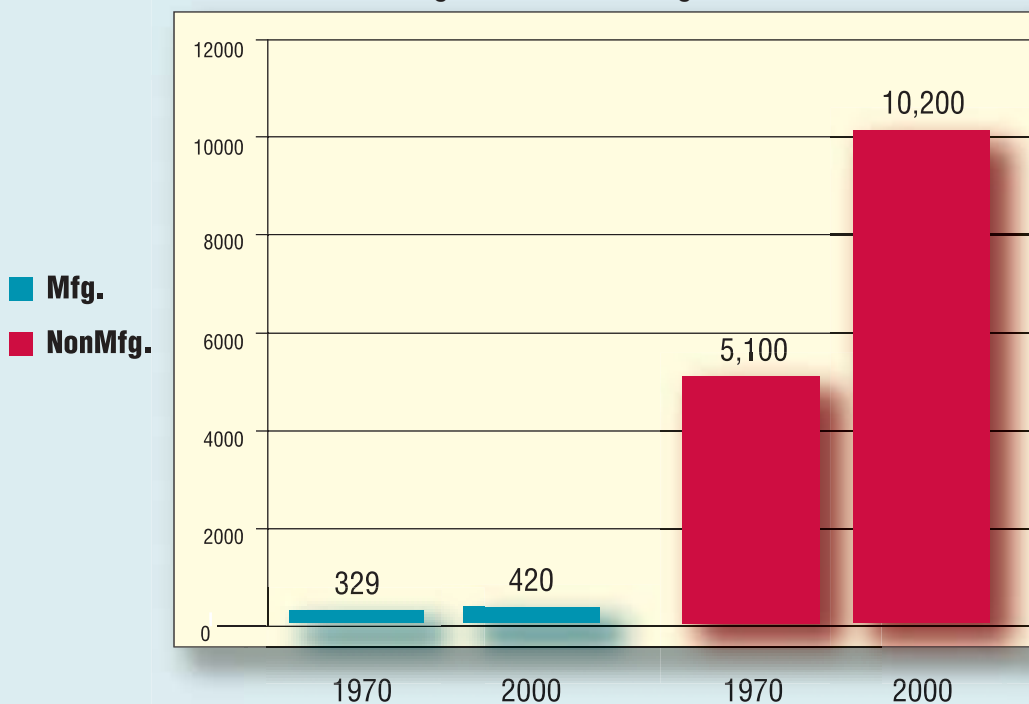
County	1970	2001	Change	Percent Change
Clinton	1,359	2,850	1,491	110%
Eaton	3,265	5,465	2,200	67%
Ingham	33,737	14,469	-19,268	-57%
Region	38,361	22,784	-15,577	-41%

Note: Employment as of March of each year

Growth in number of capital area manufacturing firms

Contrary to the manufacturing employment trend, the number of manufacturers in the capital area grew between 1970 and 2000, from just over 300 to slightly more than 400. Consistent with the trend of employment growth occurring in the nonmanufacturing industries, private nonmanufacturing firms in the region doubled between 1970 and 2000, expanding from 5,100 to 10,200.

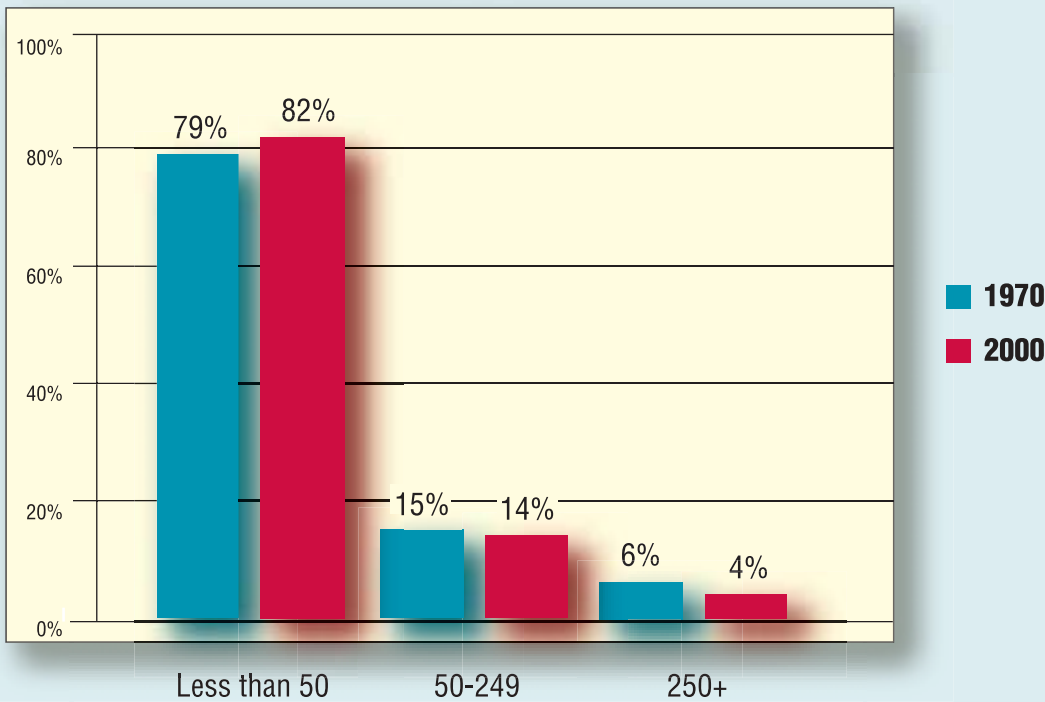
Capital area manufacturers increase slightly although nonmanufacturing firms double



The number of manufacturing companies increased by 100 firms between 1970 and 2000, however, private nonmanufacturing businesses grew by more than 5,000 firms.

The size pattern of manufacturing firms is not much different in 2000 than it was in 1970. Firms employing fewer than 50 employees account for most of the employers in the manufacturing sector in both years, comprising about 80 percent of all manufacturing businesses. The number of large firms (250+ employees) declined by 2 percentage points, falling from 6 to 4 percent between 1970 and 2000.

Manufacturing firms by size – 1970 and 2000

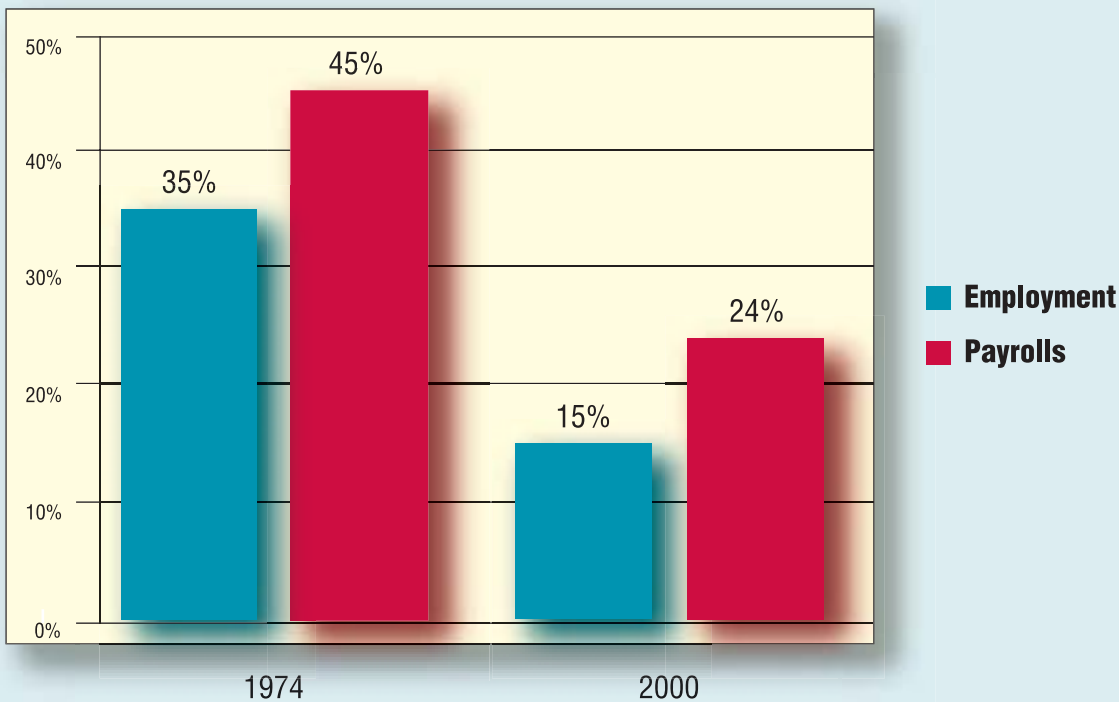


Earnings are higher in manufacturing

Manufacturing's ability to provide substantial earnings to workers is a major appealing characteristic of the industry. The "payrolls" chart presents the employment share and the payroll share of the capital area manufacturing sector in 1974 and 2000. In both years, the percentage contribution to total private sector payrolls in the region is greater than the share of private sector jobs. Even though both employment and payroll shares show a decline during the period, the ratio of payroll share to employment share has increased from 1.31 to 1.62 between 1974 and 2000. Therefore, each manufacturing job continues to become more valuable in terms of pay.

In 1974, local manufacturing pay was 57 percent higher than nonmanufacturing. By 2000, it was 81 percent higher.

Manufacturing's share of private sector payrolls is higher than its employment share



Stronger evidence of the “payroll power” of manufacturing comes from average weekly earnings data comparing manufacturing to nonmanufacturing. In 1974, manufacturing pay was 57 percent higher than nonmanufacturing. By 2000, the gap had increased to 81 percent. Regarding trends between 1974 and 2000, average pay in manufacturing rose from \$231 to \$948 per week, an increase of 410 percent, considerably higher than the 356 percent jump in private nonmanufacturing pay.

“It is sound social policy and simple justice that the party who benefits from free trade - the nation as a whole - should be taxed to ameliorate the discomforts of those who pay the short-term price of progress. That is the case for education and job training for persons needing assistance to change their skills.”

– George Will
Detroit News, February 23, 2004

Capital area earnings by sector average weekly earnings

Industry Sector	1974	2000
Manufacturing	\$231	\$948
Private Nonmanufacturing	\$147	\$523

Skill requirements are increasing for manufacturing workers

Skill change in manufacturing cannot be quantified because there is no standard measure of “skill” that is available over time. The diverse set of occupations present in the industry further complicates an assessment of the skill change issue. Although production occupations account for the majority of jobs in manufacturing, there are significant concentrations of workers in management occupations, professional occupations such as engineers and designers, office support work and the moving of materials and goods. Without data to gauge skill change in the industry, we must rely on observations by those who study the industry and who are familiar with it.

According to the U.S. Department of Labor, advancing technology and increased cost cutting to remain competitive requires manufacturers to emphasize education and training more than in the recent past. Many firms now use “cross-training” to prepare workers to do more than one job. These developments have changed the skills profile of workers in the manufacturing industry. The department says:

Standards for new hires are much higher now than in the past. Employers increasingly require at least a high school diploma as the number of unskilled jobs declines. Manual dexterity will continue to be necessary for many production jobs, but employers also look for employees with good communication and math skills, as well as an aptitude for computers, problem-solving, and critical thinking. Because many plants now emphasize the team approach, employees interact more with coworkers and supervisors to determine the best way to get the job done. They are expected to work with much less supervision than in the past and to be responsible for ensuring that their work conforms to guidelines.

Some insights into skill change locally come from observers of trends in area auto plants. Chris Lavery, a local union official with considerable personal history in capital area General Motors' plants, has witnessed dramatic changes throughout the 1980s and 1990s. The official singles out electricians and production workers as two occupations greatly affected by changes in the content of work.

According to the union representative, prior to the early 1980s, plant electricians were primarily concerned with "pretty basic electrical work: construction, relay technology, machine maintenance and facilities maintenance." Electricians and all of the skilled trades at that time "had very little training after completing their apprenticeships." Then advanced circuitry and computers entered local GM plants and the complexity of work steadily increased. The depth and duration of training rose accordingly. Electricians now receive "2,500 to 3,500 additional hours of technical training after their apprenticeships. Those at the new Grand River Assembly received 900 additional hours of training just for plant start-up." Plant electricians now, according to the official:

- Troubleshoot, maintain and program robots and their controllers and other devices associated with flexible fixturing.¹
- Work with diagnostic equipment that is much more complex and often embedded within the process technology machines.

To become a production worker in GM plants in the capital area prior to 1980, "you simply had to complete the application correctly and pass a physical exam." Now, before workers are hired, according to the local official, they are:

assessed on reading comprehension, problem solving, listening skills, ethics, punctuality and manual dexterity. Contrary to frequent reports of increased requirements for mathematics, however, there is still not a lot of high-level math. Even the quality control/SPC calculations only encompass basic arithmetic.

Further, after production workers are hired, training and assessments cover:

- global manufacturing systems, or lean production
- team building, or teamwork, and
- manufacturing health and safety.

¹ Refers to highly changeable equipment/processes holding different parts for the production process; permits rapid change to the production process and product.

Manufacturing employment decline debated

One of the most hotly debated topics pertaining to the decline of manufacturing jobs is “outsourcing.” The term refers to employment and production shifted to lower cost foreign countries (offshore outsourcing) to produce goods formerly produced in the United States. There is little debate about whether outsourcing is a reality. There is sufficient evidence that it is occurring. The central question: is outsourcing the main reason for the permanent loss of manufacturing jobs?

The issues of free trade, trade agreements and globalization enter the discussion because off-shoring is helped by the freer movement of goods across international boundaries. In other words, if trade restrictions were high, and the flow of goods constrained, less foreign outsourcing would occur. The driving forces behind outsourcing appear to be:

- Cost-cutting pressures, especially surrounding concerns that competitor firms will shift production to countries with lower production costs. In other words, the marketplace is driving producers to continually lower production costs on a worldwide basis.
- Some “off-shoring” is tied to moving production to growing markets such as the developing countries experiencing rapid economic growth (e.g., China). The argument is: domestic producers need to beat their foreign competitors to the foreign market. Headquarters, product design and R & D remain in the United States.

Many studies suggest that, so far, the impacts from foreign outsourcing are small, especially relative to the impact of productivity gains. The evidence: domestic manufacturing investment grew in the 1990s and the U.S. was the largest recipient of foreign investment. In the past two years, manufacturing investment by U.S. manufacturers in China and Mexico was only 3 percent of the \$140 billion in investments by U.S. manufacturers. As a consequence, while some manufacturing will be attracted to low-wage countries, most goods-producing firms are more concerned with the skill and education possessed by workers.

Another factor in the decline of manufacturing jobs is productivity: efficiency is key in producing goods. The firm producing the highest quality product at the lowest price will capture market share from its competitors. Most attention on the productivity factor falls to technology, which is a major contributor to productivity gains, however, worker skills, organizational efficiencies and other factors contribute to increased productivity.

From 1994 to 2003, only 21 percent of the manufacturing decline was linked to foreign trade or international competition.

International comparisons on productivity trends from the Bureau of Labor Statistics show increasing output with fewer workers is not just limited to the United States. The trends are described as “mirroring the trends in agriculture production and productivity in the beginning of the last century . . .” The developments are “shared by most industrialized countries.” Employment in manufacturing has declined on an annual average basis for the last twenty years while production output continued to grow.

Average annual rates of change 1982-2002

Country	Manufacturing Employment	Manufacturing Output
United States	-0.7	3.0
United Kingdom	-2.1	1.3
Italy	-0.9	1.8
Japan	-0.9	2.3

Note: These rates are each year for a 20-year period.

Many studies link the decline of manufacturing as beginning with the end of World War II. After the decline for war-related goods subsided, manufacturing and service sectors of the economy returned to their pre-war shares of employment, 58 and 35 percent, respectively. Since then, service jobs grew 1.9 percent per year while manufacturing remained stagnant with annual employment growth rates of 0.1 percent. By 2000, service jobs accounted for 82 percent of all jobs and manufacturing fell to 12 percent. During the same period, manufacturing output growth grew at more than 3.6 percent per year. Since employment in manufacturing held steady and output grew by nearly 4 percent per year over a 55-year period, there is convincing evidence that productivity is the key factor in reducing employment in manufacturing.

Since the mid-70s, productivity gains have been very strong in manufacturing, reflecting advances in computer and automation technology. Manufacturing productivity has grown at nearly twice the rate of the entire non-farm sector of the economy. Employment in manufacturing began to fall sharply at the same time. Many industry experts now talk of how manufacturing is following the pattern of agriculture, where output has grown dramatically and the employment share fell from about 33 percent of all jobs in 1910 to fewer than 3 percent now.

Since 1970, manufacturing jobs declined by 36 percent while total jobs grew by 64 percent.

Technology use increases in local auto plants

As with skill change, shifts in technology and manufacturing business practices are difficult to describe with statistics. Only local observers of developments in the capital area may help in understanding events of the recent past. One observer indicates prior to the early 1980s, local car production was concerned with “big cars and lots of parts” and very basic technology by today’s standards. Then a steady technology revolution began, increasing both quality and productivity.

There was a transition to modularization, a shift away from lots of parts. Then there was a change in the entire manufacturing model: simultaneous engineering came into play, a process that integrated process and product engineering and design. Previously, the focus was primarily on product engineering, almost to the extent that process engineering was like tossing the product design over the fence. And then the robots started coming. When the Grand Am and Alero lines were redesigned in 1999, 800 new robots were added. Then the Grand River Assembly plant was completed in 2002 and another 800 robots came on line. What used to take six to eight weeks at changeover is now possible virtually overnight. From what I have seen, each robot replaces four workers. The facts are: as more technology and engineering are incorporated into the manufacturing process, cars become easier to build and fewer workers are required.

Capital area manufacturing employment is affected by trade

Although there are no comprehensive statistics on how many manufacturing jobs in the capital area are lost to international trade, it is possible to explore the potential scale of such job losses by reviewing employer filings under trade adjustment assistance programs funded by the U.S. Department of Labor (USDOL). When employers believe jobs at their establishments are affected by imports or international trade situations, petitions to assist laid off workers may be filed under the USDOL-sponsored programs. The following table shows the number of businesses and workers affected by trade (approved, or “certified” by USDOL) in the capital area during a ten-year period. Fewer than 1,500 workers were affected. The employment decline in manufacturing during this period was nearly 7,000, suggesting trade accounts for a significant portion of the job loss, perhaps 21 percent according to these trade certifications, but not the majority of job losses.

“Thousands of Michiganians have been laid off in recent years as more manufacturers step up imports and outsource operations to Latin America and Asia.”

Detroit News, March 26, 2004

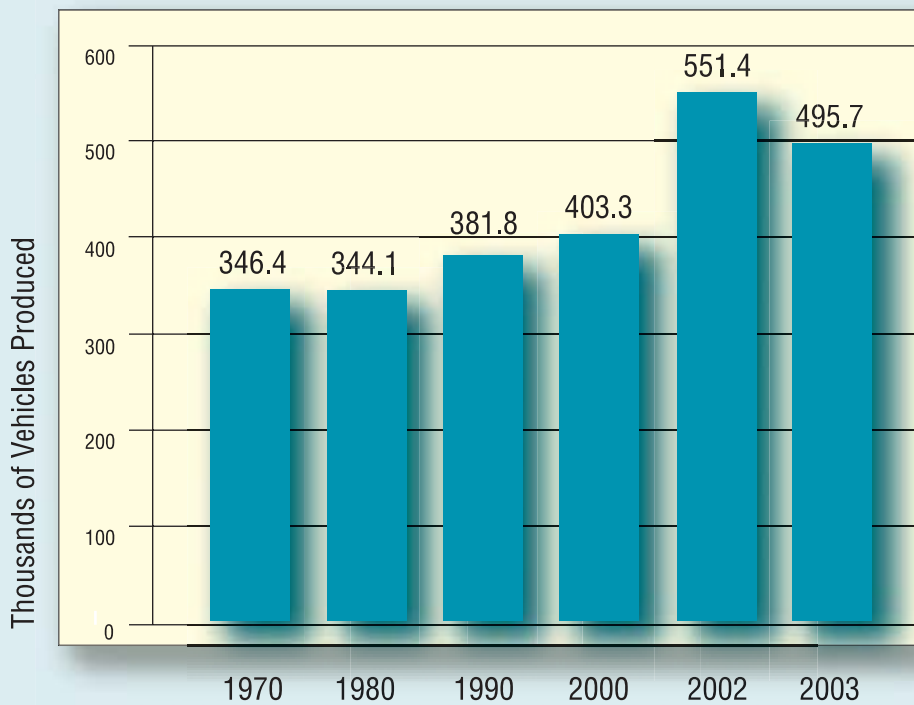
Capital area trade certifications - manufacturing 1994-2003

Company	Year	Number of Workers	Reason
Motor Wheel	1996	255	Increased imports – steel wheels from Canada and Mexico
Omimex Energy	1999	8	Rise in imports of crude oil
Avery Dennison	2001	200	Production transferred to Canada
Airway Manufacturing	2001	450	Increased imports – stainless steel hydraulic fittings and adaptors
Federal Mogul	2001	55	Production transferred to Canada
St. Clair Technologies	2002	60	Production transferred to Canada
Michigan Magnetics	2002	25	Increased imports of magnetic heads due to company's purchase of a Romanian plant
PCC Oloffson	2003	120	Production transferred to Poland
Wohlert	2003	300	Increased imports – ring gears and flex plate assemblies from France and Tunisia
Manufacturing Total		1,473	

Manufacturing productivity gains affect employment significantly

As with data for jobs affected by trade, there is no productivity measure for the capital area manufacturing sector, however, employment and production data for the motor vehicle manufacturing component is available and "rough" estimates for the specific sector are possible. As the following chart demonstrates, there has been a steady rise in production in automotive manufacturing. Production output is up approximately 150,000 to 200,000 units when comparing 1970 with 2003.

Manufacturing employment is at its lowest point in 24 years.



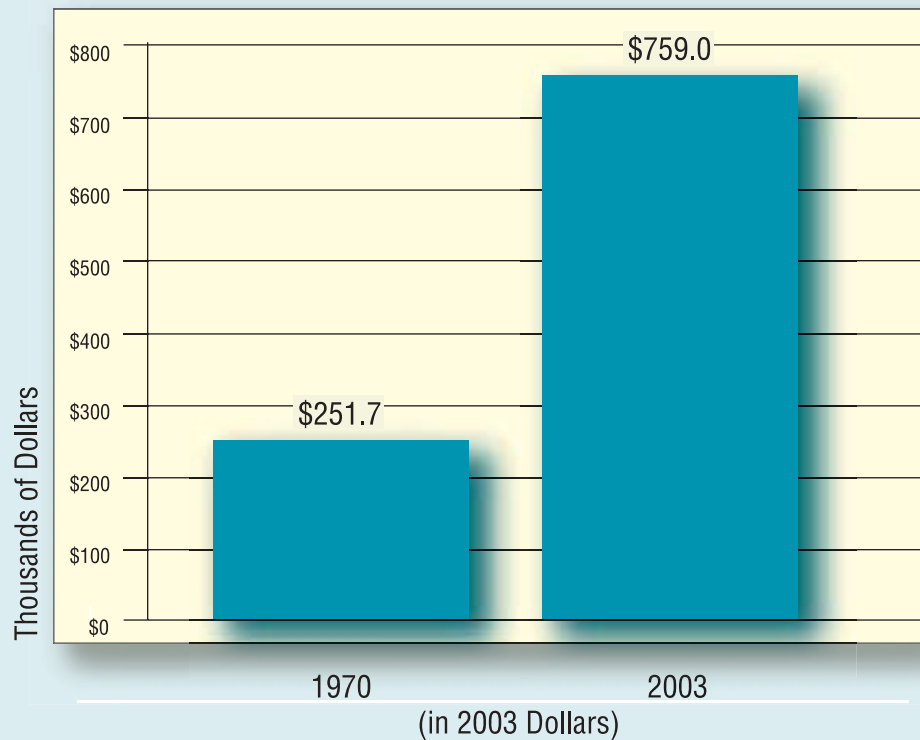
Significant trends in productivity are observed when local automobile production data are combined with employment data. Although the exact number of job losses attributable to increased productivity cannot be determined, the rather large increases in productivity (vehicles per worker) strongly suggest improved productivity is the primary reason for the sizable decline in manufacturing in the capital area:

- In 1970, with 24,200 workers in transportation equipment and almost 350,000 vehicles produced, output per worker was 14 vehicles per worker.
- In 2003, with 12,600 workers and nearly 500,000 vehicles assembled, output per worker was 39 vehicles. Therefore, productivity in 2003 was 178 percent greater than in 1970.

Peak auto production exceeded 550,000 units in 2002 - output per worker hit 48 vehicles that year, 243 percent higher than in 1970.

Value of output per worker increases significantly

Although data on the value of output from local auto plants is not available from published statistics, average domestic car prices may be used with the local production volume to explore how the value of output has risen between 1970 and 2003. Even with adjustment for inflation, the value of auto production is up by an estimated \$3.5 billion dollars (\$6.1 to \$9.6 billion) between 1970 and 2003, an increase of 63 percent. During this period, production increased 43 percent and the number of auto workers declined by 48 percent. As a consequence, the production value of output per worker increased by \$507,000, an increase of more than 200 percent.



Between 1970 and 2003, the production value of output per worker increased by \$507,000, an increase of more than 200 percent after adjusting for inflation.

The future of manufacturing

The historical trends for manufacturing are very clear. Employment is declining as both a share of total jobs and in terms of the number of jobs provided. More of the same is projected for the future. The capital area possesses a well above-average concentration of auto-related jobs within its manufacturing sector and the auto industry is highly susceptible to the implementation of advanced production technologies and efficiency-producing business practices. As a consequence, manufacturing in the capital area will not recover many of its recent job losses and will continue to shrink in terms of employment over the long term.

United States Manufacturing Outlook

The federal government's employment forecasting unit, the Bureau of Labor Statistics, projects the following for the United States:

- Manufacturing will decline by 158,000 jobs or one percent between 2002 and 2012 while total employment is projected to grow by 17 percent.
- Transportation equipment manufacturing is forecasted to lose 41,000 jobs, a decline of 2.2 percent between 2002 and 2012.
- Production occupations are to experience percentage gains in the single-digits, comparable to the minimal growth anticipated for farming related occupations for the forecast period.
- Manufacturing's employment share of the economy is to decline to 10 percent in 2012, down from 12 percent in 2002, and well below the 15 percent share of 1992.

Capital Area Manufacturing Outlook

Forecasts for the capital area for the period 2000 to 2010 from the Michigan Department of Labor and Economic Growth indicate continued declines for manufacturing employment and production occupations:

- Manufacturing is projected to decline by 2.5 percent compared with total job growth of 7.5 percent.
- Transportation equipment is forecasted to lose more than 1,000 jobs, a decline of almost 8 percent.
- Production occupations will show a slight 0.3 percent decline to an employment level of 22,350.

Conclusion

The short-term outlook for the local auto industry employment is mixed. On the positive side, another new auto plant is under construction in Delta Township, and it is expected to employ 2,500 workers. New plant investment sends a strong message that the auto job presence will be sustained, however, two General Motors' plants – the existing Lansing Car Assembly operations – will be phased out by the end of the year. With anticipated retirements, the new Delta Assembly GM plant is expected to employ most of the workers from the plants that are closing. The Delta Assembly plant, of course, will be highly automated like Grand River Assembly and, therefore, with fewer workers required to build each car, overall employment in transportation equipment will continue to decline.

Although the manufacturing tradition of the capital area will be sustained, the steady march of technology and other factors increasing productivity will continue to transform the workforce. In the emerging global economy of international commerce and cooperation, trade will continue to affect manufacturing employment in the region. Manufacturing indeed is going the way of agriculture: more and more output is produced with fewer and fewer workers.

The trends do not imply the capital area should turn its back on manufacturing. Manufacturing is a great source of wealth for the area and the opportunity for many who live here. New firms and new jobs will arrive. It is still worthwhile to attract more manufacturing jobs to the area. The key characteristics of the manufacturing we once knew will remain – good, high-paying jobs, however, the new manufacturing will be transformed. It will consist of higher skilled jobs and technology will continue to grow in its capacity to produce goods more efficiently. Perhaps it is possible for the capital area to become the "High-Tech Car Capital of the World."

Notes

“Manufacturing – Past, Present and Future” was written by Robert Sherer, with assistance from the Capital Area Manufacturers Council, State of Michigan Department of Labor and Economic Growth Bureau of Labor Market Information and Special Initiatives and the W.E. Upjohn Institute for Employment Research.

1. The brief historical references on the capital area economy come from *Lansing: Capital, Campus, and Cars* by Sallie M. Manassah, David A. Thomas, and James F. Wallington, 1986.
2. Employment data describing employment trends and shares of employment come from the Current Employment Statistics program of the Bureau of Labor Statistics, U.S. Department of Labor and the Bureau of Labor Market Information and Special Initiatives, Michigan Department of Labor and Economic Growth. Specific industry data for the capital area and Michigan prior to 1990 was adjusted from the Standard Industrial Classification (SIC) system to the North American Industry Classification System (NAICS). The adjustment was accomplished by using ES-202 Covered Employment Report data comparing the SIC and NAICS-based employment for the same time period.
3. The components of manufacturing for 2002 for the capital area were provided by the Bureau of Labor Market Information and Special Initiatives, Michigan Department of Labor and Economic Growth, via the ES-202 Covered Employment Report.
4. The analysis of employment trends on a firm-by-firm basis were provided by the W.E. Upjohn Institute for Employment Research, Kalamazoo, Michigan.
5. The following data come from *County Business Patterns*, Census Bureau, U.S. Department of Commerce: County employment data, number of firms, payrolls, and earnings in manufacturing and private nonmanufacturing.
6. Educational attainment statistics are census data from the U.S. Census Bureau.
7. The table presenting occupations in motor vehicle and parts manufacturing is published by the Bureau of Labor Statistics in the *Career Guide to Industries*, 2004-2005 edition.
8. The quote regarding standards for new hires in manufacturing is in the *Career Guide to Industries*, 2004-2005 edition.
9. The observations on skill and technology change in capital area auto plants as well as the short-term outlook for the capital area were provided by Chris Laverty, UAW Training Technology Representative, Local 652.
10. Data contained in the table entitled, “Capital Area Trade Certifications – Manufacturing” was developed from data provided by staff in the Office of Workforce Development, Michigan Department of Labor and Economic Growth.
11. Motor vehicle production data in the capital area were obtained from the *Wards Automotive Yearbook* and from Wards Communications via telephone.
12. Average prices for domestically produced cars come from *Motor Vehicle Facts and Figures*, Motor Vehicle Manufacturers Association and the *Statistical Abstract of the United States*, 2003. Since 2003 average prices were not yet published, 2003 data was estimated by increasing 2002 prices by the average increase of the preceding three years.
13. Projections for the U.S. Outlook section are from the *Monthly Labor Review*, February 2004, Bureau of Labor Statistics; projections for the Capital Area Outlook provided by staff in the Bureau of Labor Market Information and Special Initiatives, Michigan Department of Labor and Economic Growth.
14. Sources consulted on trends on productivity, trade and the related employment effects are:
 - “The U.S. economy to 2012: signs of growth,” *Monthly Labor Review*, February 2004, Bureau of Labor Statistics.
 - “Comparing 50 years of labor productivity in U.S. and foreign manufacturing,” *Monthly Labor Review*, June 2002, Bureau of Labor Statistics.
 - “Nice work if you can get it,” Robert Reich, *Wall Street Journal*, December 26, 2003.
 - “Thoughts on America manufacturing decline and revitalization,” *Employment Research*, October 2003, W.E. Upjohn Institute for Employment Research.
 - “Is Midwest manufacturing at a crossroads?,” *Chicago Fed Letter*, The Federal Reserve Bank of Chicago, December 2003.
 - “The disappearance of manufacturing?,” *Chicago Fed Letter*, The Federal Reserve Bank of Chicago, June 2003.
 - “Is the Job Drain China’s Fault,” *Business Week Online*, October 13, 2003



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