

The following pages are excerpts from "The Ohio Motor Vehicle Industry" Report. The full report is 130 pages in length and includes appendices of referenced Motor Vehicle Industry data. "The Ohio Motor Vehicle Industry" Report may be purchased for \$25.00 (ID no. BB1). For additional information or to purchase the full report please contact the Office of Strategic Research.

THE OHIO MOTOR VEHICLE INDUSTRY DECEMBER 1999

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Don Larrick, Principal Analyst
Office of Strategic Research, Ohio Department of Development
P.O. Box 1001, Columbus, Oh. 43216-1001
Production Support:
James Kell, Editor
Patricia Evans, Report Layout
Robert Schmidley, GIS Specialist

OHIO'S STANDING

- Approximately 1,860,000 motor vehicles were assembled in Ohio plants in 1998—about one-sixth of U.S. production and second only to Michigan¹;
 - Over 1,016,000 cars were assembled in Ohio in 1998—over one-sixth of U.S. output and second only to Michigan;
 - Over 840,000 light trucks were assembled in Ohio in 1998—one-seventh of the national total, ranking Ohio third behind Michigan and Missouri;
- There are nine major assembly plants in Ohio—three for cars, four for light trucks, and two for buses and medium- and heavy-duty trucks, more than any other state except Michigan²;
- Workers in Ohio's motor vehicle and equipment group (SIC 371) produced \$12 billion worth of goods in 1997—about one-seventh of U.S. output and second only to Michigan;
- Production workers in Ohio each added \$197,000 of value in the output of motor vehicles and equipment in 1996—17 percent more than the national average;
- 683 motor vehicle industry establishments in Ohio employed more than 151,000 people in 1997—almost 8 percent of the nation's motor vehicle industry establishments and 12 percent of it's workforce;
- The greatest concentration of motor vehicle industry employment in Ohio occurs in automotive stampings (SIC 3465—20 percent of the nation) and vehicular lighting (SIC 3647—18 percent of the nation);
- The motor vehicles and equipment group (SIC 371) employed 118,700 people as of September 1999—the latest figures available—according to OBES/LMI;
- The largest motor vehicle employers in Ohio are (in descending order) GM, Delphi (formerly the parts division of GM), Ford, Honda and DaimlerChrysler (DC);
- A number of the country's most popular models are assembled in Ohio: these include Honda's Accord and Civic, GM's Cavalier and Blazer, Ford's Econoline van, and DC's Jeep;

- According to Automotive News, Honda's Marysville plant assembled almost 456,000 cars in 1998—more than any other plant in North America; DC's Toledo plant assembled over 340,000 Jeeps in 1998, the third highest production of light trucks in North America that year; Lordstown produced more vehicles for GM than any other plant³.

CONTRIBUTION TO OHIO'S ECONOMY

OHIO'S MOTOR VEHICLE CLUSTER: 1997

Industry (SIC Code)	Sales (billions)	Value Added (billions)	Employment (thousands)	Payroll (billions)
Motor Vehicles and Equipment (371)	\$57.1	\$17.9	116.8	\$5.8
Automotive Stampings (3465)	\$5.7	\$2.6	30.3	\$1.5
Engine Electrical Equipment (3694)	\$1.2	\$0.5	4.7	\$0.2
Other Related Industries (3592, 3647 & 3691)	\$0.8	\$0.4	4.9	\$0.2
Motor Vehicle Industry Subtotal	\$64.8	\$21.4	156.7	\$7.7
Primary Metals (33 pt.)	\$5.5	\$2.4	22.0	\$0.9
Rubber and Misc. Plastics (30 pt.)	\$3.4	\$1.6	24.0	\$0.7
Auto Glass (32 pt.)	\$0.7	\$0.5	3.5	\$0.2
Other Manufacturing (Various)	\$13.9	\$5.3	84.6	\$3.7
Other Manufacturing Subtotal	\$23.5	\$9.8	134.1	\$5.5
Manufacturing Subtotal	\$88.3	\$31.2	290.8	\$13.2
Non-manufacturing Support (Various)	\$12.7	\$6.8	103.9	\$3.6
Wholesale (501)	\$52.0	\$4.1	60.6	\$2.4
Retail (Various)	\$20.3	\$3.3	71.3	\$1.3
New Motor Vehicles (551 pt.)	\$10.9	\$1.9	27.0	\$0.8
Tires, Parts, Fuel, Repair (52-59 pt.)	\$9.4	\$1.4	44.3	\$0.5
Repair Services (753)	\$2.2	\$1.0	27.6	\$0.6
Subtotal Service-Providing Sector	\$87.2	\$15.2	263.4	\$7.9
Total Motor Vehicle Cluster	\$175.5	\$46.4	554.2	\$21.1
Private Sector Total	\$753.6	\$287.3	4,575.5	\$131.6
Percent of Private Sector	23.3%	16.2%	12.1%	16.0%

Sources: U.S. Departments of Commerce and Labor.

Notes: pt. – part. Sales values are included as an indication of the volume of industry transactions. However, these numbers contain large amounts of duplication since products of some industries are used as materials by others. Value added estimates avoid some of the duplication inherent in sales data. Value added = GSP only for the private sector total; otherwise, value added > GSP. See note 12.

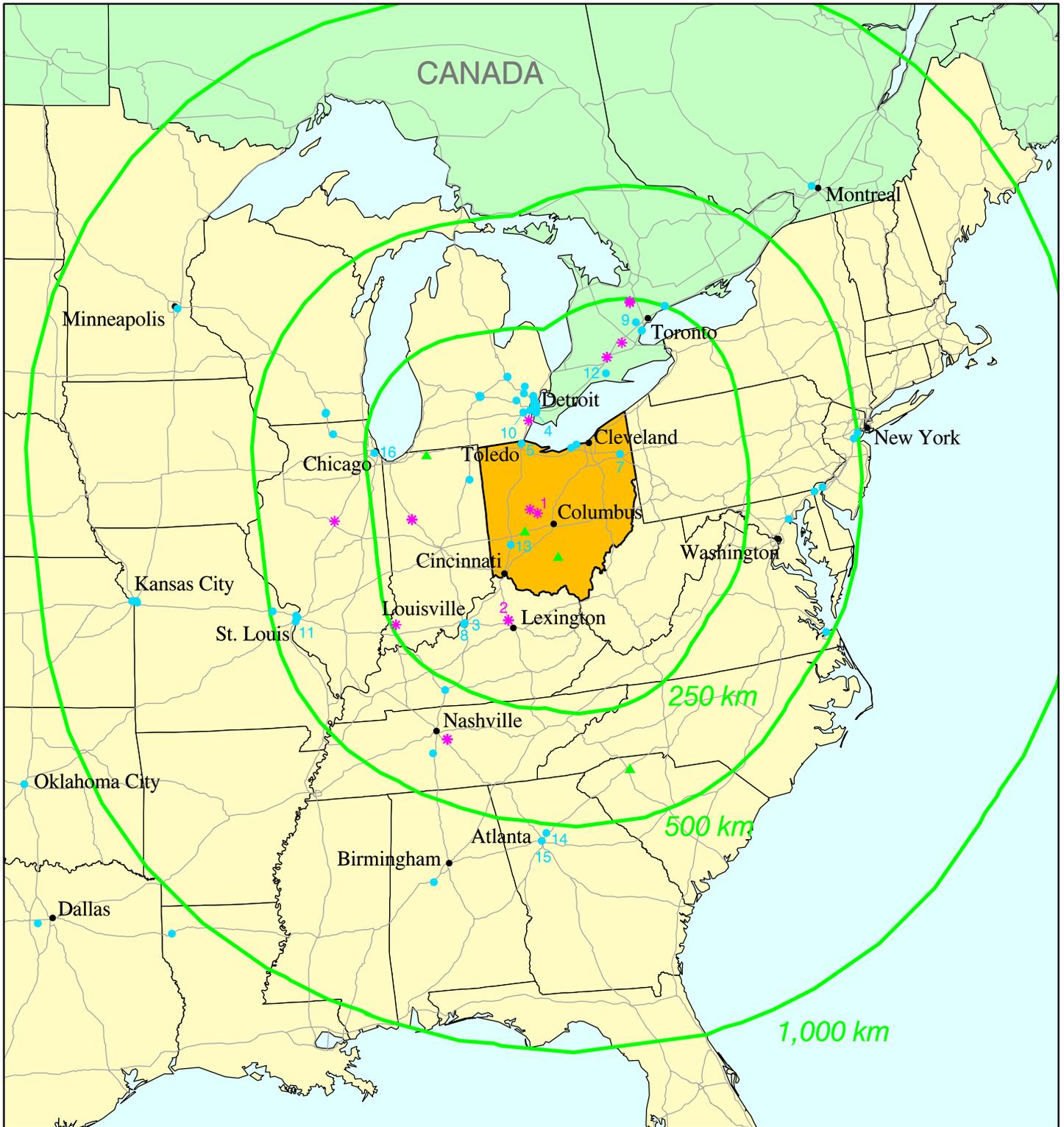
Ohio's motor vehicles and equipment group (SIC 371) produced more than \$12 billion worth of goods in 1997. This was 3.8 percent of the state's total economic output (the gross state product, or GSP), and 14 percent of the group's national output. By comparison, output of motor vehicles and equipment from all of the states and the District of Columbia represents 1.1 percent of total domestic output, and Ohio's total output is four percent of total domestic output (U.S. Bureau of Economic Analysis, 1999).⁴ These figures indicate the importance of the group to Ohio's economy and the group's concentration in the state.

The GSP data underestimate the importance of the motor vehicle industry because they do not include the output of the related industries. By estimating and including the value of goods and services produced by these industries, a more complete picture of the motor vehicle industry's role in Ohio's economy appears. The \$21.4 billion of value added in 1997 was 6.7 percent of the state's total economic output and 7.4 percent of Ohio's private sector output. (See the table on the opposite page.)

A broader view of the industry's size takes into account contributions from a cluster of industries producing goods used by the motor vehicle industry. Examples include seats and seat covers (from SICs 2531 and 2399), tires (from SIC 301) and some miscellaneous plastic products (from SIC 308), automotive glass such as windshields (from SIC 3231), aluminum, iron and steel products (from SIC 33), automotive springs (from SIC 3493), and diesel engines (from SIC 3519). The values of such items, whether purchased by assemblers as original equipment or by consumers as replacement parts, are not attributed to the motor vehicle industry's output. Estimating and including their values with that of capital machinery used in producing vehicle adds another \$9.8 billion to the Ohio's economic output.

The motor vehicle industry also has an indirect impact on the economy. Assemblers are not just consumers of products of the other industries mentioned above. Other service-providing industries depend wholly or in part on the demand for, servicing of, and accommodation to the use of motor vehicles. A partial list includes wholesale and retail operations such as dealerships and gas stations, repair and service establishments such as public garages and parking lots. Other non-manufacturing support includes trucking, insurance, financing, expenditures for roads, and even the portion of residential construction devoted to garages and driveways. Consequently, the impact of the motor vehicle industry on Ohio's and the nation's economy is greater than indicated by the GSP numbers for motor vehicles and equipment (SIC 371) cited above.

Approximately 25 percent of the state's manufacturing activity is related to the production of motor vehicles. With the inclusion of non-manufacturing activities, the total economic output associated with this cluster of motor vehicle industries exceeds 16 percent of the Ohio's private-sector economy. In reviewing the various impacts of the motor vehicle cluster in Ohio, it can be reasonably stated that the motor vehicle cluster is the dominant cluster in the state's economic base.



0 250 500 750 1000 Kilometers

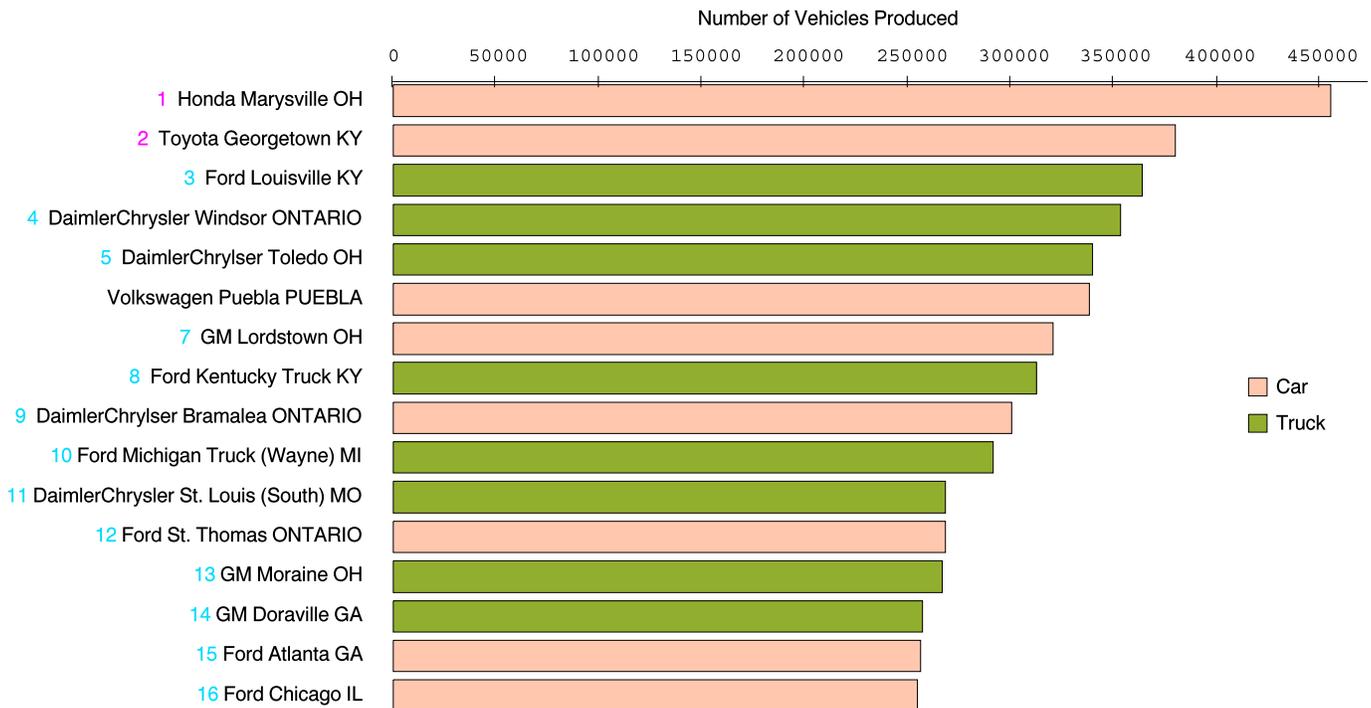
0 250 500 Miles

- Assembly Plants**
- * Japan or Japan/US Venture
 - ▲ Other
 - GM, Ford, DaimlerChrysler
 - Interstate Highways

Prepared by: Ohio Department of Development
Office of Strategic Research (December 1999)

Ohio's Strategic Position in Automotive Assembly

Leading Assembly Plants



Percentage 1998 North American Automotive Assembly

Within 250 km of Ohio	56.8%
Within 500 km of Ohio	75.8%
Within 1,000 km of Ohio	85.3%

Sources:

Automotive News 1999 Market Data Book, Detroit, MI
Ward's 1999 Automotive Yearbook, Southfield, MI

Automobile & Truck Assembly Plants and Parts & Supply Plants with 500 or More Employees: 1999



Source: 1999 Ohio Industrial Directory, Harris
InfoSource International
Prepared by: Ohio Department of Development,
Office of Strategic Research (December 1999)

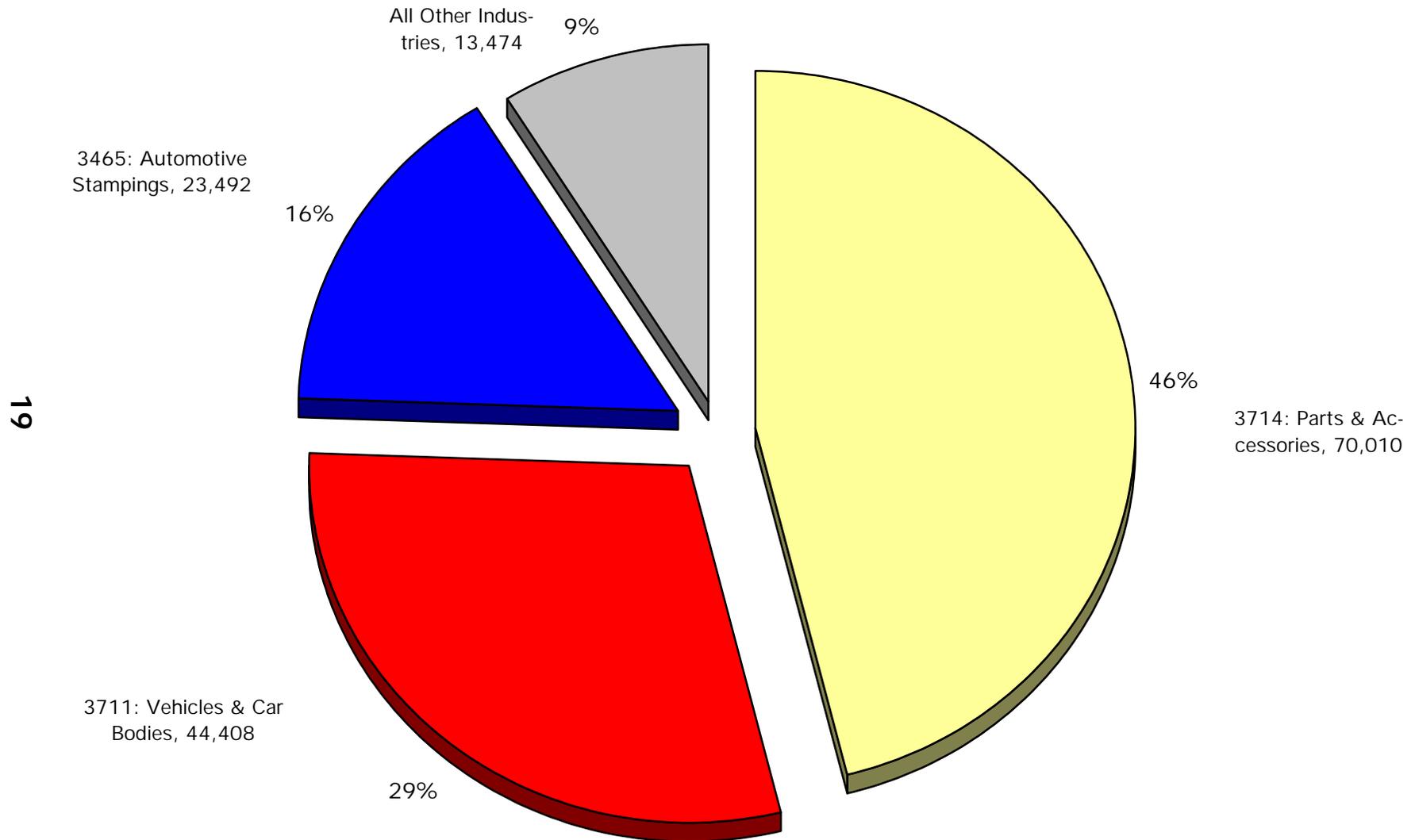
LEADING AND NOTABLE INDUSTRY COMPANIES IN OHIO

GM is still the largest motor vehicle industry employer in Ohio even after its divestiture of Delphi Automotive Systems. GM employs 27,700 people, while Delphi is a close second with just 1,000 fewer employees. Ford employs over 19,000 people. Honda has become the fourth largest employer with over 12,600 people, and DaimlerChrysler has 11,900 workers. Honda is the only major assembler with a headquarters in Ohio. Delphi is the only parts supplier among the top five industry employers.

Ranked by 1997 dollar sales, the top 10 global parts suppliers are Delphi, Visteon Automotive Systems (still part of Ford at this writing, but soon to be spun-off), Robert Bosch, Nippondenso (part of the Toyota *keiretsu*), Aisin World, Lear, Johnson Controls, TRW, Dana, and Magna International (Gaines, 1999; Hyde, 1999). Seven of them—Dana, Delphi, Johnson Controls, Lear, Robert Bosch, TRW and Visteon—are present in Ohio. Dana and TRW have their world headquarters here.

The companies mentioned above are not the only notable industry employers in the state. Altogether there are 34 companies on Fortune magazine's U.S. 1,000 and/or global 500 lists with industry operations in Ohio. Many companies not on either of those lists are also notable employers. The map on the facing page displays the location of industry establishments with at least 500 employees. It includes the larger parts and supply operations and all of the assembly plants. The list following this page includes all industry companies on either of Fortune's two lists and having establishments in Ohio or those not on the lists but employing at least 500 people in Ohio.

Employment in Ohio's Motor Vehicle Industry: 1997 (SIC Code, Number, & Percentage of 151,384 Jobs)



Sources: OBES/LMI, U.S. Bureau of Labor Statistics, 1998

COMPOSITION OF THE OHIO MOTOR VEHICLE INDUSTRY

Six hundred eighty-three establishments employed over 151,000 people in Ohio's motor vehicle industry in 1997. The industry is dominated by the motor vehicles and equipment group (SIC 371). It had 72 percent of the establishments and 78 percent of the jobs. This group includes the two largest industries: parts and accessories (SIC 3714)—57 percent of the establishments and 46 percent of the jobs, and vehicles and car bodies (SIC 3711)—eight percent of the establishments and 29 percent of the jobs.

Automotive stampings is the third largest part of the industry, accounting for 16 percent of the jobs and 18 percent of the establishments. These three industries—vehicles and car bodies, parts and accessories, and automotive stampings—combined to provide 91 percent of the industry jobs in 83 percent of the industry establishments in Ohio during 1997.

The remaining industries, in descending order of employment, are engine electrical equipment (SIC 3694), vehicular lighting equipment (SIC 3647), truck and bus bodies (SIC 3713), carburetors, pistons, rings and valves (SIC 3592), truck trailers and motor homes (SIC 3715-6), and storage batteries (SIC 3691). While these other industries combine for 27 percent of the industry establishments, they have eight percent of the industry jobs.

See Appendix A1

INTRODUCTION

Ohio has been a prime location for motor vehicle production since cars and trucks first became popular. The settling pattern for the motor vehicle industry has been an iterative process. Motor vehicles were significant users of steel, which first developed in the area because of nearby natural resources. Consequently, vehicle manufacturers first located near the steel suppliers. Later, new suppliers settled near assemblers for the same reason—to minimize delivery times and transportation costs between suppliers and customers. Roads (including rail) develop to serve growing areas, and new plants want to locate near adequate transportation facilities. From this perspective, it is understandable why the motor vehicle industry first located (and still maintains) facilities in the Great Lakes area. Another reason for settling in the area was the presence of a well-trained labor force (Gott, et.al., 1999).

Because motor vehicles are expensive yet so widely diffused in our society, the fortunes of the industry are often regarded as indicators of how the economy is doing, and even as a measure of industrial prowess. Yet the reality behind sales figures is often more complex and less uniform than is commonly supposed. Changes in the industry usually have had, and probably will continue to have, a pronounced impact on Ohio's economy because of the concentration and extent of the industry in the state.

The purpose of this report is to further a general understanding of this important industry. The report has five major sections. The first describes the industry in Ohio by examining the current status of the industry and providing some comparison with other states and the nation. The second discusses trends in the industry during the past decade. The third summarizes the views of analysts about the current situation and possibilities for the future. It includes an analysis of U.S. market share trends, and concludes with analysts' predictions for the future. The fourth describes the global characteristics of companies with light vehicle assembly plants in the state. The fifth is an appendix containing a substantial database for those seeking a more detailed understanding of industry trends. Many of the discussions herein are based on, and refer to, the appendix tables.

Statistics used in this report came from both the public and private sectors. Public sector sources include the agencies of the U.S. Departments of Commerce and Labor, and the Ohio Bureau of Employment Services' Labor Market Information Division (OBES/LMI). Private sector sources include Harbour and Associates, and Ward's Communications. Detailed references and a glossary of key terms are in the appendices.

INDUSTRY DEFINITIONS

The term *motor vehicles* includes a variety of products: cars, vans, sport-utility vehicles, buses and trucks. A basic industry division is between passenger cars and trucks. The most detailed industry reports divide trucks into eight classes based on gross vehicle weight (GVW—the combined weight of the vehicle and its maximum payload). These eight classes are regrouped into light, medium, and heavy duty (classes one to three, four to six, and seven and eight, respectively) for wide discussion. *Light trucks* include small and family vans, sport-utility vehicles (SUVs), and pickups. Light trucks carry less than 10,000 pounds GVW. Heavy-duty trucks are over 33,000 pounds GVW (Levy, 1999). *Light vehicles* include cars and light trucks.

Data about the industry are often presented according to the Standard Industrial Classification (SIC) system. Establishments producing goods or services sufficiently alike are classified in the same *industry*. A four-digit SIC code is assigned to each industry. Closely related industries form an *industry group*. The first three digits of the code indicate the group to which the industries belong.

For this report, the *motor vehicle industry* is defined as the *motor vehicles and equipment* group (SIC 371) and five *related industries*. The motor vehicles and equipment group consists of five industries: motor vehicles and passenger car bodies (SIC 3711), truck and bus bodies (SIC 3713), parts and accessories (SIC 3714), truck trailers (SIC 3715), and motor homes (SIC 3716). Data for the latter two industries are combined for presentation in this report to protect confidentiality.

The related industries include automotive stampings (SIC 3465), carburetors, pistons, rings and valves (SIC 3592), vehicular lighting equipment (SIC 3647), storage batteries (SIC 3691), and engine electrical equipment (SIC 3694). None of the related industries manufacture transportation equipment. They are not even part of the same industry group. What they have in common, though, is that most of their products go into cars, trucks, buses and motor homes. (Tires (SIC 301) are an exception to this rule.) However, including related-industry data overestimates the importance of the motor vehicle industry because some products are not used in motor vehicles. See the SIC code definitions for detailed examples of what is included in each industry.

Excluded from this report are industries depending on those mentioned above: makers of machinery used to produce cars, parts, stampings, *etc.*, wholesalers and retailers, and service and repair shops. Generally excluded are manufacturing industries covering a few products used by the motor vehicle industry. Examples include seat covers (SIC 2399—fabricated textile products n.e.c.), automotive seats (SIC 2531—public building and related furniture), windshields (SIC 3231—glass products, made of purchased glass), automobile springs (SIC 3493—steel springs, except wire), and diesel engines (SIC 3519—internal combustion engines, n.e.c.). Some information about these manufacturers is listed in the sections Leading and Notable Industry Employers, and Recently Announced Expansions and Attractions when products are used by assemblers. The exclusion of data about such products from this report underestimates the importance of the motor vehicle industry.

Assembler is used to distinguish motor vehicle manufacturers such as GM, Ford, or Honda from other corporations that produce just some of the parts comprising a vehicle. The latter may be described as *parts manufacturers* or *suppliers*. *Powertrain* refers to engines and transmissions.