



Honda in Ohio:

The Economic Impact of the First 25 Years

A Study Prepared by Levin, Driscoll & Fleeter

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Table of Contents

PROLOGUE	1
EXECUTIVE SUMMARY	3
HONDA'S CORPORATE STRUCTURE IN OHIO	7
CHAPTER 1: THE DIRECT ECONOMIC IMPACT OF HONDA IN OHIO: 1978-2003	9
Honda's Ongoing Investment in Ohio: From Motorcycle Assembly to North American Manufacturing, Engineering and Logistics Hub	9
Honda's Role as an Exporter	11
Honda Employment from 1979-2003	12
Honda Auto, Motorcycle and Drive Train Production in Ohio: 1979-2003	14
Conclusion: Honda's Direct Economic Impact in Ohio from 1978-2003 is Substantial	17
CHAPTER 2: HONDA'S OHIO SUPPLIERS AND THEIR IMPACT ON OHIO AND ITS ECONOMY	18
Investment by Honda Suppliers	19
Sales by Honda Suppliers	20
Location of Honda Suppliers throughout Ohio	20
Regional Perspective	21
Honda's Impact on Supplier Employment	22
Wages Earned and Income Taxes Paid by Employees of Honda's Ohio Suppliers	23
Conclusion: Honda's Secondary Economic Impact in Ohio Reflects a Strong Network of Ohio Supplier Companies	24
CHAPTER 3: ECONOMIC MULTIPLIER EFFECTS OF HONDA IN OHIO	25
The Role of Economic Multipliers	25
U.S. Bureau of Economic Analysis RIMS II Multipliers	26
Choice of the Economic Region for Estimating Honda's Economic Impact	27
Honda in Ohio 2003 Economic Multiplier Analysis	28
1. 2003 Total Output Multiplier Effects	
2. 2003 Total Employment Multiplier Effects	
3. 2003 Total Earnings Multiplier Effects	
Comparison of Honda Multiplier Effects with Other Auto Studies	30
Conclusion: The Total Economic Impact of Honda in Ohio – A Powerful Economic Engine	31

CHAPTER 4: HONDA'S FISCAL BENEFITS TO OHIO _____ **32**

Measuring the Costs: Direct Government Incentives to Honda _____	32
Measuring the Benefits: Ohio Taxes Paid by Honda and its Associates _____	34
Comparing the Benefits and Costs _____	36
Benefits Per Dollar of Cost _____	37
An Observation Regarding the Intangible Benefits from the Ohio-Honda Partnership _____	38
Local Income Taxes Paid by Honda Associates _____	39
Conclusion: A Sound State Investment Continuing to Pay Dividends Benefiting Ohio and its Communities _____	42

CONCLUSION _____ **43**

Honda's Long-Term Contribution to Ohio is Measurable, Substantial and Unambiguously Beneficial _____	43
Honda in Ohio Will Continue to be a Honda Motor Co. Global Partner and North American Operations Hub _____	43
Honda's Strategy of Flexibility Has Positioned It for Sustained Productivity _____	44

APPENDICES _____ **46**

Appendix I: Ohio Counties by Region	
Appendix II: Regional Multipliers from the Regional Input-Output Modeling System (RIMS II): A Brief Description (prepared by the Bureau of Economic Analysis)	
Appendix III: Further Explanation of Economic Multiplier Analysis	
Appendix IV: Bibliography	

Prologue

In 1977, Honda Motor Company and the State of Ohio announced that Honda would be locating manufacturing operations in the United States – near Marysville, Ohio. This was the result of feasibility studies that began in 1974 following the successful introduction of a Civic automobile in the American market that met the U.S. Clean Air Act Standards and put Honda “on the map” in the United States.¹

At the time, many felt that a foreign automaker would fail to be profitable in the U.S. if they employed American workers and wondered if American workers could produce consistently high quality products. In fact, the first foreign automaker to produce cars in the U.S. – Volkswagen – closed its Pennsylvania factory in 1988 after years of cutbacks and operating losses.

In September 1979, the Honda plant in Marysville produced its first motor vehicle – a simple, red CR 250 dirt motorcycle – made by 64 Ohio workers.

Today – in 2004 – a generation later, Honda’s Ohio operations develop, engineer and produce a wide range of autos, motorcycles, all terrain vehicles and engines – including among others the flagship Accord auto, GoldWing motorcycle, and Element light duty truck, powered by low-emission four and six-cylinder engines.

As Honda reaches its 25th year of operation in Ohio, our company Levin, Driscoll & Fleeter, a firm specializing in analyzing complex economic, budget and tax issues, has been asked by Honda of America Mfg., Inc. to study and evaluate the following questions:

- What has been the economic impact of Honda’s establishing manufacturing, production engineering, research and development, purchasing and related operations in Ohio?
- Was the investment by the State of Ohio in attracting Honda to locate and grow its principal operations in the state a sound investment?
- Is Honda making a long-term contribution to Ohio and its economy?

To do so, we have examined the following:

From Honda...

- Company financial and business data
- Company business strategies
- Relevant news releases, fact sheets, corporate profiles and annual reports
- Interviews with and review of speeches by current and former company leaders and managers

From external sources...

- State of Ohio – Current and former Governors, Departments of Development, Job and Family Services (Labor Market Information), Taxation and Transportation
- U.S. Department of Commerce, Bureau of Economic Analysis and U.S. Department of Labor, Bureau of Labor Statistics
- Publications on the U.S. auto industry
- Other academic studies, including:
 - The Economic Impact of Development: Honda in Ohio, Mary K. Marvel and William J. Shkurti, The Ohio State University, 1993
 - A Report on the Significance of Toyota Motor Manufacturing, Kentucky, Inc. to the Kentucky Economy, Charles F. Haywood, University of Kentucky, 1998
 - The Economic Impact of BMW on South Carolina, Moore School of Business, University of South Carolina, 2002

A complete bibliography is included in an appendix to this Report.

¹ Honda Motor: The Men, The Management, The Machines, Tetsuo Sakiya, 1982.

PROLOGUE

That the success of Honda in America (and its impact on the U.S. motor vehicle industry) is largely attributable to its innovations in management, empowered workforce, production processes, quality assurance systems and customer focus has been amply documented elsewhere.²

The purpose of our this Study is to answer the questions noted above.

And, what we found during our examination and study is a remarkable success story – one that extends far beyond what is often described as the “Marysville Plant.” Thus, this Study while grounded in data and traditional economic analysis extends beyond the numbers. We will share our insight and perspectives on what we learned, including the influence of Honda’s philosophy to manufacture products where the demand is, and three key business strategies that Honda planned and executed across these 25 years: the “5-Part Strategy for Future Operations in the United States” (1987), “Honda’s Automobile Strategy for the Americas” (1994) and Honda’s “New Manufacturing System” (1999).

Although financial support for this Study was provided by Honda of America Mfg., Inc., our Study is based on objective research and conservative assumptions and use widely accepted economic modeling techniques.

ABOUT LEVIN, DRISCOLL & FLEETER

The firm was founded in 1991 and specializes in research and analysis of complex economic, budget and tax issues. Levin, Driscoll & Fleeter prepare detailed studies and analyses, and advise a diverse range of private, public and non-profit clients, including businesses and trade associations, departments of state government, school districts, municipal governments and law firms and are often called upon to provide expert opinion and testimony.

- **Richard A. Levin**, co-founder, is a state tax expert with eighteen years of experience as Ohio’s former Deputy State Tax Commissioner and Director of the Ohio Department of Taxation’s Division of Tax Research.
- **William P. Driscoll, J.D.**, co-founder, served as an Ohio Deputy Tax Commissioner for the Ohio Department of Taxation’s Division of Legal Services, a Tax Policy Administrator, and as a researcher for the Ohio Legislative Services Commission.
- **Howard B. Fleeter, Ph.D.**, joined the firm as a partner in 2002, bringing twelve years of academic experience in economics and public policy as a faculty member at two major colleges (The Ohio State University and The University of Massachusetts Amherst) along with extensive consulting experience in the public and private sector.

² See for example, *The Machine that Changed the World: The Story of Lean Production*, James P. Womack, 1991 and *The End of Detroit*, Micheline Maynard, 2003.

Executive Summary

In 1977, Honda Motor Company and the State of Ohio announced that Honda would be locating manufacturing operations in the United States – near Marysville, Ohio. At the time, many felt that a foreign automaker would fail to be profitable in the U.S. if they employed American workers and wondered if American workers could produce consistently high quality products. Twenty-five years later, the sale to customers around the world of 10 million automobiles and 2 million motorcycles and ATVs produced by Honda’s people and plants in Ohio have answered that question affirmatively.

Today, thousands of Ohio citizens throughout the state are involved in the development, manufacturing and engineering of Honda and Acura motor vehicles and the supplying of parts and materials for those vehicles.

This Study examines the economic impact to Ohio, its communities and its citizens from the initial decision by Honda to locate in Ohio to its development over the past twenty-five years into a Honda Motor Company global partner and North American operations hub.³

More specifically, this Study reviews, evaluates and answers three key questions:

1. What has been the economic impact of Honda’s establishing manufacturing, production engineering, research and development, purchasing and related operations in Ohio?
2. Was the investment by the State of Ohio in attracting Honda to locate and grow its principal operations in the State a sound investment?
3. Is Honda making a long-term contribution to Ohio and its economy?

This Study has addressed these questions by using a four-part approach. Chapter 1 of the Study examines the direct economic impact of Honda in Ohio, while Chapter 2 examines Honda’s extensive supplier network and its secondary economic impact on Ohio. Chapter 3 of the Study computes the comprehensive economic multiplier effects of Honda in Ohio. Chapter 4 assesses the State’s investment in economic development incentives to attract and encourage Honda to locate and grow in Ohio and the return on that investment.

The findings are compelling and key findings from each Chapter are noted below:

Chapter 1: The Direct Economic Impact of Honda in Ohio: 1978-2003

This section of the Study examines the direct economic impact of Honda in Ohio in terms of investment, employment, earnings and production. It traces the importance and resulting impact of key business strategies that Honda executed. Findings clearly show the benefit to Ohio from Honda’s growth beyond vehicle assembly to become Honda’s North American operations hub:

- Honda is Ohio’s top manufacturer of motor vehicles.
- Honda employs more than 16,000 Ohioans, with total wages exceeding \$1.1 billion annually, is a top-15 Ohio employer, and has never had a layoff.
- Honda has invested \$6.1 billion in Ohio since 1979.

³ Honda’s corporate structure in Ohio encompasses companies primarily engaged in motor vehicle manufacturing and procurement and logistics, research and development and production engineering functions. During this Study, the authors learned that these subsidiary functions operate not only in Ohio, but have broader responsibilities for coordinating these same functions throughout North America. Thus, the authors use the term “North American operations hub” to recognize the role and responsibilities of the Ohio operations.

EXECUTIVE SUMMARY

- Honda's investment of \$5.3 billion in manufacturing in Ohio represents more than 80 percent of Honda's total U. S. investment in manufacturing.
- Honda's vehicle, engine and transmission production output in Ohio since 1979 exceeds \$178 billion.
- Honda's vehicle, engine and transmission production output in Ohio in 2003 exceeds \$16 billion.
- Honda has received the Governor's Excellence in Exporting Award 3 times since 1995.

Chapter 2: Honda's Ohio Suppliers and their Impact on Ohio and its Economy

One of the factors in Honda's decision to locate in Ohio was Ohio's location in the industrial Midwest, including the availability of a motor vehicle parts supply base. This chapter examines Honda's Ohio suppliers of parts and raw materials and their impact on Ohio's economy. It is clear that the number and scope of supplier operations in more than half the counties in the state contribute to economic activity in nearly every region in Ohio:

- Honda has played a significant role in making Ohio the second leading producer of auto parts in the U.S.
- 154 Ohio suppliers, located in 52 of the state's 88 counties, supply parts and materials to Honda's North American plants.
- These suppliers made investments in excess of \$1.56 billion in Ohio between 1990 and 2002.
- Honda purchases \$6.8 billion annually from these Ohio suppliers.
- These suppliers employ a total of 40,776 associates, nearly half of whom are directly involved in manufacturing for Honda.
- These suppliers pay total wages estimated at \$1.2 billion annually with approximately \$550 million paid to employees directly involved in manufacturing for Honda.
- These workers pay an estimated \$38.3 million in state and local income taxes annually, \$17.6 million of which are paid by employees directly involved in manufacturing for Honda.

Chapter 3: Economic Multiplier Effects of Honda in Ohio

When Honda and its suppliers create jobs and pay wages and salaries, much of this income is spent and re-spent on goods and services produced in the local and regional economy where they are located. This chapter examines the "ripple" or "multiplier" effects that can be attributed to Honda's growth in Ohio. To estimate this multiplier effect on the economy, this Study has utilized a sophisticated model developed by the U.S. Department of Commerce Bureau of Economic Analysis known as RIMS II (Regional Input-Output Modeling System). This model captures the ripple effects on the economy across 3 dimensions:

1. Direct Economic Impact – The expenditures, jobs and income created directly by Honda's operations in Ohio (discussed in Chapter 1 of this Study).
2. Indirect Supply-side Economic Impact – The economic ripple effects on industries related to Honda as a result of Honda's expenditures (the first stage of which is discussed in Chapter 2 of this Study).
3. Induced Demand-side Economic Impact – The broad economic impact from increased consumption by Honda associates and employees in related industries.

EXECUTIVE SUMMARY

This Study expresses these economic multiplier effects in terms of economic output, employment and earnings:

- For each \$1 in output Honda produced in 2003, it generated an additional \$1.1 dollars statewide creating a total Ohio output multiplier of 2.1.
- As a result of the output multiplier of 2.1, Honda's 2003 total output of \$17.1 billion increases total output in Ohio to \$36.0 billion.
- For each of the 16,049 jobs Honda directly provided in 2003, another seven jobs were generated statewide for a total Ohio employment impact of 128,406 jobs (and a total employment multiplier of 8.0).
- For each \$1 Honda paid in wages during 2003, another \$3.3 dollars in earnings was generated in Ohio, creating a total earnings multiplier of 4.3.
- Honda's \$1.13 billion in wages and salaries paid to its associates in 2003 results in a total Ohio earnings impact of \$4.85 billion.
- As a result of Honda's long tenure in Ohio, the comprehensive scope of its operations in the state, and the large reliance on Ohio suppliers of parts and raw materials, the economic multiplier effects found here are significantly larger than those found by other comparable studies of automakers in other states.

Chapter 4: Honda's Fiscal Benefits to Ohio

Chapter 4 addresses the question of the soundness of Ohio's investment of taxpayer dollars to assist Honda in locating and expanding its facilities in Ohio and whether there was a reasonable return on that investment. The Study reviewed both the direct (inducement grants for infrastructure and job training) and indirect (state provided highway funding) government investment provided by the state of Ohio on behalf of Honda, as well as the corresponding return on that investment in the form of taxes paid by Honda and its associates.

The state of Ohio provided \$26.9 million in direct incentives to Honda from 1977-1988. The state also invested \$64.4 million in highway funding for improving and widening U.S. Route 33, for a total state investment of \$91.3 million.

In return, Honda and its associates have paid a total of \$1,087.1 million in taxes from 1979-2003.

The soundness of the investment by the state and the significant return on that investment can be measured:

- Ohio has realized a significant rate of return on both its \$26.9 million direct investment in Honda and its \$64.4 million indirect investment in the widening of Route 33.
- The cumulative net fiscal benefit from 1979-2003 of Honda's presence in Ohio is conservatively estimated at \$996 million.
- The Honda of America Manufacturing and Honda Engineering North America subsidiaries and their associates have paid *more than \$1 billion* in taxes since 1979, and now pay over *\$100 million annually*.
- For each \$1 the state spent on direct incentives, it has received nearly \$40 in revenue benefits from the HAM and EGA subsidiaries of Honda alone.
- For each \$1 invested by the state in direct incentives, Honda has invested \$226.
- For each \$1 invested by the state in both direct and indirect incentives, Honda has invested \$67.
- 53 cities and 43 school districts benefit from the income tax receipts they receive from Honda and its associates.

EXECUTIVE SUMMARY

CONCLUSION: HONDA'S LONG-TERM CONTRIBUTION TO OHIO IS MEASURABLE, SUBSTANTIAL AND UNAMBIGUOUSLY BENEFICIAL

This Study began by posing three questions. By any and all of the measures and findings that have been studied, calculated and presented, it can be concluded that over the first twenty-five years:

- ▶ Honda's economic impact in Ohio is significant and substantial through the scope and intensity of its operations, its strong Ohio supplier network and its record of long-term employment stability.
- ▶ The investment by the State of Ohio not only was sound, but a prudent use of taxpayer dollars, which continues to pay dividends year after year.
- ▶ Clearly, Honda has made and continues to make a long-term contribution to Ohio and its communities.

In addition, Honda also appears to be positioned to provide significant positive economic benefits to Ohio over the foreseeable future. This is primarily due to two factors:

- ▶ Honda's Ohio Facilities are the Hub of North American Operations
- ▶ Honda has Adopted a Strategy of Production Flexibility that has Positioned It for Sustained Productivity

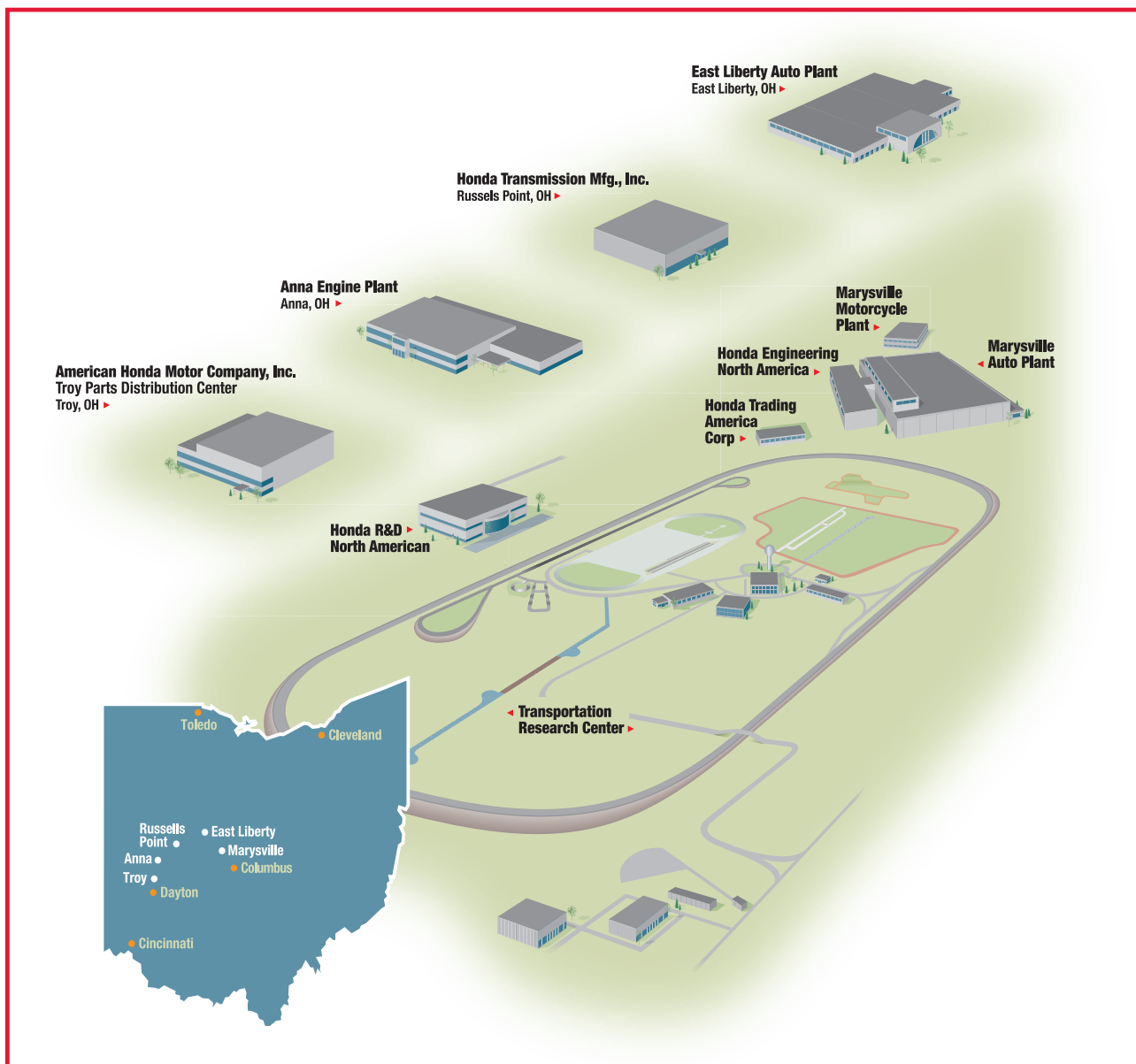
In relation to the first factor, Honda and its Ohio suppliers produce vehicles and parts that are exported throughout the North American region and across the world. As Honda continues to develop new products and new markets, the benefits in terms of manufacturing, engineering, research and development and logistics will continue to accrue in Ohio.

In relation to the second factor, Honda's emphasis on manufacturing flexibility allows the company to continually refresh manufacturing plants for new uses, increase efficiency of new model development, respond adroitly to changes in market demand for vehicles, and build virtually any combination of vehicles in a single factory, without regard to size or body style. This flexibility will extend the useful life of factories far into the future, extending with it the positive economic impact on the surrounding area.

The first 25 years of Honda in Ohio have been unquestionably successful from both the company's and the state's perspective. In addition, it also seems likely that this positive economic impact, for both Ohio and Honda, will be sustained over the next 25 years as well.

Honda's Corporate Structure in Ohio

While many people think of Honda in Ohio as strictly a manufacturing entity, there are in fact 6 Honda subsidiaries present in the state.⁴ The graphic below represents the 8,000 acre "campus" near Marysville that is home to Honda's integrated manufacturing, engineering and R&D operations.⁵



⁴ 2003 Honda FactBook.

⁵ Honda purchased the 8,000 acre Transportation Research Center (TRC) lands and testing facilities from the State of Ohio in 1988 for \$31 million. Portions of these lands became the locations of the East Liberty Auto Plant and Honda R&D Americas-Ohio Center. TRC operations are managed by a subsidiary of The Ohio State University. \$6 million of the original purchase price was used to establish a transportation endowment at Ohio State in 1988, which has grown through additional contributions from TRC operations and has an estimated market value of \$42 million (6/30/03).

HONDA'S CORPORATE STRUCTURE IN OHIO

Honda of America Manufacturing, Inc. (HAM) is the primary North American production arm of the Honda Motor Company, manufacturing autos, motorcycles, ATVs, auto and motorcycle engines and auto components. HAM operates 4 plants in 3 Ohio counties. Listed in chronological order of production start, they are:

1. Marysville Motorcycle Plant (Union County) – 1979
2. Marysville Auto Plant (Union County) – 1982
3. Anna Engine Plant (Shelby County) – 1985
4. East Liberty Auto Plant (Logan County) – 1989

Honda Transmission Manufacturing, Inc. (HTM) has manufactured automatic transmissions at Russells Point (Logan County) since 1997 (from 1989 to 1996 they had been manufactured at HAM's Anna Engine Plant). HTM had been Bellemar Parts Industries, Inc., Honda's very first parts supplier, until being wholly acquired by Honda in 1996 and reconfigured as a transmission producer for Honda autos manufactured throughout North America.

Honda Engineering North America, Inc. (EGA) designs, develops and manufactures specialized production equipment primarily for Honda motor vehicle manufacturing operations in North America. When EGA was first established in 1988 it provided production machinery and equipment (such as stamping press dies, injection molds and assembly automation) to HAM exclusively. Currently, approximately 50% of EGA's sales are to HAM, and Marysville, Ohio serves as the headquarters of Honda's North American production engineering operations.

Honda R&D Americas, Inc. (HRA) is responsible for research and development in North America. The Ohio Center (HRA-Ohio) in Raymond (Union County), now located on lands purchased by Honda from the State of Ohio in 1988, initially was established in 1985, and shares responsibility for comprehensive research, development and testing of motor vehicles with the Honda R&D Center in Torrance, CA. HRA-Ohio has been responsible for the development of models manufactured by Honda in North America, including such key models as the Acura TL and MDX, the Honda Accord Coupe and Civic Coupe, and the Honda Element and Pilot.

Honda Trading America Corp. (HTA) oversees importing and exporting activities for Honda in the U.S. HTA's primary function is to identify marketable products to sell in Japan. HTA has facilitated the export of American made automobile components (along with hay, soybeans, meat and wine, among other products) to Japan since 1979. In addition, HTA coordinates the supply of critical raw materials needed for manufacturing, including steel, aluminum and plastics. The Marysville, Ohio office was established in 1987.

American Honda Motor Company, Inc. (AHM) operates a Parts Distribution center in Troy, Ohio. AHM is responsible for the sales, marketing, service and distribution functions for Honda products in the U.S. In 2003, AHM purchased nearly \$237 million in auto parts from Ohio suppliers to distribute to dealers for service purposes.

Chapter 1:

The Direct Economic Impact of Honda in Ohio: 1978-2003

HONDA'S ON-GOING INVESTMENT IN OHIO: FROM MOTORCYCLE ASSEMBLY TO NORTH AMERICAN MANUFACTURING, ENGINEERING AND LOGISTICS HUB

As our Prologue indicates, we have been asked to determine the economic impact of Honda's operations in Ohio and whether Honda has made a long-term contribution to Ohio and its economy. This chapter explores three elements of these questions: investment, employment and production.

Honda's investment in Ohio began in 1978 with the onset of construction of the \$30 million Marysville Motorcycle plant, which opened for production in 1979. However, this was only the beginning of an extended period of repeated expansion of the scope of Honda's manufacturing operations in Ohio. In 1980 plans to build an auto plant at a site next door to the Marysville motorcycle plant in Union county were announced. Production began in late 1982 and during the next three and one-half years the plant was expanded to twice its original size. In 1984 plans to build an engine plant in Anna, Ohio (Shelby County) were announced. In 1985 motorcycle engine production began and in 1986, auto engine production was added. The engine plant and Marysville auto plant were again expanded and in 1988 construction began on a second auto plant in East Liberty, Ohio near Marysville in Logan County. In 1989, the engine plant began producing transmissions, enabling Honda to produce the entire drive train component locally. The same year, the motorcycle plant began production of All-Terrain Vehicles (ATVs). In 1989, the East Liberty plant began production. Investments also were made in EGA and HRA-Ohio facilities to support the growth of manufacturing in Ohio.

Table 1-1 provides a comprehensive look by facility at Honda's total investment in Ohio of \$6.087 billion since 1978. \$5.320 billion of this investment has been in five Ohio manufacturing plants. According to the 2004 Honda publication "Investing in America," Honda's total investment in U.S. manufacturing plants is \$6.629 billion through 2003. Thus, more than 80% of Honda's U.S. manufacturing investment has been made in Ohio. When an additional \$1.1 billion in manufacturing investment in Canada and Mexico is considered, nearly 70% of Honda's North American manufacturing investment has occurred in Ohio.⁶

**Table 1-1:
Honda Investment in Ohio
1978-2003**

Facility	Operations Began	Invested Over Time
Marysville Motorcycle Plant (HAM)	1979	\$159 million
Marysville Auto Plant (HAM)	1982	\$2.855 billion
Anna Engine Plant (HAM)	1985	\$1.275 billion
East Liberty Auto Plant (HAM)	1990	\$895 million
Russells Pt. Transmission Plant (HTM)	1997	\$145 million
Other Honda Facilities		\$758 million
Total Honda Capital Investment		\$6.087 billion

Source: 2003 Honda FactBook, HAM Financial Data, and 2004 Honda in Ohio Fact Card

⁶ Canadian and Mexican investment figures are through 2002 and were derived from the 2003 Honda FactBook.

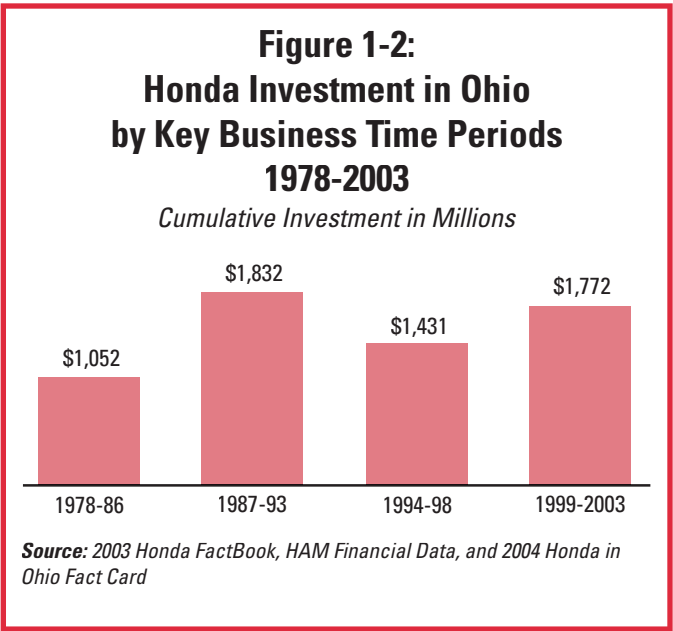
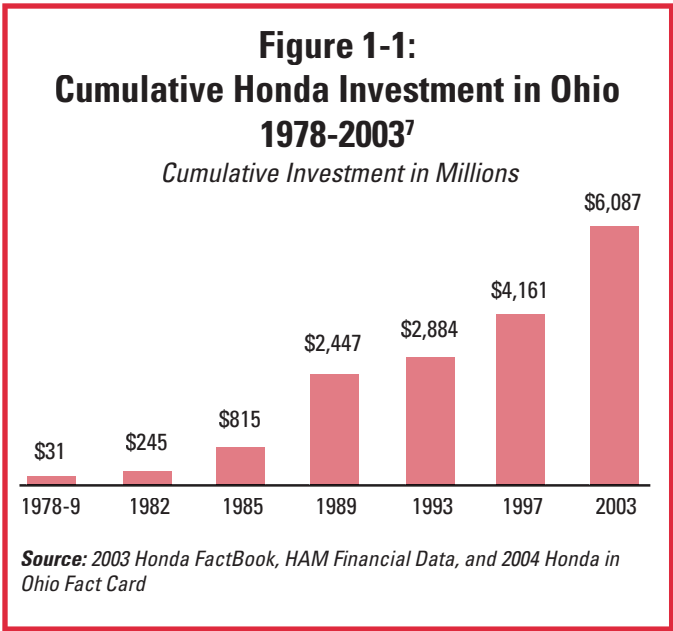


Figure 1-1 depicts the cumulative \$6.087 billion manufacturing investment made by Honda in Ohio from 1978-2003.

When the above data is aggregated according to four key time periods, as illustrated in **Figure 1-2**, it becomes evident that Honda’s manufacturing and related investments were driven by clear strategic business plans.⁸ The 1978-86 period represents a focus on “Manufacturing in the Markets Served” and reflects the construction of the Marysville Motorcycle and Auto Plants and construction of the Anna Engine Plant (with production of motorcycle engines and the very first Civic auto engines).

The 1987-93 period reflects the implementation of Honda’s pivotal “5-Part Strategy” which was largely responsible for the rapid growth in the scope of Honda’s manufacturing operations to their present scale in Ohio. The strategy also marked the expansion from manufacturing to other key areas, including research and development, production engineering and logistical support. The 5 components of this growth strategy were as follows:

1. Construction of a second auto plant at East Liberty, Ohio
2. Significant domestic content growth including expansion of the Anna Engine Plant
3. Expansion of production to achieve annual auto exports of 70,000 units
4. Expansion of research and development capabilities (HRA-Ohio)
5. Expansion of production engineering capabilities (EGA).

During this same time period, Honda was able to develop a comprehensive vehicle manufacturing, R&D, production engineering and purchasing and logistics “campus” through the purchase of the 8,000 acre Transportation Research Center from the State of Ohio. The graphic on page 7 illustrates the close proximity of key Honda operations allowing for integration of vehicle and component development with manufacturing and production engineering.

⁷ These investment numbers do not include an additional \$123 million dollar investment for a new paint facility at the Marysville Auto Plant that was announced on May 11, 2004. The project involves a 234,000 square foot expansion of paint operations slated to go into operation in 2006.

⁸ Honda of America Mfg. Chronology 1978-1998; Honda Motor Co. annual reports to shareholders for selected years; related Honda business documents and news releases – see bibliography for complete listing of sources.

The 1994-1998 period reflects the “America’s Strategy” where the primary objective was for the North American region to become more self-reliant. Central to achieving this goal was the further evolution of HAM in the areas of production planning, purchasing, quality, logistics, new model development and drive train expansion. HTM was wholly acquired during this time period and expansion and reconfiguration of the Anna Engine Plant to allow for V-6 engine production was initiated.

Finally, the period from 1999 to the present reflects Honda’s “Flexible Manufacturing Strategy” (or “new manufacturing system”). Investments during this period focused on completing the reconfiguration of the Anna Engine Plant Expansion and upgrading the manufacturing systems in the motorcycle plant and the two auto plants to allow for unprecedented flexibility in vehicle production now and in the future.

Honda’s Role as an Exporter

Exports Overseas

As part of its North American leadership responsibilities, Honda’s Ohio operations have played a key role as an exporter. This stems from Honda’s global business viewpoint as well as from its implementation of the 1987 5-Part Strategy that led to increased production of vehicles for export overseas. Today, Honda’s export activities include:

1. The production of automobiles, motorcycles and ATVs that are exported to literally dozens of countries around the world,
2. The management and coordination of the export of auto parts produced in Ohio to Honda plants overseas, and
3. The production by Honda Trading America’s Ohio operations of non-GMO soy beans and the purchase of other Ohio-grown products for export to Japan.

Cumulatively, Honda’s overseas exporting activities can be summarized as follows:

Auto Exports

Exports of Ohio-built automobiles – begun in 1987 with Accord models exported to Taiwan – have totaled 700,000 through 2003. In 2003, about 28,000 autos were produced for export to 44 countries.

Motorcycle and ATV Exports

Exports of Ohio-built motorcycle and ATVs – begun in 1980 – have totaled 238,099 through 2003. In 2003, nearly 18,000 were produced for export to 49 countries.

Parts and Components

In 2003, nearly \$400 million of parts and components produced by Honda and Ohio suppliers were exported to Honda plants overseas.

The importance of Honda’s overseas export activities to Ohio has been recognized by the State through the Governor’s Excellence in Exporting Award presented to Honda of America Mfg. in 1995 and 2000 and to Honda Trading America in 2002.

Exports to North America

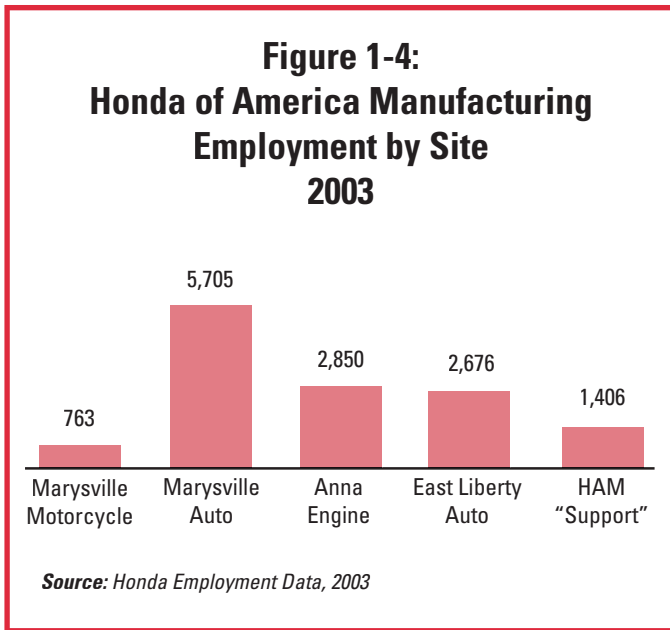
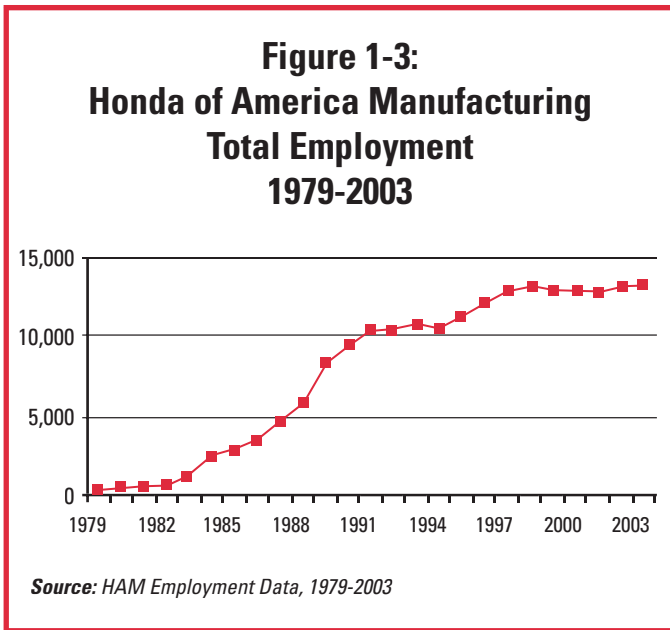
In addition to products and parts exported overseas, Honda’s Ohio operations play a significant role in producing and exporting Ohio-made auto parts to other Honda plants in Canada, Mexico, South Carolina and Alabama. Honda also provides Ohio-made V-6 engines to General Motors’ Saturn Plant in Smyrna, Tennessee. In 2003, nearly \$2 billion in Ohio-made Honda parts were shipped to all these locations. When coupled with the \$2 billion in parts made by Honda’s Ohio suppliers (see Table 2-2 on page 20) and shipped outside the state, it is clear that Ohio benefits substantially from the combined \$4 billion in sales of Honda-made and Ohio supplier-made parts to North American locations.

HONDA EMPLOYMENT FROM 1979-2003

The second element of direct economic impact by Honda examined in this Chapter is employment. While the prevailing view in the late 1970's was that quality motor vehicles could not be manufactured by American workers⁹, Honda chose to locate in America and begin production of motorcycles. Now, in 2004, after twenty-five years of "hard" investments in land and facilities and "soft" investments developing a base of production engineering, research and development, purchasing, logistics and quality assurance, Honda associates¹⁰ in Ohio support the company's North American operations and serve the world-wide market.

Figure 1-3 shows that the trends in manufacturing employment mirror the investment trends reflective of Honda's business strategies and depicts Honda's steady growth and stability in manufacturing employment over time. This is particularly noteworthy in an industry known for its cyclical labor fluctuations. The best example of this stability is evident during the recession of the early 1990s. While Honda sharply decreased capital investment and reduced auto production at Marysville during that downturn, Honda maintained manufacturing employment at a steady state by not laying off associates. Instead associates were provided with training opportunities to replace lost time in production. This practice represented a major departure from employment practices typical of other domestic automakers at the time.¹¹

Figures 1-4 and 1-5 provide an overview of 2003 Honda employment by manufacturing facility and corporate entity. **Figure 1-4** disaggregates the 13,400 HAM associates according to their place of work. Note that 1,406 associates provide leadership and support of HAM plants and Honda's North American operations in purchasing, production planning, logistics and quality assurance, as well as accounting, human resources, information systems and legal.

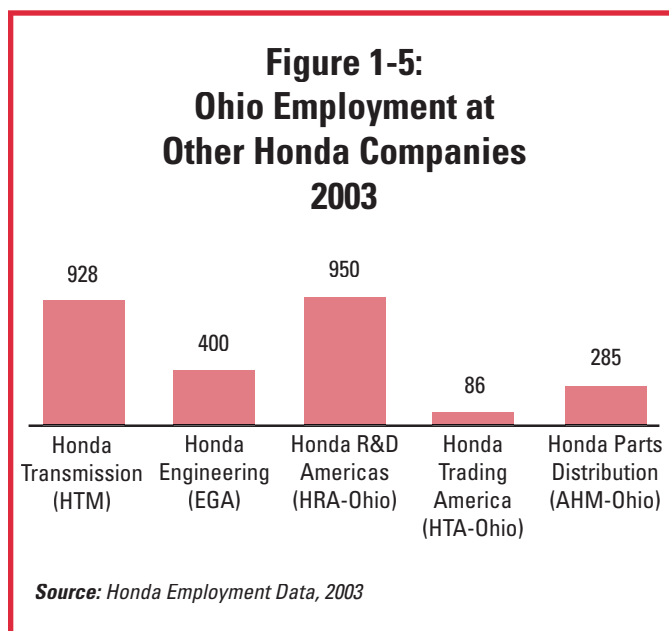


⁹ "On the Road from Tokyo to Ohio," Wall Street Journal, Paul Ingrassia & Joseph B. White, October 29, 2002 and "What's Good for Ohio," The Columbus Dispatch, November 22, 2002.

¹⁰ Honda refers to all of its employees as associates; thus this term is used throughout the study to refer to persons employed by Honda.

¹¹ The Machine That Changed the World: The Story of Lean Production, James P. Womack, 1991.

Figure 1-5 provides similar data for the other 5 Honda subsidiaries operating in Ohio. Total employment for Honda in Ohio is 16,049 in 2003, making Honda a top-15 Ohio employer.¹² In addition, Honda ranks as Central Ohio’s 3rd largest employer, behind only the State of Ohio and The Ohio State University and is Central Ohio’s largest private employer.¹³



Employment means jobs that generate wages. **Table 1-2** summarizes the total wages and salaries paid by each Honda subsidiary in 2003. These figures do not include the value of benefits paid to Honda associates. The \$1.1 billion in wages paid to Ohio workers directly by Honda generates purchasing power which ripples through the state’s economy. These figures will serve as the basis for economic multiplier effects calculated in Chapter 3 of this Study.

**Table 1-2:
Honda Wages and Salaries
Paid to Ohio Associates
2003**

Honda Subsidiary	2003 Wages & Salaries Paid
Honda of America Manufacturing (HAM)	\$939.4 million
Honda Transmission Manufacturing (HTM)	\$52.5 million
Other Honda Subsidiaries	\$136.8 million
Honda Totals	\$1.129 billion

Source: Honda Data, 2003

¹² Ohio Department of Development, Major Ohio Employers Report, 2003.

¹³ Columbus Business First’s 2002 Book of Lists, p.28.

HONDA AUTO, MOTORCYCLE AND DRIVE TRAIN PRODUCTION IN OHIO: 1979-2003

The third element of Honda's direct economic impact analyzed in this Chapter is the production of products through 2003. Since the first CR250 motorcycle rolled off the assembly line in 1979, Honda has produced more than 2 million motorcycles and ATVs, over 10 million autos¹⁴, more than 11 million auto engines, approximately 350,000 motorcycle engines, and more than 8 million automatic transmissions.¹⁵

Auto production began with the Accord in 1982 and expanded to the Civic in 1986 when the second production line was added at Marysville. In 1989 and 1990 Civics were produced at both Marysville and East Liberty before switching entirely to East Liberty in 1991. Acura production began at East Liberty (Acura CL) in 1995 and at Marysville (Acura TL) in 1998. Since 2002, the Acura TL along with the flagship Accord have been produced at Marysville. In 2002 in a major industry innovation, East Liberty began production of the light truck, Element, on the same assembly line as the Civic. These Honda vehicles are sold in the U.S. and exported to 49 countries worldwide.

The aggregate market value of the vehicles produced in Ohio from 1979-2003 exceeds \$170 billion. This figure approaches \$180 billion when the value of approximately 2.5 million engines and 1.25 million transmissions produced by Honda in Ohio but sold to other North American manufacturers, including other Honda companies, is taken into account.¹⁶ **Table 1-3** below summarizes these figures.

**Table 1-3:
Vehicle, Engine and Transmission Production
1979-2003**

Honda Product	Number Produced in Ohio	Total Market Value
Autos	9,786,377	\$157.67 billion
Motorcycles	831,255	\$7.36 billion
ATVs	1,191,842	\$5.51 billion
Auto Engines Sold Separately	2,493,723	\$6.67 billion
Transmissions Sold Separately	1,239,299	\$1.15 billion ¹⁷
Total Market Value		\$178.36 billion

Source: 2003 Honda FactBook and HAM Data

¹⁴ On April 28, 2004 Honda produced its 10 millionth auto in Ohio, a silver Accord manufactured at the Marysville Auto Plant.

¹⁵ 2003 Honda FactBook and additional 2003 data provided by HAM.

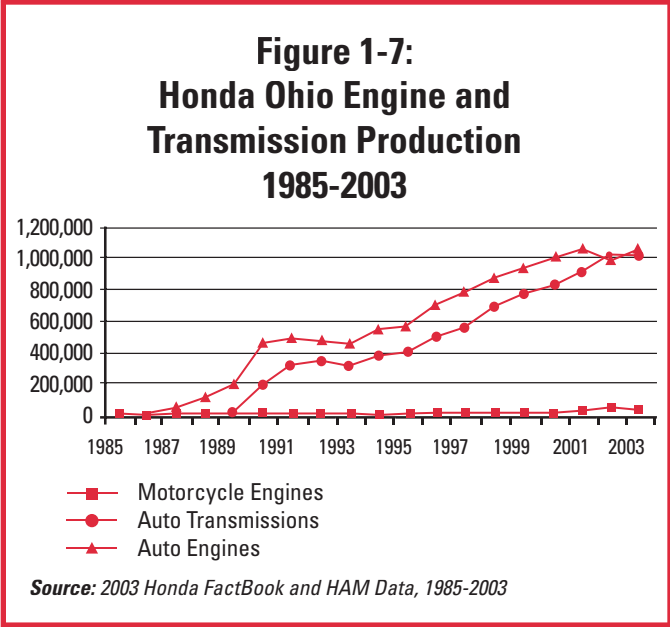
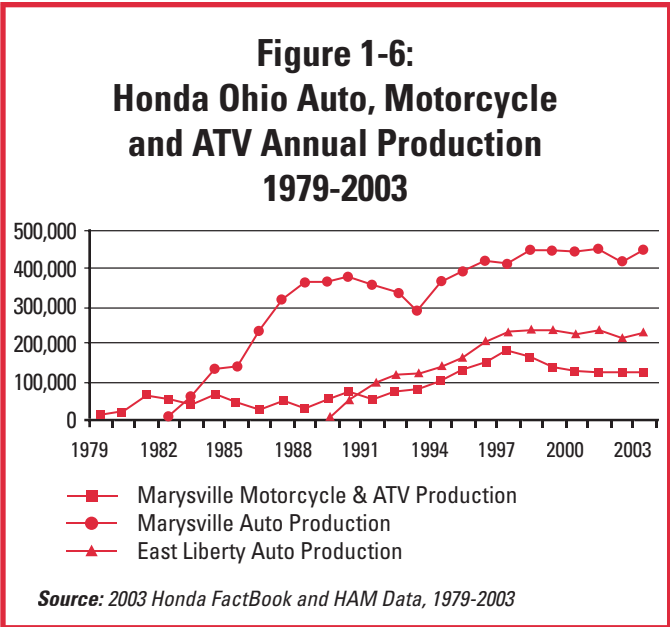
¹⁶ 2,493,723 auto engines and 1,239,299 auto transmissions have been produced in Ohio and sold to other North American manufacturers, including other Honda companies. The market value listed is for these engines and transmissions only.

¹⁷ The value of transmissions sold separately is estimated based on actual figures from 2003.

Figure 1-6 provides a graphic depiction of annual auto, motorcycle and ATV production from 1979 through 2003. Again, as with investment and employment levels, this growth directly reflects the business strategies that Honda employed to expand production. With the exception of a decrease at the Marysville plant during the economic downturn of the early 1990s, auto production has remained stable for more than 15 years. Considering that the auto industry is highly cyclical in nature, the long-term stability of Honda’s production levels is particularly noteworthy. Motorcycle and ATV production have experienced some fluctuations, but also have remained relatively stable.

Figure 1-7 depicts the dramatic escalation in annual auto engine and transmission production in Ohio from 1985 to 2003. The drive train assembly (engine and transmission) is the single highest value component of an automobile. By manufacturing the entire drive train component in Ohio, Honda has established as groundless initial concerns that the Marysville plant would simply be an assembly operation of foreign made components. By 1993, the U.S. parts content of Ohio-built Honda autos had increased from approximately 50 percent to 75 percent. By 2003, North American content exceeded 90 percent.¹⁸

In the early years, on-site engine and drive train manufacturing was essential for Honda to make the transition from an auto assembly plant to a full-scale manufacturing company. Coupled with the establishment of Honda Engineering (EGA) and Honda R&D Americas’ Ohio center (HRA-O), engine production helped set the stage for Ohio to become the North American focal point for Honda’s auto manufacturing, production engineering, purchasing, logistics and quality assurance operations.



¹⁸ Honda of America Mfg. Chronology 1978-1998; related Honda business documents; additional 2003 data provided by HAM. The method most commonly utilized to calculate domestic or local content is that used by the U.S. Environmental Protection Agency to determine corporate average fuel economy.

Figure 1-8 exhibits the number of autos, motorcycles and ATVs, auto engines and automatic transmissions produced for sale by Honda in Ohio in 2003. The number of auto engines and transmissions reflects only those sold to other manufacturers (including Honda plants outside Ohio), not those installed in Ohio-produced vehicles.

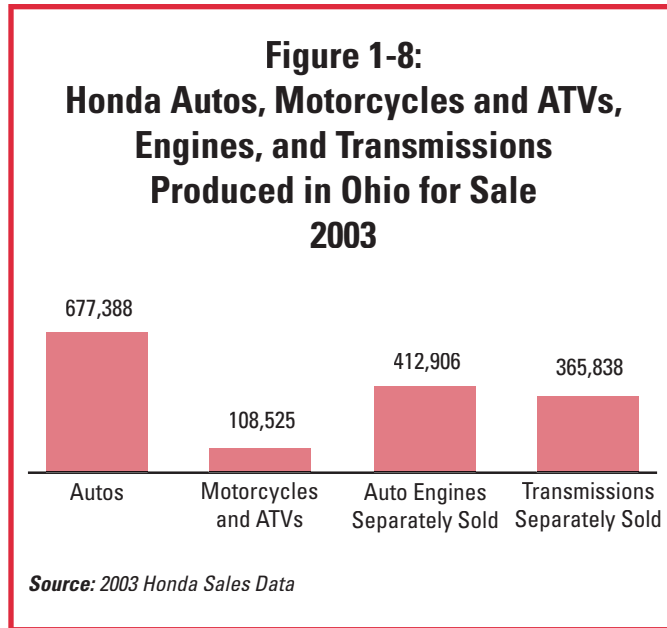


Table 1-4 presents the production figures depicted in Figure 1-8 and also provides the sales value of the autos, motorcycles and ATVs, as well as those engines and transmissions produced for sale to other North American manufacturers, including other Honda companies, in 2003. The total value of all commodities is \$16.7 billion. These 2003 output and sales value figures detailed in Table 1-4 will serve as the basis for the economic multiplier effects calculated in Chapter 3 of this Study.

**Table 1-4:
Vehicle, Engine and Transmission
Production and Value
2003**

Honda Product	Number Produced in Ohio	Total Market Value
Autos	677,388	\$13.9 billion
Motorcycles and ATVs	108,525	\$1.1 billion
Auto Engines	412,906	\$1.3 billion
Transmissions	365,838	\$365 million
Total 2003 Market Value		\$16.7 billion

Source: 2003 HAM FactBook and additional 2003 HAM data

CONCLUSION: HONDA'S DIRECT ECONOMIC IMPACT IN OHIO FROM 1978-2003 IS SUBSTANTIAL

By any measure, the answer to the question "Has Honda made a long-term contribution to Ohio and its economy?" is a resounding "Yes". In terms of investment, employment and wages, and production of output, Honda has made a sustained and steady impact on Ohio since 1978.

Perhaps more notable than the magnitude of Honda's investment, employment and output, however, is the stability of each of these measures in an industry which has historically been known for its cyclical nature. Certainly both the magnitude of Honda's economic impact and the stability of its operations are due, in part, to the company's transition from assembling motor vehicles in Union County to becoming the North American hub of manufacturing, production engineering, research and development, purchasing, logistics and quality assurance.

BOTTOM LINE

The "bottom line" impact of Honda in Ohio may be summarized as:

- Honda has grown from a motorcycle assembly plant to become Honda's North American operations hub.
- Honda is Ohio's top manufacturer of motor vehicles.
- Honda employs more than 16,000 Ohioans, with total wages exceeding \$1.1 billion annually.
- Honda is a top-15 Ohio employer and Central Ohio's largest private employer.
- Honda has never had a layoff.
- Honda has invested \$6.1 billion in Ohio since 1979.
- Honda's investment of \$5.3 billion in manufacturing in Ohio represents more than 80 percent of Honda's total U. S. investment in manufacturing.
- Honda's vehicle, engine and transmission production output in Ohio since 1979 exceeds \$178 billion.
- Honda's vehicle, engine and transmission production output in Ohio in 2003 exceeds \$16 billion.
- Honda has received the Governor's Excellence in Exporting Award 3 times since 1995.

Chapter 2:

Honda's Ohio Suppliers and their Impact on Ohio and its Economy

Chapter 1 of this Study described the direct effects of Honda's operations in Ohio. It showed the magnitude of Honda's manufacturing investment, employment and contribution to the state's productive output. As we continue to explore Honda's economic impact on Ohio, Chapter 2 documents the wider impact of Honda on the Ohio economy by providing a more detailed look at the business opportunities generated by Honda's demand for original equipment parts and raw materials from Ohio suppliers.¹⁹

One of the factors in Honda's decision to locate in Ohio was Ohio's location in the industrial Midwest, including the availability of a motor vehicle parts supply base.²⁰ Ohio is the second leading auto parts manufacturing state in the United States²¹ and the presence of Honda for the past 25 years has directly affected this ranking.



¹⁹ The supplier purchasing data presented in this chapter does not reflect an estimated \$723 million in non-OEM materials and supplies purchased from Ohio companies in 2003.

²⁰ Honda of America Mfg. Chronology, 1978-1998.

²¹ Ohio Department of Development.

In 2002 (the most recent year for which data is available), 154 Ohio companies supplied parts and raw materials to Honda to produce automobiles, motorcycles and power trains in its Ohio and other North American manufacturing facilities. In addition to the demand for business created by Honda's Ohio operations, these suppliers also benefited from the demands of Honda operations in other parts of the United States and Canada. Altogether, these Ohio suppliers produced \$6.8 billion worth of parts and raw materials for Honda's North American operations in 2002. To demonstrate the dramatic increase in Honda's reliance on Ohio suppliers, in-state purchases were only \$100 million in 1985. Thus, the current purchases of \$6.8 billion represent a 6,800% increase during the past two decades.

The impact of Honda's in-state purchases in terms of employment is also significant. Honda's 154 Ohio suppliers employ a total of 40,776 persons. An estimated 18,689 of these workers make products that are directly sold to Honda manufacturing companies in Ohio and throughout North America. The wages paid to these employees, profits earned and the investments made by the suppliers who employ them, and the taxes paid by the suppliers and their employees combine in a third round of extended impacts attributable to Honda's economic presence in Ohio.

In addition to the 154 Ohio companies identified as Honda suppliers, one additional company, Honda Transmission Manufacturing (HTM), plays a unique role both as a participant in the Honda manufacturing system itself and as a participant in the Honda supplier system. The tables in this chapter show HTM's role as a purchaser of parts and raw materials from other suppliers. They do not show HTM's role as a supplier of more than \$1 billion in transmissions to HAM and other Honda manufacturing companies.

INVESTMENT BY HONDA SUPPLIERS

One indicator of the economic impact of Honda's steady increase in reliance on in-state suppliers is the magnitude of investment by these companies. The Ohio Department of Development annually tracks investment by Ohio private businesses. Analysis of this data from 1990-2002 shows that Honda suppliers made investments of over \$1.56 billion to construct new manufacturing facilities or to expand existing facilities. **Table 2-1** summarizes these investments.

The data show that 63 of Honda's suppliers made a total of 120 separate capital investments in Ohio over the 1990-2002 time period. The total investment of \$1.56 billion by Honda's in-state suppliers is more than one quarter of the \$6.087 billion invested by Honda itself in Ohio. Consequently, the total investment by Honda and its first tier suppliers of parts and raw materials is in excess of \$7.648 billion. This total would be even larger if investment data prior to 1990 was available and if investments made by Honda's suppliers of non-manufacturing materials and supplies were included.

**Table 2-1:
Honda Supplier Investment
1990-2002**

Year	Number of Suppliers	Total Investment
1990	2	\$38,200,000
1991	10	\$64,100,000
1992	5	\$22,400,000
1993	14	\$93,710,000
1994 ²²	12	\$159,655,000
1995	16	\$342,356,000
1996	9	\$126,254,000
1997	9	\$79,100,000
1998	13	\$128,425,000
1999	13	\$211,600,000
2000	7	\$136,600,000
2001	3	\$68,000,000
2002	7	\$90,966,000
1990-2002	120	\$1,561,066,000

Source: Ohio Private Investment Survey; 2000, 2001, and 2002, and Ohio Site Selection/Business Expansions & Attractions: 1992-1999, Ohio Department of Development, Office of Strategic Research, Columbus, Ohio. Analysis and calculations made by Levin, Driscoll & Fleeter.

²² The 1994 investment total does not include \$100 million invested by Bellemar Parts Industries which is now Honda Transmission Manufacturing, Inc.

SALES BY HONDA SUPPLIERS

Table 2-2 shows a total of \$6.8 billion in sales by Honda’s 154 Ohio suppliers to Honda’s North American manufacturing companies. The table details the sales by Ohio suppliers to Honda of America Manufacturing (HAM) and Honda Transmission Manufacturing (HTM) both within Ohio, and to other Honda manufacturing companies in North America. Ohio suppliers of parts and raw materials make sales of \$4.8 billion to Honda’s Ohio manufacturing operations (HAM and HTM) and \$2.0 billion to Honda manufacturing companies located in Canada, South Carolina and Alabama.

**Table 2-2:
Total Sales by Honda’s Ohio Suppliers
to Honda Motor Vehicle Manufacturing Companies
2002²³**

Purchaser	Total Sales by Ohio Suppliers
HAM	\$4.7 billion
HTM	\$110 million
Other Honda North American Manufacturing Companies ²⁴	\$2.0 billion
Total	\$6.8 billion

Source: 2002 Supplier Data Collected by Honda

As table 2-2 illustrates, Ohio suppliers benefited not only from Honda’s presence in Ohio but also from demand created by Honda production occurring in Canada, South Carolina and Alabama. Ohio suppliers sold a total of \$2.0 billion in parts and raw materials to Honda manufacturing companies building motor vehicles outside of Ohio. As a result, expansion of Honda production in other states clearly provides economic benefits within Ohio.

LOCATION OF HONDA SUPPLIERS THROUGHOUT OHIO

While Union, Logan and Shelby counties host Honda’s Ohio manufacturing operations, the suppliers for these operations are located throughout the state. The 154 Ohio suppliers of parts and raw materials maintain a presence in 52 of the state’s 88 counties. The largest concentration of suppliers occurs in Franklin County with 19. However, the other major metropolitan counties of the state all provide the site for multiple supplier businesses, including Cuyahoga (10), Montgomery (9), Hamilton (4), Lucas (4), Stark (4) and Summit (3). The map on page 18 indicates the location of Honda’s Ohio suppliers across the state.

²³ These figures do not include \$237 million in sales of replacement vehicle parts by Ohio suppliers to American Honda Motor Company (AHM) or an estimated \$40 million in purchases from Ohio suppliers by Honda Power Equipment Mfg., Inc. (HPE) in North Carolina.

²⁴ These include Honda auto manufacturing plants in Canada, South Carolina and Alabama.

REGIONAL PERSPECTIVE

Table 2-3 provides a regional perspective on the geographical distribution of Honda’s Ohio suppliers’ economic impact. This table categorizes the state’s counties into seven regions. Sales from suppliers appear in summary form in the table based on the regional grouping in which the supplier generated sales. Table 2-3 shows the same total sales of \$6.8 billion as displayed in Table 2-2.

**Table 2-3:
Sales from Honda’s Ohio Suppliers
to Honda Motor Vehicle Manufacturing Companies
by Geographic Region of Ohio
2002**

Region	# of Suppliers	Sales to HAM	Sales to HTM	Sales to Other N.A. Honda Companies	Total Annual Sales
Northeast	22	\$92 million	\$0.4 million	\$67 million	\$159 million
North Central	21	\$808 million	\$34 million	\$235 million	\$1,077 million
Northwest	25	\$647 million	\$16 million	\$330 million	\$993 million
Central	40	\$1,443 million	\$7 million	\$613 million	\$2,063 million
West	28	\$1,176 million	\$8 million	\$519 million	\$1,703 million
Southwest	15	\$497 million	\$41 million	\$198 million	\$736 million
Southeast	3	\$50 million	\$3.6 million	\$20 million	\$74 million
State Total	154	\$4.7 billion	\$110 million	\$2.0 billion	\$6.8 billion

Source: Honda 2002 Supplier Data

Table 2-3 also shows that two regions (Central and West) account for more than half of the sales by suppliers to Honda manufacturing operations in Ohio and elsewhere. The Central and West regions include Logan, Shelby and Union Counties, the three counties in which HAM’s manufacturing plants are located. The appendix to this Study contains a complete description of the state’s counties by regional groups.

Figure 2-1 graphically shows the regional distribution of Honda supplier’s sales activity.



HONDA'S IMPACT ON SUPPLIER EMPLOYMENT

In addition to the investment and sales impact already discussed in this chapter, Honda's in-state suppliers have also had a significant impact on employment throughout Ohio. Cumulatively, Honda's 154 in-state suppliers employ 40,776 people, which is approximately 2.5 times the number of workers employed by Honda. Of this total at least 18,689 can attribute their employment directly to Honda's demand for parts and raw materials from its Ohio suppliers. 14,448 of these workers are production employees and 4,241 are non-production employees.

This estimate of 18,689 is based on a conservative approach that assumes that for each supplier the percentage of employees engaged in meeting Honda's manufacturing demands is approximately proportionate to the percentage of the supplier's total sales attributable to its sales to Honda. For example, if a business has 100 employees and Honda purchases 25% of that company's total sales, then the estimate assumes that 25 of the supplier's employees account for the production associated with sales to Honda.²⁵ **Table 2-4** shows the regional employment impact of Honda's in-state supplier network by computing subtotals according to the suppliers' places of business.

**Table 2-4:
Total & Directly Attributable Employment
of Honda's Ohio Suppliers to Honda Motor Vehicle Manufacturing Companies
by Geographic Region of Ohio
2002**

Region	# of Suppliers	Total Production Employees	Total Other Employees	Percentage of Sales to Honda	Production Employees Directly Attributable to Honda	Other Employees Directly Attributable to Honda
Northeast	22	5,076	2,174	6%	340	75
North Central	21	6,150	1,606	44%	2,637	754
Northwest	25	4,823	1,473	48%	2,384	612
Central	40	5,256	1,749	68%	3,638	1,093
West	28	5,626	1,478	60%	3,407	877
Southwest	15	3,307	1,275	56%	1,835	733
Southeast	3	511	272	39%	206	99
State Total	154	30,749	10,027	46%	14,448	4,241

Source: Calculations made by Levin, Driscoll & Fleeter based on Honda's 2002 Supplier Data

As in the case of Table 2-3's regional summary of sales by Honda suppliers, the Central and West regions of the state benefit the most from employment created by purchases from Honda manufacturing companies. However, even in the Southeast, where Honda has the least impact, Honda suppliers account for nearly 800 jobs. As a share of these suppliers' operations, sales to Honda provide jobs for an estimated 300 employees.

²⁵ The estimates of supply chain employment attributable to Honda are believed to be conservative for two reasons. First, 43 of the suppliers report a sales share attributable to Honda as greater than 50%. For these suppliers it is arguable that they would not exist in Ohio in the absence of Honda's demand for their products. In this sense, all of their Ohio employment is indirectly due to Honda's presence, though only a fraction proportionate to their Honda sales share is included here. Second, some evidence suggests that some of the suppliers have reported their sales share as HAM sales only, instead of sales to all Honda companies in North America. To the extent that this occurred, the employment estimates attributed to Honda are underestimates because they reflect only sales to HAM, rather than to all Honda companies. To the extent that both of these suppositions are correct, Honda's effect on job creation through its supplier network would amount to more than the 18,689 jobs estimated here. Overall, the 154 suppliers have attributed 46% of their total sales to Honda.

WAGES EARNED AND INCOME TAXES PAID BY EMPLOYEES OF HONDA'S OHIO SUPPLIERS

Based on our estimates of production and non-production employment by Honda suppliers, it is also possible to estimate the wages earned and income taxes paid as a result of Honda's extensive reliance on Ohio suppliers. Because our employment estimates were computed in a conservative fashion, the earnings and tax estimates will also be conservative.

The United State Department of Labor, Bureau of Labor Statistics (BLS), reports that the mean annual wages for Ohio production workers in 2002 equaled \$30,270.²⁶ Office and administrative support staff earned mean annual wages of \$26,830 according to the same source. For purposes of the estimates that follow, the office and administrative support staff category appeared to offer the best approximation of average wages earned by the suppliers' non-production employees. For suppliers' production employees, the estimates used the same average annual wages as reported by BLS for production workers.

Table 2-5 shows an estimate of the total wages earned by workers at Honda's Ohio suppliers, and the total wages earned by that proportion of those workers who can attribute their jobs to Honda-related business, i.e., purchases by Honda from these suppliers. The table shows that the employees of Honda's suppliers earned a total of almost \$1.2 billion in estimated 2002 wages. Approximately \$551 million of this total can be attributed to the 18,689 employees conservatively estimated to work directly in the supply of parts and raw materials to Honda.

Table 2-6 shows an estimate of income taxes paid by the employees of Honda's Ohio suppliers. Data reported by the Ohio Department of Taxation indicate that the average effective tax rate on incomes within the ranges shown for suppliers' employees equaled 2.19% in tax year 2000.²⁷ Table 2-5 uses that effective rate to estimate that the suppliers' employees pay approximately \$26 million in State personal income taxes of which about \$12 million can be attributed to Honda-related business.

**Table 2-5:
Estimated Wages Earned by
Honda's Ohio Suppliers' Employees
2002**

	Supplier Employees	Supplier Employees' Annual Wages
Total	40,776	\$1,199 million
Honda Share	18,689	\$551 million

Source: Calculations made by Levin, Driscoll & Fleeter based on data from the U.S. Bureau of Labor Statistics

**Table 2-6:
Estimated State & Municipal Income Taxes Paid
by Honda's Ohio Suppliers' Employees
2002**

	State Income Tax	City Income Tax	Total Income Tax
Total	\$26.3 million	\$12.0 million	\$38.3 million
Honda Share	\$12.1 million	\$5.5 million	\$17.6 million

Source: Calculations made by Levin, Driscoll & Fleeter based on data from the Ohio Department of Taxation

²⁶ This information can be found at the U.S. Department of Labor, Bureau of Labor Statistics website: http://www.bls.gov/oes/2002/oes_oh.htm#b51-0000

²⁷ Ohio Department of Taxation.

To estimate city income taxes, the table used 1% as an average effective tax rate. This estimate probably yields an underestimate of municipal income tax payments by suppliers' employees. While some employees probably live and work in unincorporated areas of the state where no income tax liability would attach to their income, others either live or work in municipal corporations with tax rates in excess of 1%. Most of Ohio's large cities charge income tax rates of 2% or more. These two effects offset one another, and the net outcome probably means that the actual average effective rate on all income of suppliers' employees would equal a rate somewhere between 1% and 2%.

Based on these conservative estimates, the suppliers' employees pay total State and municipal income taxes of \$38 million of which about \$17.5 million can be attributed to Honda-related business. It is likely that the suppliers' employees also pay a small amount of school district income taxes, but no method exists to produce a reliable estimate, and such taxes apply so unevenly throughout the State that the addition of school district income taxes to the totals in Table 2-6 would not change the magnitude of the results shown there.

CONCLUSION: HONDA'S SECONDARY ECONOMIC IMPACT IN OHIO REFLECTS A STRONG NETWORK OF OHIO SUPPLIER COMPANIES

In addition to the direct impact of Honda discussed in Chapter 1, the decision by Honda to locate in Ohio has benefited the state through its effects on the supply chain of parts and raw materials required for the manufacture of motor vehicles.²⁸

By any measure, this secondary impact of Honda, by virtue of its business relationships with Ohio suppliers, has been significant. In terms of sales to Honda in Ohio and its North American manufacturing affiliates, employment, salaries and taxes paid by supplier employees, the presence of Honda has been an economic boon to the State of Ohio.

BOTTOM LINE

This secondary "bottom line" impact of Honda may be summarized as:

- Honda has played a significant role in making Ohio the second leading producer of auto parts in the U.S.
- Honda purchases \$6.8 billion annually from Ohio suppliers.
- \$2.0 billion of the \$6.8 billion in purchases from Ohio suppliers is made by Honda companies located outside of Ohio, indicating that Ohio benefits economically when Honda increases production outside of the state.
- Honda has 154 active Ohio parts and materials suppliers as of 2002.
- Honda suppliers are located in 52 of the state's 88 counties.
- Honda suppliers made investments in excess of \$1.56 billion in Ohio between 1990 and 2002.
- These suppliers employ a total of 40,776 associates, nearly half of whom are directly involved in manufacturing for Honda.
- These suppliers pay total wages estimated at \$1.2 billion annually with approximately \$550 million paid to employees directly involved in manufacturing for Honda.
- These workers pay an estimated \$38.3 million in state and local income taxes annually, \$17.6 million of which are paid by employees directly involved in manufacturing for Honda.

²⁸ One additional effect is the transfer of technology from Honda to its suppliers throughout the state. While this effect is thought to be significant, it was beyond the scope of this Study.

Chapter 3:

Economic Multiplier Effects of Honda in Ohio

THE ROLE OF ECONOMIC MULTIPLIERS

While the focus of the first two chapters of this Study was on the direct impact of Honda and the indirect impact of Honda's suppliers on Ohio's economy, the full economic impact extends far beyond these two components. When Honda and its suppliers create jobs and pay wages and salaries, much of this income is spent and respent on goods and services produced in the local and regional economy where they are located. This spending (often termed "induced" impact by economists) in turn creates additional jobs in the sectors where the employees spend their earnings. In addition, Honda's suppliers have their own suppliers. These second tier suppliers hire employees who themselves purchase goods and services creating multiple ripple effects throughout the local and regional economy where they are located.

These economic effects are often referred to as "multiplier" effects. In other words, any new dollar that is spent will have multiple economic effects throughout the local and regional economy as it leads to new jobs, which through typical economic inter-relationships then lead to other jobs. In addition, these supply-side effects are supplemented by demand-side effects, as the initial dollar is spent over and over again by these new employees as they consume household goods and services, thus broadening the economic impact across a whole range of industries that may have nothing to do with the industry where the initial dollar was spent.

The above multiplier process can be summarized by breaking the economic impact into three components:

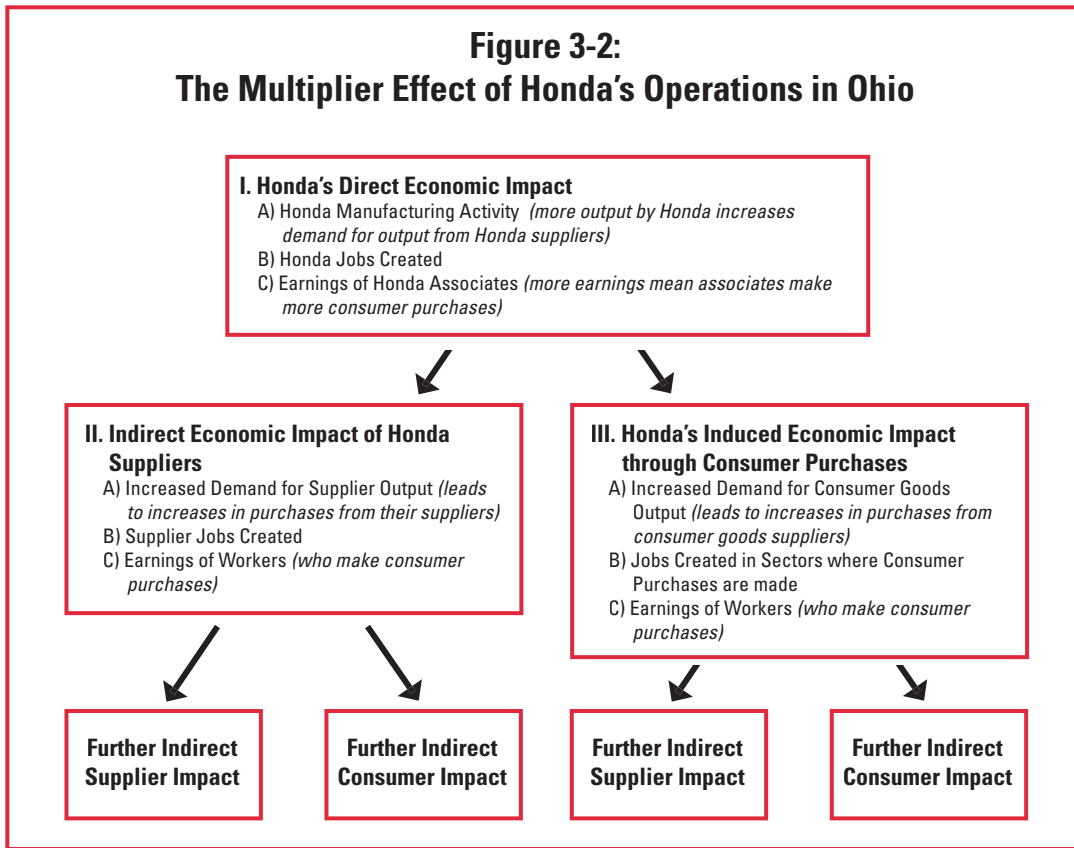
1. Direct Economic Impact – The expenditures, jobs and income created directly by Honda's operations in Ohio (discussed in Chapter 1 of this Study)
2. Indirect Supply-side Economic Impact – The economic ripple effects on industries related to Honda as a result of Honda's expenditures (the first stage of which is discussed in Chapter 2 of this Study)
3. Induced Demand-side Economic Impact – The broad economic impact from increased consumption by Honda associates and employees in related industries

Adding components 2 and 3 together will fully capture the multiplier impact of the initial spending (component 1). Then adding this multiplier impact (components 2 and 3) to the initial direct spending (component 1) provides a comprehensive estimate of the total economic impact of any new public or private sector investment. **Figures 3-1 and 3-2** illustrate this point:

Figure 3-1:
Honda's Total Economic Impact

$$\text{Honda's Direct Economic Impact} + \left(\text{Honda's Indirect Supply-side Impact} + \text{Honda's Induced Demand-side Impact} \right) = \text{Honda's Total Economic Impact}$$

**Figure 3-2:
The Multiplier Effect of Honda's Operations in Ohio**



U.S. BUREAU OF ECONOMIC ANALYSIS RIMS II MULTIPLIERS

While in theory estimating the total economic impact is literally as easy as 1+2+3, the complexity of our economy makes it necessary for economists to rely upon sophisticated multiplier models to provide valid comprehensive estimates of the indirect and induced effects.

The most widely used multiplier model is one developed by the Regional Economic Analysis Division of the Bureau of Economic Analysis (BEA). BEA is part of the U.S. Department of Commerce. BEA first developed a method of estimating economic multipliers in the 1970s (commonly known as "RIMS") and enhanced this method in the 1980s. The enhanced method is known as "RIMS II" (Regional Input-Output Modeling System), and is based on an accounting framework known as an Input-Output (I-O) table.

An input-output table shows the distribution of inputs bought and sold by particular industries which allows economists to quantify the extent to which different industries interact with one another. BEA develops national I-O tables for nearly 500 industries. BEA then adjusts these national I-O tables for regional differences to arrive at a matrix of economic multipliers in a region of the user's choosing. Regions can be defined as narrowly as a single county. BEA updates the underlying I-O tables at periodic intervals. The current set of BEA multipliers is based on Input-Output data from 1999, with regional adjustments based on 2000 data.²⁹

²⁹ A brief summary of RIMS II prepared by BEA is attached to this report in Appendix II. More detailed information about RIMS II can be found on the internet at the BEA website: <http://www.bea.gov>

BEA RIMS II multipliers can be used to estimate total economic impact along three different dimensions:

1. Total Output Effects
2. Total Earnings Effects
3. Total Employment Effects

Each of these three measures includes the direct, indirect and induced effects of Honda's economic activity in Ohio; however, the indirect and induced effects are not disaggregated from one another.³⁰

CHOICE OF THE ECONOMIC REGION FOR ESTIMATING HONDA'S ECONOMIC IMPACT

Before any multiplier estimates can be computed, users of the RIMS II must first specify a region of analysis so that BEA can compute customized multipliers. The region should correspond as closely as possible to the economic area where the majority of the economic impact from the project under study is expected to be. It is then necessary to provide initial annual data on the direct effects of the investment under study. The more detailed the data on the direct effects is, the more precise the multiplier estimates will be.

Therefore, the first decision made in the course of estimating the total economic impact of Honda in Ohio was the choice of economic region. One choice is to use the entire state of Ohio as the region. This would be consistent with the view that Honda purchases inputs from companies in 52 of the state's 88 counties and also from the perspective that the State of Ohio granted a series of development incentives to Honda during the years 1977-1990 (see Chapter 4 of this Study for a more detailed discussion of these incentives).

An alternate approach to specifying the region is to utilize the 15 county primary hiring area that Honda has had in place for the last 15 years.³¹ The authors decided to specify the 15 county area rather than the entire State of Ohio as the region of analysis in this Study for four reasons:

1. The vast majority of Honda's associates live in this 15 county area.
2. Analysis of the supplier data discussed in Chapter 2 shows that over 60% of HAM and HTM purchases from Ohio suppliers are from suppliers located in one of these 15 counties.
3. The dominance of Honda as an automaker in the 15 county region selected means that the BEA multipliers are based more specifically on Honda's economic activity rather than that of other auto manufacturers in Ohio.³²
4. As the geographic region gets larger, the economic multipliers increase as well. Using the 15 county area rather than the entire state of Ohio as the region of analysis will provide a more conservative estimate that does not overstate the total economic impact of Honda's presence in Ohio.

³⁰ Total output effects are estimated by using a "final-demand" output multiplier based on the annual value of the output produced by the industry in question for the year under study. Total earnings and total employment effects can each be estimated either by using final-demand output or by using "direct effects" multipliers based on total earnings and the number of jobs directly provided in the industry. The direct effects approach is considered to be more accurate and was utilized here. For a more detailed explanation of the multiplier analysis see Appendix 3.

³¹ The 15 counties are: Allen, Auglaize, Champaign, Clark, Darke, Delaware, Franklin, Hardin, Logan, Madison, Marion, Mercer, Miami, Shelby and Union.

³² A more detailed discussion of the choice of region is provided in Appendix 3. It is also worth noting that the selection of the 15 county area as the region was deemed appropriate by BEA staff for the four reasons listed above.

HONDA IN OHIO 2003 ECONOMIC MULTIPLIER ANALYSIS

This section outlines the results of our analysis of the multiplier effects of Honda's operations on Ohio's economy during 2003 and includes assessments of the 1) total economic output, 2) total employment and 3) total earnings.

1. 2003 Total Output Multiplier Effects

The total output multiplier effects resulting from Honda's \$17.1 billion of output produced in Ohio in 2003 are summarized in **Table 3-1**.³³ **As a result of Honda's \$17.1 billion of output, Ohio's total output is increased to \$36 billion in 2003.**

The figures in Table 3-1 demonstrate that each \$1 dollar in output produced in 2003 by Honda results in \$2.1 total dollars in output produced in Ohio. Because the total dollar figure includes the original dollar in output produced directly by Honda, this result also can be interpreted to mean that **each \$1 dollar in output produced by Honda results in an additional \$1.1 dollars in output generated across the rest of the state of Ohio.**

**Table 3-1:
Honda Total Output
Multiplier Effects
2003**

Honda Ohio Output Impact Measure	2003 Output
Honda Direct Value of Output	\$17.1 billion
Honda Indirect and Induced Value of Output	\$18.9 billion
Honda Total Economic Impact on Output in Ohio	\$36.0 billion
Honda Final-Demand Total Output Multiplier	2.1

Source: RIMS II Calculations by Levin, Driscoll & Fleeter

2. 2003 Total Employment Multiplier Effects

The total employment multiplier effects resulting from Honda's 16,049 direct jobs provided in 2003 are summarized in **Table 3-2**.³⁴ **Based on the multiplier effect, Honda's 16,049 direct jobs result in a total Ohio employment impact of 128,406 jobs.**

The employment multiplier effects shown in Table 3-2 show that for each job created by Honda in 2003 a total of 8 jobs is created across the state of Ohio. Said another way, **each job created by Honda in Ohio results in 7 additional jobs** created through indirect and induced economic multiplier effects. The 112,357 additional jobs created indirectly in Ohio as a result of Honda's presence includes the estimated 18,689 supplier jobs that were discussed in Chapter 2.

**Table 3-2:
Honda Total Employment
Multiplier Effects
2003**

Honda Ohio Employment Impact Measure	2003 Employment
Honda Direct Employment	16,049
Honda Indirect and Induced Employment	112,357
Honda Total Employment Impact in Ohio	128,406
Honda Final-Demand Total Employment Multiplier	8.0

Source: RIMS II Calculations by Levin, Driscoll & Fleeter

³³ Calculation of the total output multiplier effect resulting from Honda's business operations in Ohio involves combining the value of Honda's output in 2003 with the final demand multiplier for each specific aspect of Honda's production process. Table 1-4 in Chapter 1 reported that the value of HAM and HTM output produced in 2003 was \$16.7 billion. When 2003 EGA sales of \$125 million to producers other than HAM and \$237 million in service parts purchases by AHM from Ohio-based suppliers are considered, the total value of Honda output in Ohio in 2003 increases to \$17.1 billion.

³⁴ Calculation of the employment multiplier effect is based on the number of jobs created by Honda in 2003 and application of the "direct-effect" employment multiplier from BEA. Figures 1-4 and 1-5 in Chapter 1 show that Honda directly employed 16,049 workers in 2003.

3. 2003 Total Earnings Multiplier Effects

Table 1-2 in Chapter 1 shows that Honda paid its Ohio-based associates \$1.13 billion in wages and salaries in 2003. The total earnings multiplier effects deriving from Honda's \$1.13 billion in wages and salaries directly paid to its associates in 2003 are summarized in **Table 3-3**.³⁵ **Based on the multiplier effect, Honda's \$1.13 billion in wages results in a total Ohio earnings impact of \$4.85 billion.**

The employment multiplier effects in Table 3-3 show that each dollar in earnings paid by Honda in Ohio in 2003 resulted in a total of \$4.3 dollars in earnings generated across the state. Put differently, **each \$1 dollar in Honda earnings led to an additional \$3.3 dollars in earnings through indirect and induced multiplier effects.** The \$3.72 billion in additional earnings created indirectly in Ohio as a result of Honda's presence includes the estimated \$551 million in earnings by employees of Honda's in-state suppliers that were discussed in Chapter 2.

Honda Ohio Earnings Impact	2003 Wages & Salaries Paid
Honda Direct Earnings Paid	\$1.13 billion
Honda Indirect and Induced Earnings	\$3.72 billion
Honda Total Earnings Impact in Ohio	\$4.85 billion
Honda Direct Effect Earnings Multiplier	4.3

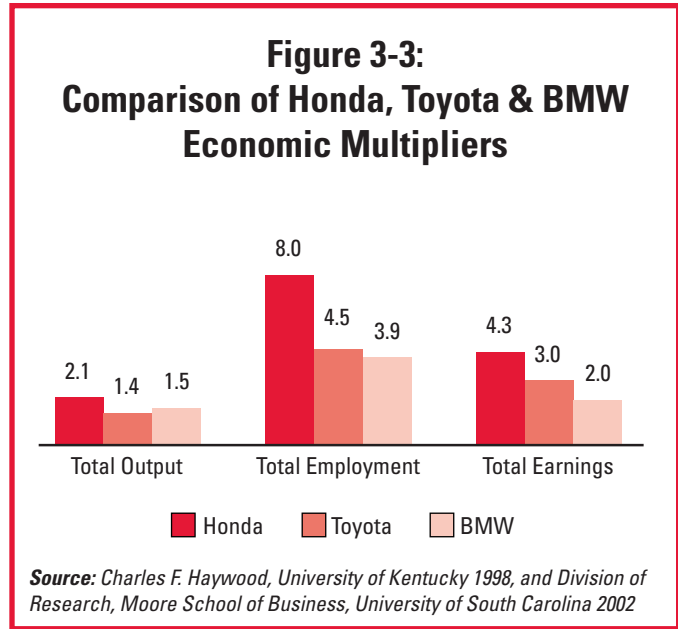
Source: RIMS II Calculations by Levin, Driscoll & Fleeter

³⁵ Calculation of the economic impact of Honda in Ohio in terms of earnings is done by combining the direct earnings of Honda associates with the indirect and induced earnings effects found by applying the "direct-effects" earnings multipliers. These figures do not include the value of benefits paid to Honda associates because they are non-cash and do not cycle through the economy in the same manner as do earnings.

COMPARISON OF HONDA MULTIPLIER EFFECTS WITH OTHER AUTO STUDIES

The findings in Tables 3-1, 3-2 and 3-3 conclusively demonstrate the large positive economic impact that Honda has had in Ohio on the state’s economic output, employment and earnings. By way of comparison, the multiplier effects calculated found here are far larger than those found in similar studies of other auto manufacturing operations in other states. Recent studies of Toyota’s Georgetown, Kentucky manufacturing plant and BMW’s Spartanburg, South Carolina manufacturing plant found total output, total employment, and total earnings multipliers that were all lower than comparable numbers for Honda in Ohio.³⁶ Both the Toyota and BMW studies use methodologies substantially similar to the approach taken here.

Figure 3-3 provides a graphic comparison of the Honda, Toyota and BMW economic multipliers.



There are three primary reasons why the Honda multiplier effects found here are more robust than those found in the Toyota and BMW studies.

First, Honda’s great reliance on in-state purchase of parts and raw materials (detailed in Chapter 2) is the primary explanation for the relatively large multiplier impact found here. Honda has a network that includes 154 Ohio suppliers as of 2002. In comparison, Toyota had 55 in-state suppliers in 1997 and BMW had 33 in-state suppliers in 2001. Roughly 65% of HAM’s purchases of parts and raw materials were from Ohio suppliers, which contributes significantly to the large ripple effects throughout the state’s economy indicated by the output, employment and earnings multipliers.

Second, the scope of Honda’s operations in Ohio is far beyond that of Toyota in Kentucky and BMW in South Carolina.³⁷ Honda’s activities in Ohio extend beyond motor vehicle manufacture to include engine and transmission production for other Honda companies, production engineering, research and development, purchasing, logistics and quality assurance. In this regard, Honda’s Ohio operations have a broader range of impact on the state’s economy in comparison with other automakers whose responsibilities and economic effects are limited primarily to the building of cars.

³⁶ See “A Report on the Significance of Toyota Motor Manufacturing, Kentucky, Inc. to the Kentucky Economy”, by Charles F. Haywood, Gatton College of Business and Economics, University of Kentucky, October 1998 and “The Economic Impact of BMW on South Carolina”, by the Division of Research, Moore School of Business, University of South Carolina, May 2002.

³⁷ In addition to motorcycles and ATVs, Honda produces the Accord, Civic, Element and the Acura TL in Ohio. Toyota produces the Camry, Avalon, and Sienna minivan in Kentucky. BMW produces the Z3 roadster, M-series roadster and coupes and the X5 SUV in South Carolina.

Finally, Honda's longevity as an automaker in the United States also contributes to the relatively large multiplier impact on the Ohio economy. Because Honda has been in Ohio for 25 years, it is currently more firmly integrated in the state's economy than was the case 10 or 15 years ago. The expansion of in-state purchases from \$100 million in 1985 to \$2.5 billion in 1995 to the current level of \$6.8 billion demonstrates the extent to which Honda has become a steadily larger factor in Ohio's economy. In contrast, both the Toyota and BMW studies have analyzed the impact of these automakers on the Kentucky and South Carolina economies after only approximately 10 years.

CONCLUSION: THE TOTAL ECONOMIC IMPACT OF HONDA IN OHIO – A POWERFUL ECONOMIC ENGINE

Chapter 1 of this Study documented the direct impact of Honda on Ohio's economy in terms of investment, employment, salaries and production of output. Chapter 2 of this Study provided insight into the secondary economic effects of Honda in Ohio by detailing both investment by in-state suppliers as well as the value of parts and raw materials purchases from Ohio suppliers and the resultant impact on supplier employment and wages paid to workers. This chapter has used standard economic multiplier analysis to compute the total impact of Honda on Ohio's economy in terms of output, employment and earnings.

By any of these measures, Honda has proven to be a powerful engine driving the economy in Ohio forward. In 2003, Honda's presence in Ohio has increased output in the state by over \$36 billion and led to the employment of nearly 130,000 workers who collectively earn \$4.85 billion. As Honda's output level has expanded over time, so has the number of jobs created. As the number of jobs has increased, more income has been generated within the state, which can be spent on all manner of consumer goods. This in turn creates additional new jobs, necessary to meet the increased consumer demand brought by higher earnings. These new jobs then create their round of spending impact and the multiplier cycle continues.

BOTTOM LINE

The "bottom line" on Honda's total economic impact in Ohio may be summarized as:

- For each \$1 in output Honda produced in 2003 it generated an additional \$1.1 dollars statewide creating a total Ohio output multiplier of 2.1.
- As a result of the output multiplier of 2.1, Honda's 2003 total output of \$17.1 billion increases total output in Ohio to \$36.0 billion.
- For each of the 16,049 jobs Honda directly provided in 2003, another seven jobs were generated statewide for a total Ohio employment impact of 128,406 jobs (and a total employment multiplier of 8.0).
- For each \$1 Honda paid in wages during 2003, another \$3.3 in earnings was generated in Ohio, creating a total earnings multiplier of 4.3.
- Honda's \$1.13 billion in wages and salaries paid to its associates in 2003 results in a total Ohio earnings impact of \$4.85 billion.
- As a result of Honda's long tenure in Ohio, the comprehensive scope of its operations in the state, and the large reliance on Ohio suppliers of parts and raw materials, the economic multiplier effects found here are significantly larger than those found by other comparable studies of other automakers.

Chapter 4:

Honda's Fiscal Benefits to Ohio

Chapter 4 will address the final question raised in our Prologue: was the State's investment of taxpayer dollars to assist Honda in locating and expanding its principal operations in Ohio sound?

To answer that question, our analysis, rather than relying on estimates of fiscal benefits as was required in a 1993 research study of Honda's economic impact,³⁸ uses actual data from Honda's financial records over a twenty-five year period to measure the net contributions of the company's presence in Ohio. We also used a three-part "cost-benefit" comparison analysis:

1. The first part of the analysis accounts for the "fiscal costs" of the direct incentives provided to Honda, using information from the Ohio Department of Development.
2. The second part uses Honda's 2003 financial records to show the actual amount of tax payments to Ohio from Honda and its associates during the past quarter-century. These are the "fiscal benefits" of Honda's presence in Ohio.
3. The third part of the analysis brings the fiscal costs and benefits together to measure the "net fiscal benefits" of Honda's operations in Ohio over twenty-five years.

Finally, this chapter also contains data and analysis of Honda's fiscal impact on individual municipalities and school districts that receive local income taxes paid by Honda associates. The cities, villages and school districts that receive these revenues are spread across a wide swath of Ohio.

MEASURING THE COSTS: DIRECT GOVERNMENT INCENTIVES TO HONDA

The State of Ohio invested \$26.9 million in direct assistance to Honda to secure the company's initial investment and subsequent plant expansions in Ohio. In examining the "state-financed economic incentives" Ohio has provided to Honda, it is essential to understand not just the dollar amount of the incentives, but also why they were important and how they were used.

In general, the purpose of the economic incentives was to provide the governmental infrastructure necessary for the development and growth of a major manufacturing complex in a rural area of the state and to reduce the burden on smaller local communities to pay for such infrastructure. For example, much of the initial \$3.6 million in inducement grants for the motorcycle plant was used to extend a local wastewater line to the plant site and make similar local investments. Without such assistance, the burden to pay for necessary water and sewer facilities would have fallen on local governments less able financially to deal with such large-scale water and sewer needs.

Ohio provided a total of \$26.9 million in direct government incentives to Honda, as shown in detail in **Table 4-1** below. All of these incentives were provided in the period from 1977 to 1988, which marked the construction of the Marysville Motorcycle Plant, the Marysville and East Liberty Automobile Plants, the Anna Engine Plant, and related expansions to each of these facilities.

³⁸ "The Economic Impact of Development: Honda in Ohio," published in the Economic Development Quarterly by William Shkurti and Mary Marvel, 1993.

Of the \$26.9 million total, state government provided \$24.9 million, composed of \$22 million in inducement grants and \$2.9 million in job training assistance. The city of Marysville provided the remaining \$2 million in local funds for sewer and water expansion to match a \$6 million federal grant. A small portion of the \$26.9 million of government incentives shown in **Table 4-1** represents dollars expended for highway upgrades for township roads near Honda facilities.

Table 4-1:
Direct Governmental Incentives to Honda
1977-1988
Dollars in Millions

Plant (Year Announced)	Inducement Grants	Job Training	Total
Motorcycle Plant (1977)	\$3.6		\$3.6
Marysville Auto Plant (1980)	\$3.7 ³⁹		\$3.7
Auto & Motorcycle Plant Expansion (1984)		\$0.2	\$0.2
Marysville Auto Plant – Plastics Operations (1984)	\$1.5		\$1.5
Anna Engine Plant (1984)	\$1.0		\$1.0
Anna Engine Plant Expansion (1987)	\$3.2	\$0.5	\$3.7
East Liberty Auto Plant (1988)	\$11.0	\$2.2	\$13.2
Direct Incentive Totals	\$24.0	\$2.9	\$26.9

Source: Ohio Department of Development

In addition to the \$26.9 million in direct government incentives to Honda, \$64.4 million in state highway funding from 1987-1994 for the widening of U.S. Route 33 between Marysville and Bellefontaine has been closely associated with the location and expansion of Honda’s activities in central Ohio. While this highway expansion has been clearly advantageous to many Honda associates in their daily commute and to the company and its suppliers in the transportation of products and production materials, it has also served as a major benefit to the general public and other businesses in the vicinity. While it can be argued that this \$64.4 million was not a direct incentive to Honda, it has been made clear that this project would not have occurred for many years had it not been for the presence of Honda in the area.⁴⁰ Consequently, this Study has chosen to include this expenditure of highway funds as an indirect incentive to Honda. **Table 4-2** provides a summary of the direct and indirect governmental incentives to Honda in Ohio.

Table 4-2:
Direct and Indirect Governmental Incentives to Honda
1977-1994

Grant Category	Time Span	Grant Total
Direct Incentives	1977-1988	\$26.9 million
Indirect Incentives (widening U.S. Route 33) ⁴¹	1987-1994	\$64.4 million
Total Incentives	1977-1994	\$91.3 million

Source: Ohio Department of Development, Ohio Department of Transportation

³⁹ A local appropriation of \$2 million for sewer and water expansion was provided to match a \$6 million federal grant.

⁴⁰ Former Governor Richard Celeste, in an interview on May 5, 2004, stated that the expansion of Route 33 was prioritized more highly (despite a shortage of funds) in order for the state to follow through on earlier commitments made by the predecessor Rhodes Administration to widen Route 33 to facilitate the Honda Marysville operations.

⁴¹ Ohio Department of Development; Ohio Department of Transportation memo.

MEASURING THE BENEFITS: OHIO TAXES PAID BY HONDA AND ITS ASSOCIATES

For studies of this kind, direct information on taxes paid by a company and its employees is rarely, if ever, available. As a proxy, most studies apply an estimated percentage to some measure of a company's output or earnings to produce estimates of tax revenues generated by the firm's economic activity.

An example of this method is the 1998 analysis by Charles Haywood of Toyota's impact on the Kentucky economy, referenced previously in Chapter 3. Haywood estimates the individual income, sales and other state taxes attributable to Toyota's Kentucky presence by applying ratios or "coefficients" to the output and earnings generated by the company. A similar approach to the Kentucky example was used in the 2002 study addressing BMW's economic impact on the State of South Carolina, prepared by the Moore School of Business at the University of South Carolina, also referenced previously in Chapter 3.

In contrast to those two studies and others, the analysis in this chapter is based upon direct information extracted, accumulated and summarized directly from Honda financial records. The only exception is the figures for sales taxes paid by Honda associates, which are obviously not available from the employing company's records. Consequently, the sales tax figures included here were estimated separately.⁴²

The amount of Ohio taxes paid by Honda and its associates for each year from 1979 through 2003 is shown in **Table 4-3**.⁴³ (The 2003 figure is partially estimated since final Honda tax figures are not yet available.) The first column of figures in Table 4-3 shows the company's tax payments in each year, the second column contains income tax amounts paid by Honda associates, the third column is the estimated sales taxes paid by associates, and the fourth column presents the total state and local taxes for each year.

Table 4-3:
Ohio Taxes Paid by Honda and Associates
1979-2003⁴⁴
Dollars in Millions

Year	Honda Taxes	Associates Income Taxes	Estimated Associates Sales Taxes	Total Ohio Taxes
1979	\$0.37	\$0.03	\$0.01	\$0.42
1980	\$0.26	\$0.08	\$0.03	\$0.37
1981	\$0.46	\$0.17	\$0.07	\$0.70
1982	\$3.55	\$0.40	\$0.15	\$4.10
1983	\$2.22	\$1.24	\$0.47	\$3.92
1984	\$3.02	\$2.39	\$0.92	\$6.33
1985	\$5.41	\$3.66	\$1.46	\$10.53
1986	\$6.12	\$5.82	\$2.24	\$14.17
1987	\$9.62	\$6.21	\$2.22	\$18.04
1988	\$14.22	\$9.90	\$3.17	\$27.29
1989	\$12.21	\$13.31	\$4.81	\$30.33
1990	\$25.32	\$19.39	\$6.54	\$51.26
1991	\$17.58	\$21.17	\$7.10	\$45.85
1992	\$17.79	\$22.84	\$7.62	\$48.25
1993	\$18.87	\$22.53	\$7.85	\$49.25
1994	\$17.45	\$24.34	\$8.13	\$49.92
1995	\$17.04	\$28.36	\$9.46	\$54.86
1996	\$26.25	\$31.51	\$10.48	\$68.25
1997	\$30.17	\$37.27	\$12.37	\$79.81
1998	\$34.78	\$39.55	\$13.17	\$87.50
1999	\$29.45	\$40.14	\$13.34	\$82.93
2000	\$23.38	\$40.79	\$13.71	\$79.05
2001	\$24.38	\$43.32	\$14.74	\$81.44
2002	\$24.86	\$50.01	\$17.34	\$92.20
2003	\$30.00	\$52.10	\$18.10	\$100.20
Totals	\$395.07	\$517.53	\$175.50	\$1,087.10

Source: HAM & EGA Financial Data; 2003 figures estimated by Levin, Driscoll & Fleeter

⁴² Sales tax paid by associates is estimated as follows. Starting with wage information, U.S. Bureau of Labor Statistics data is used to determine what portion represents consumer expenditures. Based on previous research by Levin, Driscoll & Fleeter, 38% is then assumed to be expended on taxable purchases. Ohio's state and local sales tax rates were then applied to those figures.

⁴³ The fiscal benefits data utilized in this analysis are for HAM and EGA only. They do not include company or employee tax data for other Honda subsidiaries listed in Chapter 1. Consequently, the fiscal benefits shown here are somewhat understated.

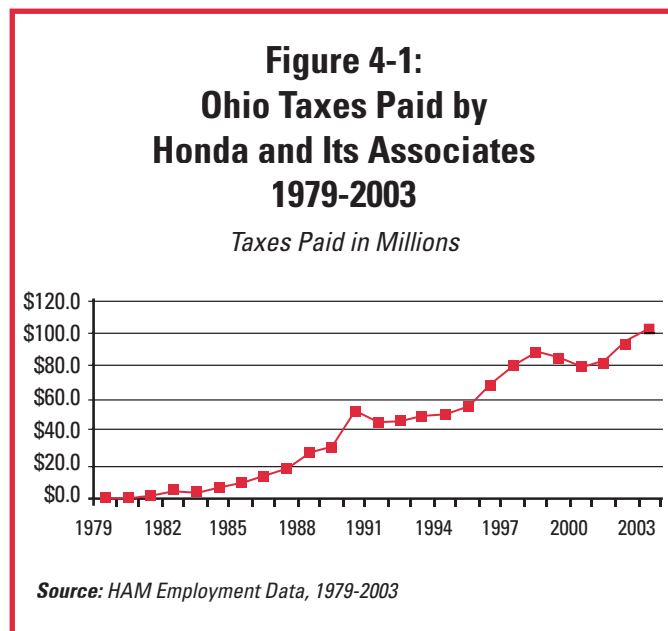
⁴⁴ Honda taxes include real estate and tangible property taxes paid to school districts and local governments, sales taxes on the firm's purchases paid to the state and counties, and state corporation franchise taxes. Associate income taxes include state, municipal, and school district income taxes as withheld and recorded on Honda payroll records. Associate sales taxes were estimated by Levin, Driscoll & Fleeter.

A quick glance down the last column of figures in Table 4-3 reveals how the phenomenal growth of Honda in Ohio since 1979 has produced a correspondingly significant growth in taxes paid to Ohio from Honda and its associates:

- In 1979, the year the first Honda motorcycle made in America rolled off the Marysville assembly line, the company and its associates paid \$0.4 million in taxes to support the State of Ohio and its local governments and schools.
- By 1982, the year Honda Accords were first produced in Marysville, the figure had grown ten-fold, to \$4.0 million.
- In 1985, the year Honda began producing motorcycle engines at the new Anna plant, tax revenues flowing from the company and its associates exceeded the \$10 million mark for the first time.
- In 1992, the year Honda built its two-millionth automobile in Ohio, taxes paid to the state were over \$48 million.
- In 2003, the amount of taxes Honda and its associates contributed to Ohio and its local governments and schools exceeded the \$100 million mark.

Cumulatively, from 1979 through 2003, Honda and its associates have paid over \$1 billion in state and local taxes.

Figure 4-1 provides a graphic representation of the total Ohio taxes paid by Honda and its associates over the years 1979 through 2003 to further illustrate the growth trend in the past quarter-century.



COMPARING THE BENEFITS AND COSTS

By combining the information on the cost of direct and indirect government incentives to Honda contained in Tables 4-1 and 4-2 with the data on the annual tax benefits shown in Table 4-3 it is possible to illustrate Honda’s “net fiscal benefit” to Ohio in its first twenty-five years in this state. This summary is provided in **Table 4-4**.

The second and third columns in the table show the direct and indirect incentives provided to Honda. These are the “costs” incurred by the state. The fourth column shows the amount of taxes paid to Ohio for each year from 1979 through 2003, reflecting the “benefits” received by the State. The difference between the costs and benefits is the “net fiscal benefit,” shown in the fifth and sixth columns. The fifth column shows the net fiscal benefit for each year, while the sixth column shows the cumulative net fiscal benefit for all years up to and including that particular year.

Reading down the right two columns of Table 4-4, it can be seen that the net fiscal benefits accruing to the State of Ohio from Honda’s first twenty-five years have been truly significant. In 2003 alone, Ohio’s net fiscal benefit is \$100.2 million. For the entire 25-year period, Ohio’s net fiscal benefit from HAM and EGA alone is \$996 million.

Table 4-4:
Honda Net Fiscal Benefits to Ohio

Dollars in Millions

Year	Direct Incentive Costs	Indirect Incentive Costs ⁴⁵	Total HAM & EGA Taxes Paid	Net Fiscal Benefit: Annual	Net Fiscal Benefit: Cumulative
1979	\$3.6	\$0	\$0.4	- \$3.2	- \$3.2
1980	\$3.7	\$0	\$0.4	- \$3.3	- \$6.5
1981	\$0	\$0	\$0.7	\$0.7	- \$5.8
1982	\$0	\$0	\$4.1	\$4.1	- \$1.7
1983	\$0	\$0	\$3.9	\$3.9	\$2.2
1984	\$2.7	\$0	\$6.3	\$3.6	\$5.8
1985	\$0	\$0	\$10.5	\$10.5	\$16.3
1986	\$0	\$0	\$14.2	\$14.2	\$30.5
1987	\$3.7	\$8.1	\$18.0	\$6.2	\$36.7
1988	\$13.2	\$8.0	\$27.3	\$6.1	\$42.8
1989	\$0	\$8.1	\$30.3	\$22.2	\$65.0
1990	\$0	\$8.0	\$51.3	\$43.3	\$108.3
1991	\$0	\$8.1	\$45.9	\$37.8	\$146.1
1992	\$0	\$8.0	\$48.3	\$40.3	\$186.4
1993	\$0	\$8.1	\$49.3	\$41.2	\$227.6
1994	\$0	\$8.0	\$49.9	\$41.9	\$269.5
1995	\$0	\$0	\$54.9	\$54.9	\$324.4
1996	\$0	\$0	\$68.3	\$68.3	\$392.7
1997	\$0	\$0	\$79.8	\$79.8	\$472.5
1998	\$0	\$0	\$87.5	\$87.5	\$560.0
1999	\$0	\$0	\$82.9	\$82.9	\$642.9
2000	\$0	\$0	\$79.1	\$79.1	\$722.0
2001	\$0	\$0	\$81.4	\$81.4	\$803.4
2002	\$0	\$0	\$92.2	\$92.2	\$895.6
2003	\$0	\$0	\$100.2	\$100.2	\$995.8
Totals	\$26.9	\$64.4	\$1,087.1	\$995.8	\$995.8

Source: Calculations performed by Levin, Driscoll & Fleeter

⁴⁵ For the purposes of this table it was assumed that the indirect incentives for highway work were expended evenly over the time period detailed in Table 4-2.

When considering the cost-benefit findings contained in Table 4-4 it is imperative to understand that this analysis is predicated upon three assumptions that result in understating the calculated net fiscal benefits of Honda’s first 25 years:

1. Because of *data limitations*, only taxes paid by HAM and EGA and their associates were considered when the benefits of Honda’s location in Ohio were calculated.
2. Again because of *unavailability of data*, taxes paid by Honda’s Ohio suppliers and their employees were not considered. Figures from Table 2-5 show that an estimated \$12.1 million in state income taxes and \$5.5 million in local taxes were paid in 2002 by employees of Honda suppliers as a result of production activities on behalf of Honda.
3. The full \$64.4 million in state costs for the widening of Route 33 were attributed as Honda-related costs, even though it is widely recognized that the highway *serves the general public* in many ways.

Table 4-4 shows that by the third year of vehicle production the net annual benefit to Ohio had already become positive and by the fifth year (1983), the cumulative net fiscal benefit had turned positive. After 1984, the net fiscal benefits to Ohio began a steep climb (even when highway costs are considered) that continues to this day.

BENEFITS PER DOLLAR OF COST

In addition to netting out costs and benefits as was done in Table 4-4, another method researchers employ to compare costs and benefits is a “benefit per dollar of cost” calculation. For Honda in Ohio, the calculation yields the following results:⁴⁶

Ohio’s Benefit Per Dollar of Cost in Honda’s First Twenty-Five Years

$$\frac{\text{Fiscal Benefits}}{\text{Fiscal Costs}} = \frac{\$1,087.1 \text{ million}}{\$26.9 \text{ million}} = \$40 \text{ per } \$1$$

The calculation shows that in Honda’s first twenty-five years, the State of Ohio has received \$40 in benefits for every \$1 of cost based on the state’s direct incentives to Honda. When the state’s indirect incentives are factored into the calculation, the benefit per dollar is \$12 to \$1.

One additional approach that can be used to illustrate how well Ohio has fared from Honda’s operations is to compare the amount the state invested, in terms of fiscal incentives, with the amount that Honda invested. As noted in Chapter 1, Honda’s investment in Ohio now totals \$6,087 million. This means that for each \$1 in incentives received, Honda has directly invested \$67 in the state. If only the \$26.9 million in direct government incentives is considered, then Honda has invested \$226 for every dollar of incentives received from the state.

Because Honda’s payroll records include specific detail of local income taxes withheld for individual local governments, it was possible to add one additional perspective to Honda’s fiscal impact in Ohio. The following section provides that local perspective. It should be noted, however, that the figures contained in the next section are not in addition to amounts discussed in the tables above, but are already included in the aggregate totals. They are shown in their disaggregated form in the following section merely to provide additional information and detail.

⁴⁶ A present value calculation adjusting for the effects of inflation over time would produce a more accurate comparison of the 25 year flow of fiscal benefits and costs, however, it adds complexity while not changing the results substantially. In light of the conservative nature of the benefit and cost figures utilized, such an inflation adjustment is considered unnecessary.

AN OBSERVATION REGARDING THE INTANGIBLE BENEFITS FROM THE OHIO-HONDA PARTNERSHIP

This Study necessarily has focused on data and analysis of facts and figures. These data and the analysis support the Study's findings about the relationship between state financial incentives provided to Honda and Honda's corresponding investment in and benefit to Ohio. In addition to the quantifiable data, the review of company materials covering the history of Honda investment and expansions during the past 25 years has assisted in the preparation of the Study. Finally, comments by present and former Governors have further illuminated the relationship between the State and the company.⁴⁷ Together, these other sources of information create a context for understanding the intangible aspects of the Ohio-Honda Partnership.

Four Administrations have governed Ohio during Honda's 25 years of operations in the State:

- James A. Rhodes: 1979 – 1983
- Richard F. Celeste: 1983 – 1991
- George V. Voinovich: 1991 – 1999
- Bob Taft: 1999 – present

Economic development occurs within a context of personal relationships and decisions. While data can quantify the investments and returns from the relationship between the State of Ohio and Honda, it cannot by itself measure or define the environment within which that profitable relationship evolved. The context created by intangible factors like leadership, mutual trust and commitment became evident in the records of the initial relationship between former Governor Rhodes and Mr. Soichiro Honda and from commentary shared by former Governors Celeste and (now Senator) Voinovich and Governor Taft. These personal observations characterize the Ohio-Honda relationship as a partnership that has become a model both for sustaining long-term relationships and for strategic economic development.

"We celebrate today the culmination of one of the finest industrial projects in the history of America. We are proud that such a great international company has chosen Ohio as its American home. Honda will be a major force behind the continuing economic growth in Ohio in the remainder of the 20th century."

- Former Governor Rhodes, April 1980

"With Honda, it was never about the financial incentives, the focus was on building a long-term relationship and having a dependable partner in the State of Ohio. It was always a conversation between two respected equals and any expectation was mutually met by the company and the state."

- Former Governor Celeste, May 2004

"Honda was one of the companies that was easy to do business with because they were smart, experienced, knew what they wanted and wanted to be a good corporate citizen. They take care of their customers and they take care of their people. I feel good about our work with them because I know their presence is a benefit to the people of Ohio."

- Senator Voinovich, May 2004

"The partnership between Honda and Ohio is a model strategy based on open communication and trust. This partnership, spanning the administrations of four different governors, is the product of 25 years of steady nurturing and has produced a strong and mutually beneficial relationship."

- Governor Taft, June 2004

The creation of an environment of mutual respect and communication has sustained a long-term relationship between Ohio and Honda. This environment not only attracted Honda to Ohio, it also has facilitated additional investment as Honda's suppliers have found the same welcome context for investment.

Honda may have come to Ohio as a "foreign" car company, but today its twenty-five year relationship with the State of Ohio and its economy make the company an integral part of Ohio's future in the global economy.

⁴⁷ Interviews with and input from current and former Ohio Governors.

LOCAL INCOME TAXES PAID BY HONDA ASSOCIATES

Ohio makes extensive use of locally levied income taxes. The state allows both municipalities and school districts to adopt their own income taxes and makes more widespread use of them than all but one or two states. As a result, taxes on the wages and salaries of Honda associates make a significant contribution to the budgetary receipts of a large number of Ohio cities, villages and school districts.

To measure the contribution of Honda associates in income tax revenues of Ohio local governments, information from payroll records was abstracted for 2003. The summarized information is shown in the two tables at the end of this section.

A total of 53 cities and villages extending across 16 different counties receive at least \$3,000 each from local income taxes paid by Honda associates. **Table 4-5** shows these amounts, along with the name of the county where the municipality is located. The cities and villages are shown in the order of the amount that they collect from Honda associates.

The city receiving the single largest amount of income tax revenues from Honda associates is Columbus (Franklin County) with payments over \$1.8 million in 2003 income taxes. Second is Dublin (Franklin County) with collections of almost \$870,000. Marysville (Union County) is next with almost \$602,000 in taxes paid. Nine municipalities spread over seven different counties receive over \$200,000 each from income taxes paid to them by Honda associates.

Although the school district income tax is used less extensively in Ohio than the municipal tax and the rates tend to be lower, 43 school districts extending over 20 counties nevertheless receive at least \$1,000 each through that source from Honda associates. **Table 4-6** shows the amount for each district. Interestingly, West Liberty school district in Champaign County receives the highest amount with \$264,000. Two other school districts, Triad in Champaign County, and North Union in Union County, receive more than \$200,000 each.

**Table 4-5:
Municipal Income Taxes Paid by Honda Associates
2003**

Rank⁴⁸	City or Village	County	Income Tax Paid
1	Columbus	Franklin	\$1,813,881
2	Dublin	Franklin	\$869,878
3	Marysville	Union	\$601,993
4	Bellefontaine	Logan	\$448,485
5	Springfield	Clark	\$416,308
6	Sidney	Shelby	\$349,971
7	Marion	Marion	\$293,818
8	Hilliard	Franklin	\$290,883
9	Delaware	Delaware	\$232,028
10	Urbana	Champaign	\$151,539
11	Troy	Miami	\$135,138
12	Lima	Allen	\$130,969
13	Kenton	Hardin	\$107,091
14	Wapakoneta	Auglaize	\$84,604
15	Piqua	Miami	\$80,376
16	Anna	Shelby	\$77,994
17	Grove City	Franklin	\$68,596
18	St. Marys	Auglaize	\$65,209
19	N. Lewisburg	Champaign	\$62,560
20	Worthington	Franklin	\$46,853
21	Upper Arlington	Franklin	\$44,327
22	Celina	Mercer	\$42,482
23	Westerville	Franklin	\$39,934
24	Minster	Auglaize	\$38,941
25	Jackson Center	Shelby	\$37,300
26	DeGraff	Logan	\$35,870
27	Plain City	Madison	\$34,183
28	Belle Center	Logan	\$31,819
29	Gahanna	Franklin	\$30,434
30	Ft. Loramie	Shelby	\$29,949
31	Powell	Delaware	\$28,591
32	London	Madison	\$27,300
33	Richwood	Union	\$25,881
34	New Bremen	Auglaize	\$25,688
35	Coldwater	Mercer	\$23,549
36	Lakeview	Logan	\$23,154
37	Tipp City	Miami	\$21,082
38	Mechanicsburg	Champaign	\$19,800
39	New Knoxville	Auglaize	\$19,000
40	Delphos	Allen	\$17,201
41	St. Paris	Champaign	\$16,622
42	Botkins	Shelby	\$15,307
43	Huntsville	Logan	\$14,630
44	Reynoldsburg	Franklin	\$14,591
45	St. Henry	Mercer	\$12,743
46	Dayton	Montgomery	\$11,023
47	Ada	Hardin	\$7,899
48	Versailles	Darke	\$7,867
49	Vandalia	Montgomery	\$7,815
50	Huber Heights	Montgomery	\$6,557
51	West Jefferson	Madison	\$6,335
52	Valley Hi	Logan	\$4,709
53	Forest	Hardin	\$3,854

Source: HAM Financial Data

⁴⁸ Rank is based on dollar amount of income tax paid.

**Table 4-6:
School District Income Taxes Paid by Honda Associates
2003**

Rank⁴⁹	School District	County	School Tax Paid
1	West Liberty	Champaign	\$264,468
2	Triad	Champaign	\$236,479
3	North Union	Union	\$222,503
4	Wapakoneta	Auglaize	\$130,043
5	Kenton City	Hardin	\$115,676
6	Buckeye Valley	Delaware	\$104,865
7	Fairbanks	Union	\$96,717
8	Ridgemont	Hardin	\$73,234
9	Riverside	Logan	\$70,789
10	Anna	Shelby	\$67,799
11	Mechanicsburg	Champaign	\$45,936
12	Ft. Loramie	Shelby	\$32,774
13	Hardin-Houston	Shelby	\$28,542
14	Piqua	Miami	\$24,650
15	Spencerville	Allen	\$22,149
16	Goshen	Auglaize	\$20,818
17	Upper Scioto Valley	Hardin	\$20,050
18	Coldwater	Mercer	\$14,048
19	Big Walnut	Delaware	\$11,721
20	Russia	Shelby	\$11,554
21	Hardin Northern	Hardin	\$10,296
22	Fairlawn	Shelby	\$9,087
23	Pickerington	Fairfield	\$7,467
24	Ada Exempted	Hardin	\$6,720
25	W. Jefferson	Madison	\$6,576
26	Parkway	Mercer	\$6,230
27	Ft. Recovery	Mercer	\$5,567
28	Southeastern	Clark	\$5,540
29	Miami East	Miami	\$5,427
30	Bradford Exempt	Miami	\$5,298
31	Riverdale	Hardin	\$4,641
32	Reynoldsburg	Franklin	\$4,537
33	Greenville	Darke	\$4,330
34	Ansonia-Local	Darke	\$4,026
35	Covington	Miami	\$3,493
36	Mississinawa	Darke	\$3,028
37	Upper Sandusky	Wyandot	\$2,870
38	Southwest Licking	Licking	\$2,131
39	Newton Local	Miami	\$2,050
40	Teays Valley	Pickaway	\$1,989
41	Centerburg	Knox	\$1,817
42	Canal Winchester	Franklin	\$1,713
43	Highland Local	Morrow	\$1,013

Source: HAM Financial Data

⁴⁹ Rank is based on dollar amount of school district income tax paid.

CONCLUSION: A SOUND STATE INVESTMENT CONTINUING TO PAY SUBSTANTIAL DIVIDENDS BENEFITING OHIO AND ITS COMMUNITIES

This chapter demonstrates that Ohio made a wise investment in providing fiscal incentives to Honda help induce the company to locate and expand its operations in the state. The analysis shows Honda's fiscal impact on the State of Ohio is overwhelmingly and unambiguously positive.

In addition to the jobs and income that Honda has generated in its first twenty-five years, the company and its associates have provided over a billion dollars in tax revenues to support public services for the State of Ohio and its school districts and local governments. By that and other measures outlined in this chapter, it is clear that the State's relationship with Honda has been, and continues to be, a healthy and growing partnership.

BOTTOM LINE

The "bottom line" on whether Ohio's investment was sound and has paid a return may be summarized as:

- Ohio has realized a significant rate of return on both its \$26.9 million direct investment in Honda and its \$64.4 million indirect investment in the widening of Route 33.
- The cumulative net fiscal benefit from 1979-2003 of Honda's presence in Ohio is conservatively estimated at \$996 million.
- The HAM and EGA subsidiaries of Honda and their associates have paid over \$1 billion in taxes since 1979, and now pay over \$100 million annually.
- For each \$1 the state spent on direct incentives, it has received nearly \$40 in revenue benefits from the HAM and EGA subsidiaries of Honda alone.
- For each \$1 invested by the state in direct incentives, Honda has invested \$226.
- For each \$1 invested by the state in both direct and indirect incentives, Honda has invested \$67.
- 53 cities and 43 school districts benefit from the income tax receipts they receive from Honda and its associates.

Conclusion

HONDA'S LONG-TERM CONTRIBUTION TO OHIO IS MEASURABLE, SUBSTANTIAL AND UNAMBIGUOUSLY BENEFICIAL

Honda Motor Company came to the United States – and Ohio – in 1977 with its announcement of plans to construct a motorcycle assembly plant near Marysville. It began producing motorcycles in 1979 with 64 associates.

As this Study details, today Honda's investment in Ohio approaches \$6.1 billion and its operations employ more than 16,000 Ohioans. The scope of its operations includes full-scale motor vehicle and drive train manufacturing and production engineering, a significant R&D center, and hub operations that lead and support such essential functions as North American procurement, logistics and quality. The economic impact is amply demonstrated in Chapters 1 – 3. Likewise, the return on the investment made by the State of Ohio is made clear in Chapter 4.

This Study began by posing three questions:

- What has been the economic impact of Honda's establishing manufacturing, production engineering, research and development, purchasing and related operations in Ohio?
- Was the investment by the State of Ohio in attracting Honda to locate and grow its principal operations in the state a sound investment?
- Is Honda making a long-term contribution to Ohio and its economy?

By any and all of the measures and findings that have been studied, calculated and presented, it can be concluded that over the first twenty-five years:

- Honda's economic impact in Ohio is significant and substantial through the scope and intensity of its operations, its strong Ohio supplier network and its record of long-term employment stability.
- The investment by the State of Ohio not only was sound, but a prudent use of taxpayer dollars, which continues to pay substantial dividends year after year.
- Clearly, Honda has made and continues to make a long-term contribution to Ohio and its communities.

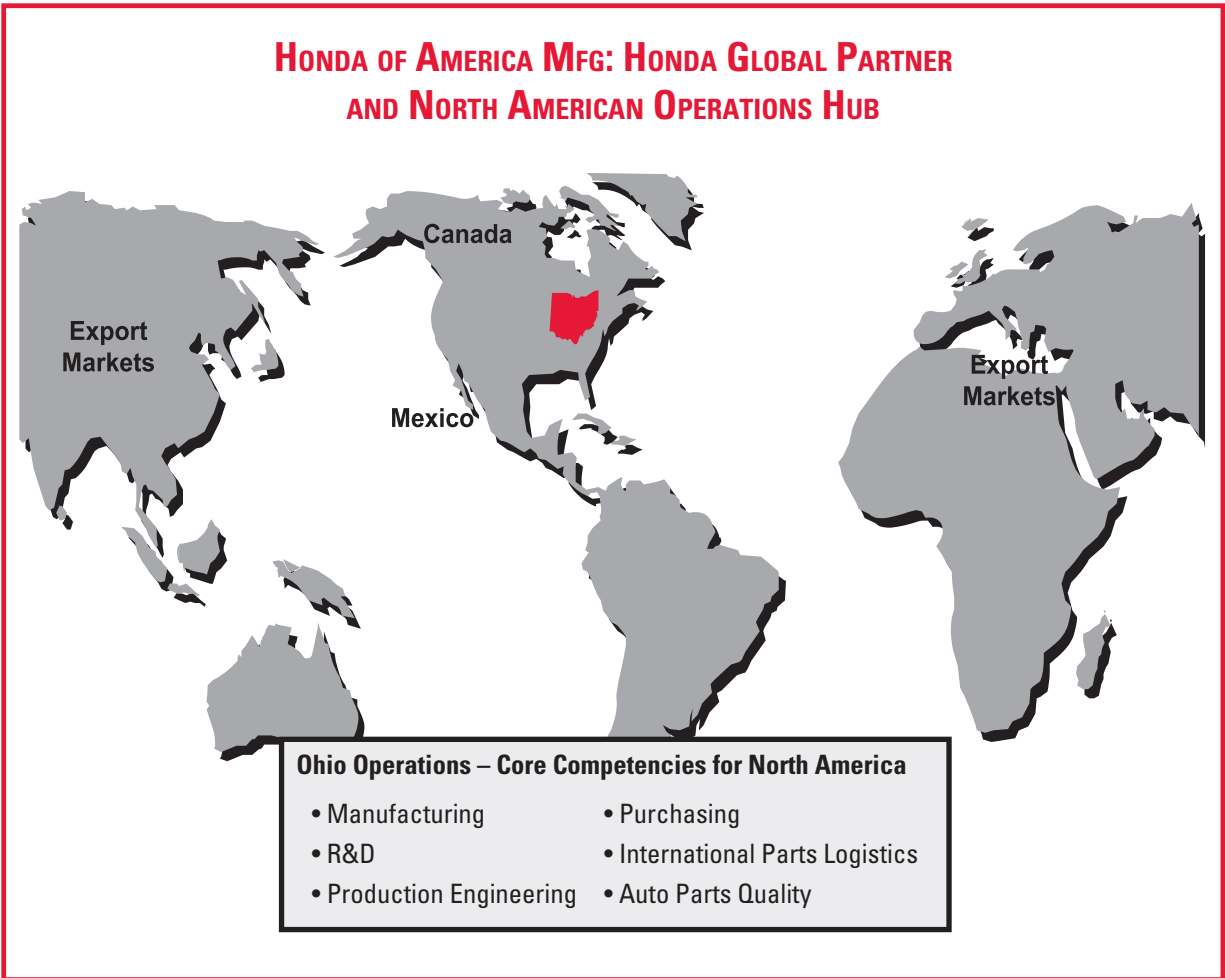
The information and data compiled in this Study also provide insight as to what the next twenty-five years will hold for Honda and Ohio. Two fundamental observations have emerged and they are discussed below:

HONDA IN OHIO WILL CONTINUE TO BE A HONDA MOTOR CO. GLOBAL PARTNER AND NORTH AMERICAN OPERATIONS HUB

The culmination of Honda's 25 year investment in Ohio is a comprehensive hub of operations that now provides manufacturing, engineering and logistical support to Honda's expansive North American operations. Heading into 2004, Honda's initial \$30 million investment in a single plant has grown by design into a leadership network for the company's more than \$7 billion operations in North America. In the vernacular of the company, Ohio has been designated as the "E-function" (for engineering and manufacturing) leader in the North American region.

The implications of this for Ohio are profound and positive. Honda produces vehicles that it exports to nearly 50 countries. Honda and its Ohio suppliers produce parts that are exported throughout the North American region and across the world. As Honda continues to develop new products and new markets, the benefits in terms of manufacturing, engineering, research and development and logistics will accrue in Ohio.

Indeed, Honda in Ohio is a global partner for Honda Motor Company:



HONDA’S STRATEGY OF FLEXIBILITY HAS POSITIONED IT FOR SUSTAINED PRODUCTIVITY

Honda began its investment in Ohio with a decade in which it followed a strategy of constructing and expanding manufacturing plants. After the 1989 opening of the East Liberty auto plant, Honda’s strategy evolved from construction and expansion of production facilities to continuous improvement, renovation and reconfiguration of the existing facilities into an agile, flexible and nimble manufacturing system. This strategy was in marked contrast to the prevailing wisdom in the U.S. auto industry which had been predicated upon factories that were dedicated to a single product line and would need to be shut down and completely retooled in order to produce a different vehicle.

Honda's emphasis on manufacturing flexibility has the following advantages⁵⁰.

1. Manufacturing plants will be continually refreshed and renovated for new uses, rather than dedicated to a single use and then retired (or abandoned).
2. Retooling for new models, a process formerly measured in months of plant shutdowns (and millions of lost revenues), is organized and managed so that as production of the current model ends, the next generation model follows immediately down the assembly line.
3. Flexible manufacturing of the type found in the East Liberty plant (the first to produce a car (the Civic) and a light truck (the Element) interchangeably on the same assembly line) allows Honda to respond adroitly to changes in market demand for vehicles.
4. Ultimately, flexible manufacturing processes will allow Honda to build virtually any combination of vehicles in a single factory, without regard to size or body style. This will extend the useful life of plants far into the future, extending with it the positive economic impact on the surrounding area.

As of the beginning of 2004, Honda's emphasis on manufacturing flexibility has enabled the company to continue to sustain production and employment through two recessionary periods in the national economy.

This Study has amply documented the substantial positive impact on the Ohio economy that Honda has had over the company's first 25 years. The emphasis on flexibility in manufacturing and constant reconfiguration of existing plant space, along with the designation of Ohio as Honda's North American "E-function" hub, suggests that this positive impact, for both Ohio and Honda, will be sustained over the next 25 years as well.

⁵⁰ See the article, "Yes, Assembly Lines Can Mix Apples and Oranges", Micheline Maynard, New York Times, August 17, 2003.

Appendix I

Ohio Counties by Region

Northeast		Northcentral		Northwest		Central	
1	Ashtabula	13	Ashland	26	Allen	40	Delaware
2	Columbiana	14	Crawford	27	Auglaize	41	Fairfield
3	Cuyahoga	15	Erie	28	Defiance	42	Franklin
4	Geauga	16	Huron	29	Fulton	43	Licking
5	Lake	17	Knox	30	Hancock	44	Madison
6	Mahoning	18	Lorain	31	Hardin	45	Pickaway
7	Medina	19	Marion	32	Henry	46	Union
8	Portage	20	Morrow	33	Lucas		
9	Stark	21	Ottawa	34	Mercer		
10	Summit	22	Richland	35	Paulding		
11	Trumbull	23	Sandusky	36	Putnam		
12	Wayne	24	Seneca	37	Van Wert		
		25	Wyandot	38	Williams		
				39	Wood		
West		Southwest		Southeast			
47	Champaign	56	Adams	65	Athens		
48	Clark	57	Brown	66	Belmont		
49	Darke	58	Butler	67	Carroll		
50	Greene	59	Clermont	68	Coshocton		
51	Logan	60	Clinton	69	Gallia		
52	Miami	61	Fayette	70	Guernsey		
53	Montgomery	62	Hamilton	71	Harrison		
54	Preble	63	Highland	72	Hocking		
55	Shelby	64	Warren	73	Holmes		
				74	Jackson		
				75	Jefferson		
				76	Lawrence		
				77	Meigs		
				78	Monroe		
				79	Morgan		
				80	Muskingum		
				81	Noble		
				82	Perry		
				83	Pike		
				84	Ross		
				85	Scioto		
				86	Tuscarawas		
				87	Vinton		
				88	Washington		

Appendix II

BUREAU OF ECONOMIC ANALYSIS REGIONAL ACCOUNTS RIMS II REGIONAL INPUT-OUTPUT MODELING SYSTEM

REGIONAL MULTIPLIERS FROM THE REGIONAL INPUT-OUTPUT MODELING SYSTEM (RIMS II): A BRIEF DESCRIPTION⁵¹

OVERVIEW

Effective planning for public- and private-sector projects and programs at the State and local levels requires a systematic analysis of the economic impacts of these projects and programs on affected regions. In turn, systematic analysis of economic impacts must account for the interindustry relationships within regions because these relationships largely determine how regional economies are likely to respond to project and program changes. Thus, regional input-output (I-O) multipliers, which account for interindustry relationships within regions, are useful tools for conducting regional economic impact analysis.

In the 1970's, the Bureau of Economic Analysis (BEA) developed a method for estimating regional I-O multipliers known as RIMS (Regional Industrial Multiplier System), which was based on the work of Garnick and Drake.^{1/} In the 1980's, BEA completed an enhancement of RIMS, known as RIMS II (Regional Input-Output Modeling System), and published a handbook for RIMS II users.^{2/} In 1992, BEA published a second edition of the handbook in which the multipliers were based on more recent data and improved methodology. In 1997, BEA published a third edition of the handbook that provides more detail on the use of the multipliers and the data sources and methods for estimating them.

RIMS II is based on an accounting framework called an I-O table. For each industry, an I-O table shows the industrial distribution of inputs purchased and outputs sold. A typical I-O table in RIMS II is derived mainly from two data sources: BEA's national I-O table (pdf) (html), which shows the input and output structure of nearly 500 U.S. industries, and BEA's regional economic accounts, which are used to adjust the national I-O table to show a region's industrial structure and trading patterns.^{3/}

Using RIMS II for impact analysis has several advantages. RIMS II multipliers can be estimated for any region composed of one or more counties and for any industry, or group of industries, in the national I-O table. The accessibility of the main data sources for RIMS II keeps the cost of estimating regional multipliers relatively low. Empirical tests show that estimates based on relatively expensive surveys and RIMS II-based estimates are similar in magnitude.^{4/}

To effectively use the multipliers for impact analysis, users must provide geographically and industrially detailed information on the initial changes in output, earnings or employment that are associated with the project or program under study. The multipliers can then be used to estimate the total impact of the project or program on regional output, earnings and employment.

⁵¹ This document can be found on the BEA website at: <http://www.bea.gov/bea/regional/rims/brfdesc.htm>

RIMS II is widely used in both the public and private sector. In the public sector, for example, the Department of Defense uses RIMS II to estimate the regional impacts of military base closings. State transportation departments use RIMS II to estimate the regional impacts of airport construction and expansion. In the private-sector, analysts and consultants use RIMS II to estimate the regional impacts of a variety of projects, such as the development of shopping malls and sports stadiums.

RIMS II METHODOLOGY

RIMS II uses BEA's 1999 annual I-O table for the nation, which shows the input and output structure for approximately 500 industries. Since a particular region may not contain all the industries found at the national level, some direct input requirements cannot be supplied by that region's industries. Input requirements that are not produced in a study region are identified using BEA's regional economic accounts. Currently, data for 2000 are used.

The RIMS II method for estimating regional I-O multipliers can be viewed as a three-step process. In the first step, the producer portion of the national I-O table is made region-specific by using four-digit SIC location quotients (LQ's). The LQ's estimate the extent to which input requirements are supplied by firms within the region. RIMS II uses LQ's based on two types of data: BEA's personal income data (by place of residence) are used to calculate LQ's in the service industries; and BEA's wage-and-salary data (by place of work) are used to calculate LQ's in the nonservice industries.

In the second step, the household row and the household column from the national I-O table are made region-specific. The household row coefficients, which are derived from the value-added row of the national I-O table, are adjusted to reflect regional earnings leakages resulting from individuals working in the region but residing outside the region. The household column coefficients, which are based on the personal consumption expenditure column of the national I-O table, are adjusted to account for regional consumption leakages stemming from personal taxes and savings.

In the last step, the Leontief inversion approach is used to estimate multipliers. This inversion approach produces output, earnings, and employment multipliers, which can be used to trace the impacts of changes in final demand on directly and indirectly affected industries.

ACCURACY OF RIMS II

Empirical tests indicate that RIMS II yields multipliers that are not substantially different in magnitude from those generated by regional I-O models based on relatively expensive surveys. For example, a comparison of 224 industry-specific multipliers from survey-based tables for Texas, Washington and West Virginia indicates that the RIMS II average multipliers overestimate the average multipliers from the survey-based tables by approximately 5 percent. For the majority of individual industry-specific multipliers, the difference between RIMS II and survey-based multipliers is less than 10 percent. In addition, RIMS II and survey multipliers show statistically similar distributions of affected industries.

ADVANTAGES OF RIMS II

There are numerous advantages to using RIMS II. First, the accessibility of the main data sources makes it possible to estimate regional multipliers without conducting relatively expensive surveys. Second, the level of industrial detail used in RIMS II helps avoid aggregation errors, which often occur when industries are combined. Third, RIMS II multipliers can be compared across areas because they are based on a consistent set of estimating procedures nationwide. Fourth, RIMS II multipliers are updated to reflect the most recent local-area wage-and-salary and personal income data.

APPLICATIONS OF RIMS II

RIMS II multipliers can be used in a wide variety of impact studies. For example, the U.S. Nuclear Regulatory Commission has used RIMS II multipliers in environmental impact statements required for licensing nuclear electricity-generating facilities. The U.S. Department of Housing and Urban Development has used RIMS II multipliers to estimate the impacts of various types of urban redevelopment expenditures. In addition, BEA has provided RIMS II multipliers to numerous individuals and groups outside the Federal Government. RIMS II multipliers have been used to estimate the regional economic and industrial impacts of the following: opening or closing military bases, hypothetical nuclear reactor accidents, tourist expenditures, new energy facilities, energy conservation, offshore drilling, opening or closing manufacturing plants, shopping malls, new sports stadiums, and new airport or port facilities.

Endnotes

^{1/1} See Daniel H. Garnick, "Differential Regional Multiplier Models," *Journal of Regional Science* 10 (February 1970): 35-47; and Ronald L. Drake, "A Short-Cut to Estimates of Regional Input-Output Multipliers," *International Regional Science Review* 1 (Fall 1976): 1-17.

^{1/2} See U.S. Department of Commerce, Bureau of Economic Analysis, *Regional Input-Output Modeling System (RIMS II): Estimation, Evaluation, and Application of a Disaggregated Regional Impact Model* (Washington, DC: U.S. Government Printing Office, 1981). Available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161; order no. PB-82-168-865; price \$26.

^{1/3} See U.S. Department of Commerce, Bureau of Economic Analysis, *The Detailed Input-Output Structure of the U.S. Economy, Volume II* (Washington, DC: U.S. Government Printing Office, November 1994); and U.S. Department of Commerce, Bureau of Economic Analysis, *State Personal Income, 1929-93* (Washington, DC: U.S. Government Printing Office, June 1995).

^{1/4} See U.S. Department of Commerce, *Regional Input-Output Modeling System (RIMS II)*, chapter 5. Also see Sharon M. Brucker, Steven E. Hastings, and William R. Latham III, "The Variation of Estimated Impacts from Five Regional Input-Output Models," *International Regional Science Review* 13 (1990): 119-39.

Appendix III

FURTHER EXPLANATION OF ECONOMIC MULTIPLIER ANALYSIS

USE OF “DIRECT EFFECTS” MULTIPLIERS

Total output effects are estimated by using a “final-demand” output multiplier based on the annual value of the output produced by the industry in question for the year under study. Total earnings and total employment effects can each be estimated two ways. One method is based on using the final-demand output value for the industry and then applying multipliers for total earnings and employment, which are based on national average data for the industry in question. The other method is to use “direct effects” multipliers for total earnings and total employment impact. These multipliers require data on the total earnings and number of jobs directly provided by the industry in question. These multipliers will be more accurate than the final-demand earnings and employment multipliers because they are based on regional rather than national data for the industry under study. This study will use the direct-effects multipliers for earnings and employment based on the number of jobs directly provided by Honda and the associated earnings of Honda workers.

CHOICE OF THE 15 COUNTY REGION

First, because the vast majority of Honda’s associates come from this area, and because much of their spending will reasonably occur in the vicinity of home or work, it is logical to use this area as the basis for the employment and earnings multipliers. Second, further analysis of the supplier sales data in Table 2-3 in Chapter 2 shows that over 60% (roughly \$3 billion) of the \$4.7 billion in HAM purchases from Ohio suppliers is from suppliers located in one of the 15 counties in the hiring area. This percentage increases to nearly 70% if transmissions supplied by HTM are included in the supplier totals. As with the Honda associates, employees of these suppliers will also be expected to spend their earnings within this region. Finally, the choice of the 15 county area instead of the entire state is viewed as preferable because the dominance of Honda as an automaker in the 15 county region means that the multipliers are based more specifically on Honda’s economic activity. The presence of other auto manufacturers in other parts of Ohio increases the likelihood that statewide multiplier effects may reflect their economic activity as well as Honda’s and render the effects somewhat less reliable when applied to any specific automaker.

MULTIPLIER CALCULATIONS

1. Total Output Multiplier Effects

BEA computes unique multipliers for auto production, motorcycle production, internal combustion manufacturing, motor vehicle parts and accessories and industrial machinery and equipment. The BEA multipliers are actually based on producer prices rather than consumer prices. For output which is valued in terms of consumer prices, it is necessary to make adjustments for wholesale and retail trade margins and transportation costs, before applying the multipliers. These adjustments were applied to the automobile, motorcycle and ATV output values. Because Honda produces motor vehicles in Ohio which are then sold throughout the country, it would be inappropriate to assume that the multiplier effects from transportation of the vehicles and wholesale and retail trade margins accrue entirely in Ohio. Consequently, conservative assumptions were employed concerning the extent to which transportation and wholesale and retail trade margin multiplier effects remained within the state.

It is also important to explain that the \$237 million in service parts purchases by AHM from Ohio suppliers is included in the multiplier analysis even though Honda did not produce this output directly. In this instance, Honda is acting as wholesaler rather than as a manufacturer and the multiplier effects are computed in accordance with this distinction.

Note also that *Honda Trading America Corporation* (HTA) and *Honda R&D Americas* (HRA-O) have been excluded from this calculation. It has been assumed that the value of Honda R&D activities is already included in the value of the Honda products produced because research and development is an input to these processes. Honda import and export activities have been excluded because of a lack of detailed data on the extent to which these activities actually originate in Ohio. Both of these corporate entities have been included in the earnings and employment analysis discussed below, however.

2. Total Employment Multiplier Effects

As with the final demand output multiplier, there are specific employment multipliers for each aspect of Honda's business enterprise in Ohio.

Before the employment multipliers could be applied to the above employment figures it was necessary to apportion 1,406 HAM associates who provide general support (i.e. accounting services and the like) to the various plants. This was done by simply distributing the "support" employees in the same proportion as each of the 4 manufacturing plant's relative employment.

3. Total Earnings Multiplier Effects

As with the total output and employment calculations, there are specific multipliers for each aspect of Honda's business enterprise in Ohio.

In order to apply the earnings multipliers it was necessary to apportion the HAM wages and salaries across the different manufacturing facilities. This was done in proportion to the employment figures used in the employment multiplier analysis discussed above.

Appendix IV

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