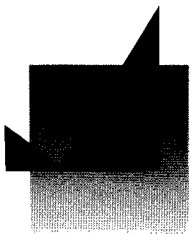


Assessing global auto trends

**Paul D. Ballew and
Robert H. Schnorbus**



The global automobile industry has gone through overwhelming restructuring during the last twenty years. This restructuring has produced, among other effects, massive downsizing and relocation for the Midwest, the birthplace of the mass production of vehicles. Assessment of current and future changes in the industry predict further adjustments, especially within the region. The factors prompting these adjustments are frequently depicted dramatically as emanating in large part from economic forces endemic to the U.S. market. Although this domestic emphasis is understandable, one subject that has received less attention is how the U.S. market has been impacted by the rapidly evolving global environment. For instance, the U.S. market constitutes only 25 percent of new vehicle sales in the world and its growth is slowing relative to the rest of the world. Indeed, an expanding portion of future economic growth and increases in consumer spending on autos is likely to originate abroad.

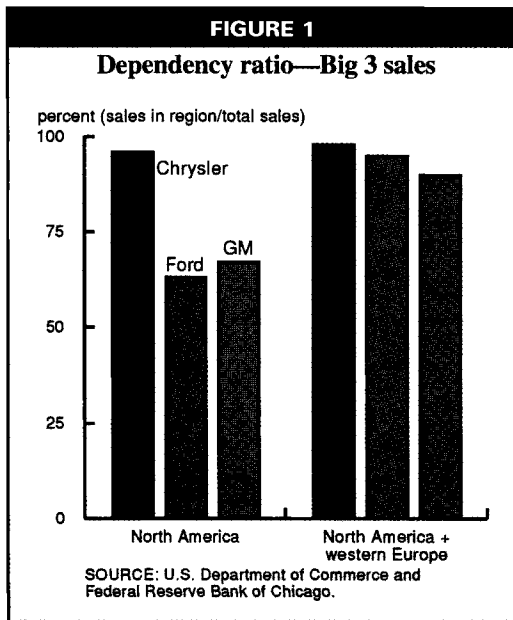
A current assessment of the domestic U.S. industry within this global marketplace indicates that the Big 3 (GM, Ford, and Chrysler) are almost exclusively concentrated in the North American and European markets. A sales dependency ratio for each of the Big 3 of North American sales to worldwide sales is presented in Figure 1. As indicated, Chrysler has the highest concentration in North America with a ratio of .96. This ratio has been increasing throughout the latter half of the 1980s, although the recent expansion of Chrysler in

Europe should offset part of this concentration. Ford's North American ratio is .63, while GM's is slightly higher at approximately .67. Both of these levels are significant improvements over Chrysler. However, their North American and European to world sales ratios provide evidence of the degree of concentration and the dependency of Ford and GM in these markets collectively, with GM's combined ratio over .90 and Ford's combined ratio almost .95.

A major factor in this dependence is the limited presence of the Big 3 in developing markets, with the possible exception of Latin America. Of particular concern is the Big 3's absence in Asian markets where their combined sales are still less than 500,000 units annually. Eastern and central Europe are two potentially key emerging markets for the Big 3. However, competition from VW, Fiat, and, eventually, Japanese manufacturers will be intense. These markets are unlikely to achieve rapid growth in auto purchases before the end of the decade.

In an attempt to achieve an integrated analysis for the auto industry, this article analyzes each major and emerging market for

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vehicles first individually and then in aggregate. The purpose of this systematic approach is to reach some comprehensive insights and conclusions into the prospects for the U.S. nameplates in a marketplace where they must compete with foreign nameplates not only in their own backyard but also in markets throughout the world, most of which are less than hospitable. This article will also emphasize how these global developments impact auto producers in the Midwest, a region where the domestic industry is still highly concentrated.¹

Global demand for vehicles in perspective

Global sales of motor vehicles today are nearly 50 million units annually. In the last few years, sales have been approximately 4 to 5 million units below trend annually, with sales in the U.S. accounting for roughly half of this deficiency. This trend level of roughly 55 million units is well above the ten year average of 41.5 million units; and in fact, growth in the overall vehicle market has been significant in the last ten years, up almost 25 percent during the 1980s. Furthermore, market forecasts anticipate vehicle sales in excess of 60 million by the turn of the century.²

Currently, the market can be segmented into three mature markets and three important emerging markets. The mature markets collectively account for over three-quarters of the

world's production and sales of vehicles. Of these markets the U.S., Japan, and Germany are the most important. However, because of the degree of integration between the U.S. and Canada and among the seventeen major nations of western Europe, these markets have been grouped into U.S.-Canada, Japan, and western Europe. All three major markets are large producers with similar market shares. One difference is that Japan is export oriented, while U.S.-Canada and western Europe are domestically oriented. Western Europe and U.S.-Canada represent over 60 percent of all vehicle sales in the world, with Japanese domestic sales being significantly less, approximately 15 percent.

U.S.-Canada

Among the mature markets, average light vehicle sales in the U.S.-Canada market over the past decade have reflected cyclical patterns as well as trend growth of the U.S. economy. Sales dropped significantly in 1981 and 1982 and rebounded to record levels in the 1984 to 1987 period. Since 1989, sales have declined as the U.S. and Canadian economies have slowed significantly, with combined sales declining to 16 million units in 1990 and bottoming out in 1991 with a decline to 14.5 million units. Furthermore, the sharp decline since 1989 had been preceded by a slow decline from the peak of 18 million units in 1986 toward a rate below the ten year average of just over 16 million units.³

The U.S.-Canada market has experienced significant competition over the last 20 years as foreign nameplates have eroded the stranglehold that the Big 3 once had on the market.⁴ The market share for the Big 3 has steadily declined from over 90 percent to its current levels of 70 percent for light truck and cars combined and 65 percent for passenger cars. GM has been the biggest loser in the passenger car market with a loss in market share of more than 10 percent over the last decade. This erosion has been largely the result of market penetration of foreign nameplates, of which the Japanese brands have been most successful, with a market share today of approximately 25 percent in North America. This market share equals approximately 4 million units in annual sales.

Despite setbacks in the passenger car market, domestic nameplates have done extremely well in the growing light truck segment. This segment, increasingly dominated by Ford and Chrysler, represents, in large part, a shift in con-

sumer preference from cars to passenger light trucks, such as minivans and sports utility vehicles. During the past decade the number of light trucks sold annually has doubled, reaching almost five million in 1992. This growing market, along with product strength, traditional know-how of the segment, and trade restrictions, has allowed the Big 3 to maintain a market share of approximately 85 percent (even in 1991). Current vehicle introductions and redesigned versions have further stimulated sales at the expense of Japanese producers in particular. However, Japanese and domestic producers are responding to this growing demand with increased product development. For example, the recent introduction of Nissan's minivan, the Quest model, has been well received by auto critics. And Toyota has recently entered the mid-sized pickup truck market, perhaps as a stepping stone to the introduction of a full sized model.⁵ Therefore, the continued dominance of even this segment by domestic producers is not guaranteed.

Expansion of foreign nameplates into luxury and sport cars as well as minivans and pickup trucks will continue to put pressure on domestic nameplates to retain market share.⁶ Product development schedules are decreasing in length, price containment pressures are intense, and quality and safety improvements continue to accelerate. The pressure is intense for all producers and significant restructuring is prevalent even for Japanese nameplates. In fact, Isuzu has announced its intention to exit the light truck market in the U.S., and Mazda has delayed its entry into the luxury car segment by cancelling the Amati. The prospects for a North American free trade area or customs union may dampen some external competition due to domestic content requirements. However, it should foster intraregional competition, including transplant operations. Therefore, the U.S.-Canada market will likely continue to be one of the most competitive markets in the world, despite its relatively slow growth.

Western Europe

Unlike the U.S.-Canada market, the western Europe market—the second largest in the world—continues to have significant vehicle sales. Although sales declined slightly in the weaker economic environment in 1992, sales have trended steadily upward in the last 5 years. With access to central and eastern Europe, this market is rapidly becoming one of the most

important areas of growth in the industrialized world. With prospects for economic unification strong in the region, the presence of numerous firms, both local and foreign, continues to be a dominant character of the market. Thus, the key question concerns the consequences of economic integration for all auto manufacturers involved in western Europe.

Sales in the market, due primarily to a one time boost from German unification, were robust in 1990 and 1991. Sales in 1991 reached 15 million units and, although sales in 1992-93 are being depressed by the economic difficulties in Germany, the outlook is for sales of more than 15 million units annually into the late 1990s. Continued growth in certain European Community (EC) countries (notably Spain and Portugal) and the economic stimulus from further integration in the EC are expected to support these sales levels. Some of the demographics of a mature market that exist in the U.S., such as an aging population with modest income growth, are also present in Germany, the U.K., and France. However, these factors should be offset by further market integration and stronger economic growth.

Current sales in western Europe are divided among six major producers, with limited Japanese imports (approximately 12 percent), and a second tier of product or market specific manufacturers. Unlike other major markets, no producer has even marginal dominance of the western European market. Volkswagen, the market leader, comes closest with a western European market share of 17 percent, a stronghold in Germany (over 25 percent market share), and a significant share in every other market in Europe. Fiat and PSA (Peugeot-Citroen) are next with market shares of approximately 13 to 14 percent. Both producers are heavily concentrated in their domestic markets. PSA is more diversified than Fiat, but Fiat has increased its efforts in central Europe in recognition of this fact. A large portion of Fiat's dependency on the Italian market is due to the Italian government's decision to limit foreign imports.⁷ Ford and GM both have significant sales presences in Germany and the United Kingdom and each has a market share above 12 percent. Both companies have been rapidly expanding in other markets; Ford in Italy and Germany and GM in Spain and the United Kingdom (a long time stronghold of Ford).

State owned Renault rounds out the major manufacturers with a market share of approximately 10 percent. The company focuses almost exclusively on the French market with only limited sales in other European markets. Recently, Renault has attempted to expand its reach through joint operating agreements, especially in Scandinavia.

A number of companies with significant market presences in specific markets recently have been acquired wholly or in part by larger firms. For instance, Saab has been partially acquired by GM, and Jaguar by Ford. Japanese manufacturers are also trying to increase their share of the market, but face a quota of 16 percent in the EC. Therefore, transplants have increased, although additional limits on these developments, labor costs, and other concerns may dampen this movement somewhat.

Japan

Annual vehicle sales in Japan currently constitute the second largest single country vehicle market in the world. Sales in the late 1980s and in 1990 approached almost 8 million units a year. The continued growth of the market throughout the post-war era has resulted in per capita vehicle registration level comparable to the U.S. However, a variety of factors are currently reducing sales growth, including the current economic slowdown, an aging population, low population growth, parking and regulatory difficulties, and a maturing market.⁸

The domestic Japanese sales market is dominated by Toyota (35 percent), Nissan (20 percent), Honda (10 percent), Mazda (7 to 8 percent), and Mitsubishi (more than 5 percent), with other Japanese producers active in specific market segments. The bulk of the remaining market is comprised of foreign nameplates, although they have not reached any significant market penetration. In the past, trade restrictions limited foreign nameplate penetration. In recent years, other barriers, such as limited distribution networks and adaptation to local customers' tastes, have limited penetration. Annual sales volumes by foreign producers are still below 250,000 units (approximately 3 percent), and most of this activity is concentrated among European nameplates.

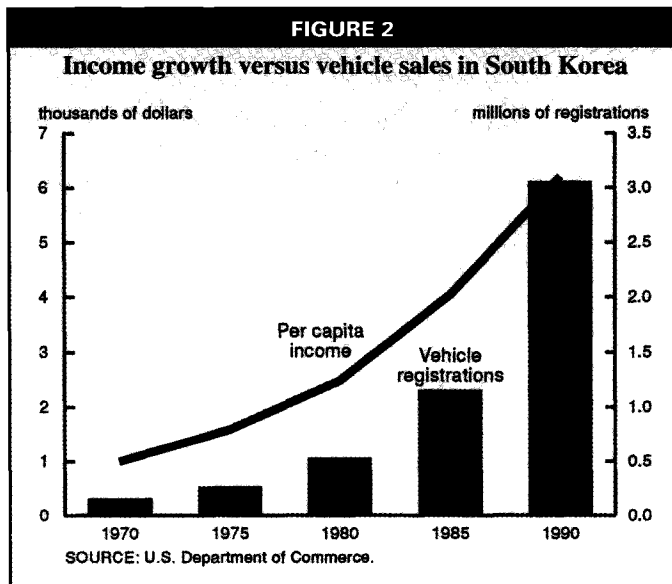
Overall, the market is currently in flux and the two dominant producers, Toyota and Nissan, have recently experienced significant sales setbacks. The current economic slowdown in a

mature and potentially stagnant market will continue to pose problems for these producers, although they will probably continue to dominate the market for the foreseeable future. Smaller Japanese manufacturers have experienced greater difficulty because they do not have the financial wherewithal to wage a competitive battle in multiple market segments.

Asia-Pacific region (excluding Japan)

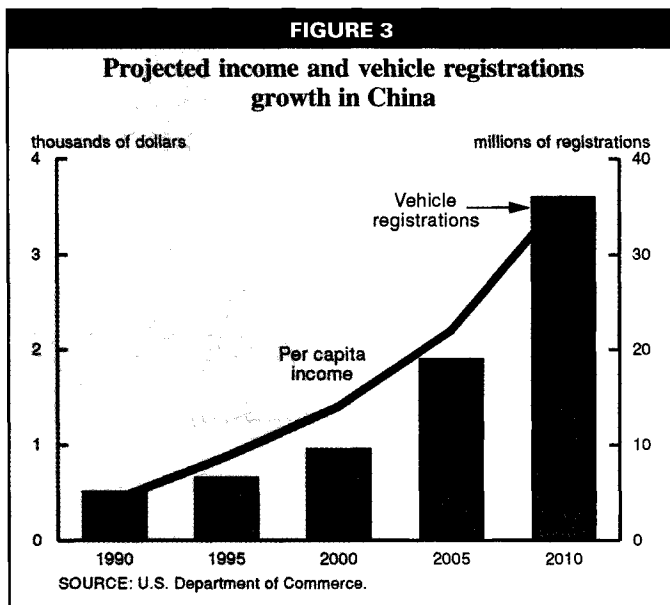
Overall sales in 1991 in the Asia-Pacific market, excluding Japan, were slightly less than 4 million units. This level is not significant relative to mature markets. However, the potential for growth is phenomenal. Sales in South Korea, for instance, are currently in excess of 1 million units and have more than doubled in last 15 years. Sales in Taiwan have also experienced strong growth in the 1980s: total vehicle sales annually are almost 500,000 units. Overall in the 1980s, non-Japanese sales in Asia grew in excess of 8 percent annually, a trend which is widely expected to continue in the 1990s. The remaining parts of the region represent an underserved, emerging market with strong income and population growth.⁹ Additionally, economic reforms in the two most populous countries of the world, China and India, could potentially provide significant growth in consumer product sales.

In the early stages of development, consumers typically do not buy vehicles. However, gains in income eventually produce significant gains in vehicle purchases in underserved markets such as Asia. An estimate of these potential sales gains for China is indicated by Figures 2 and 3, which compare income levels and vehicle sales in South Korea during its phenomenal economic acceleration in the 1970s and 1980s to projected levels for China. As shown, growth in vehicle sales and all consumer durables in South Korea exploded once per capita income reached approximately \$3,500 a year. That is, at this level vehicle sales begin an upward swing which accelerated as income continued to gain. If China mirrors this trend, the gains in vehicle sales in the next twenty years may be surprisingly strong. For instance, if China's vehicle concentration is similar to the Korean experience, total vehicle registrations in China may approach 40 million units early in the next century. Current vehicle registrations in China are only 5 million.



Therefore, assuming some replacement, total sales could approximate 35 to 40 million units over the next 10 to 15 years, resulting in annual sales on average growing at four times their current sales rate.

If this growth seems unbelievable, it should be noted that mean income levels in the Guangdong Province in southern China, one of the most successful provinces, are currently estimated at above \$2,000 a year. Income growth is currently projected at more than 7 percent annually, with southern regions experiencing much more rapid growth. Furthermore, even



with this growth in sales the market will continue to be underserved, given an estimated population of 1.3 billion people by 2010. Consequently, future sales growth may be more rapid, although other constraints, such as space and regulations, may eventually set limits on the market.

Similarly, other nations in the region may achieve substantial growth in vehicle sales in the next few decades. For instance, per capita registrations in India are even lower than in China. Economic reforms are still in their infancy in this country, however, and remain a concern. Other Asian markets, principally Thailand, Indonesia, and Malaysia,

appear well on their way to reform and should boost sales of vehicles significantly in the years ahead.¹⁰

Market concentration is actually higher in some Asian markets than in the more established markets. The Korean market, for instance, is dominated by Hyundai Motors (over 50 percent), Kia Motors (over 20 percent), and Daewoo Motors (over 20 percent).¹¹ However, other markets are more diverse, with foreign nameplates active in Taiwan, where Ford has a strong market presence, and Thailand, where Toyota and other Japanese automakers are

active. One trend affecting market concentration is government activity. Besides trade barriers, many Asian markets have government sponsored companies or partnership programs that discourage market penetration. Japanese manufacturers have been the most successful at entering these markets through unconventional means. Partnerships as well as transplant facilities continue to provide Japanese manufacturers access to the market.

Eastern and central Europe

Perhaps the most important emerging market is in eastern and central Europe. This market currently is going through a massive restructuring phase with existing

state owned firms failing and/or being disassembled and western firms rapidly entering the market. Sales in the last decade have lagged due to limited income growth on the part of individuals. Overall the market is currently underserved with vehicle registrations well below western European levels. Pent up demand has been exhibited in many product markets since liberalization, as indicated by recent rapid sales growth.

While the near term sales outlook is somewhat bleak, with incomes falling and unemployment rising, the economic transformation is beginning to take shape and, as the recovery begins, higher income levels will result in increased demand in this underserved consumer market over the long term. Consequently, sales in Hungary, Czechoslovakia, Poland, and the Baltics should accelerate throughout the mid-1990s. Furthermore, the 280 million consumers in the Commonwealth of Independent States (CIS), a collection of former Soviet republics, will likely experience significant income gains in the late 1990s and, therefore, provide an added boost. These developments should significantly enhance the overall European market. A conservative estimate of vehicle sales of 6 million units annually seems likely by the end of the first decade of the next century, excluding a rapid economic transformation in the CIS. It is important to keep in mind that such a sales level would exceed annual sales in Germany. Furthermore, even given this sales level, the market will not be close to western standards.

Latin America

Latin America is another emerging market that is experiencing a significant economic transformation. Reform efforts have solidified growth in Mexico, Argentina, Chile, and Venezuela, and will eventually stimulate demand for durables in a market of 125 million consumers. Successful economic reform in Brazil and the Andean nations, which appears possible if not probable, could further stimulate the market. Although political instability is a major concern, democratic reforms and trade liberalization have increasingly solidified the gains made to date.

Current vehicle sales of almost 2 million units annually reflect the potential in the region. Given the economic hardship of debt restructuring and economic austerity programs, the current sales levels reflect positively on the de-

mand for vehicles in the region. The International Monetary Fund and World Bank estimate that the GDP of the region should continue to accelerate throughout the decade, averaging 4.5 to 5 percent annually. If the economies expand at such a rate, the recent annual sales growth in autos of over 20 percent may not be replicated, but growth should continue.

Potential growth in Latin America should boost Big 3 sales as well as European manufacturers' sales (especially Volkswagen), as these producers have significant presences in Mexico and Brazil. Recently, Japanese nameplates have begun to penetrate the market. However, the efforts have been limited. One wild card is the outcome of the various trade talks ongoing in the region. Modifications in domestic content restrictions and other trade barriers could significantly alter production and sales activity for various producers. The general effort to liberalize existing trade policies will likely accelerate investment, export activities, and domestic sales.¹²

Current and future production activity

Production activity mirrors sales activity within markets as well as export and relocation activities or producer trends. Changes in production activities in regions and between producers has been relatively dynamic in recent years. There has been continued movement toward lower cost production, an effort to close excess facilities in some market segments and expanded production in others in order to access new and growing markets. These trends are often a response to shifts in sales and competition among producers. To understand the future implications, it is important to understand the current production environment.

The global marketplace is comprised of 12 major manufacturers with annual production capacity above 1 million units and a second tier group comprised of manufacturers with production capacity below 1 million units, many of them specializing in specific market segments. The top six manufacturers account for over half of global production and the top 12 account for over three-quarters of all production. But in comparison to the 1960s and 1970s, the level of concentration is less and has become more geographically diverse. For example, GM is still the number one automaker, but its market share has fallen below 20 percent, Ford is sec-

ond with a 13 percent share, and Toyota is currently third with a 11 percent share.

Most manufacturers still have a core base in their traditional markets. Although one would not classify this core as stable, it still provides a degree of support and is a major consideration in most decisions affecting company operations. The major question for firms in the future may be whether or not they can maintain their position in their traditional market while at the same time penetrating new markets.¹³

U.S. and Canada

Production during the last decade has averaged approximately 12 million units annually in the combined U.S.-Canada market with significant growth occurring in two primary segments: light trucks and transplants. Light truck production, for instance, has more than doubled since the late 1970s and early 1980s.¹⁴ Transplant production in the U.S. and, to a lesser extent, Canada, has also soared. Transplant production in 1982 was only a token level from Honda; by 1991 transplant production exceeded 1.6 million units annually and new capacity continues to be added, especially in light trucks.

Within this expansion of production there has been a change in mix of firms, led by the continued downsizing of GM, Ford, and Chrysler, especially in the U.S. By the mid-1990s, Big 3 employment will be more than 400,000 jobs lower than its level in 1980. Production by the Big 3 exceeded 11 million units in the mid-1980s, however, since that time, production has consistently headed downward, and is currently near 8 million units. GM is currently planning to close at least 4 assembly plants totaling over 1 million units of capacity. Gains in market share by foreigners coupled with the general competitive pressures to do more with less continue to shape the production decisions of the Big 3 as well. Future developments in production of units in North America should reflect the continued development of transplants, some additional downsizing of existing domestic nameplate operations in the U.S. and Canada, and some shifting of domestic nameplate production to foreign markets.

Western Europe

Western European production in the last five years has exceeded 13 million units. Capacity is currently estimated at more than 14 million units, with new facilities coming online. Current

production is concentrated in four principal countries: Germany, France, Italy, and the United Kingdom. Germany, where one in six jobs are linked to the auto industry, easily outstrips all other production areas, with production in excess of 5 million in 1991. French and Italian producers generally comprise a second tier of companies and are concentrated heavily in their domestic markets. British production increasingly involves U.S. and Japanese transplants or wholly owned subsidiaries, and production is mixed between domestic units and products exported to the continent.

Western Europe has six large firms and a second tier comprised of specialized and/or market specific firms, transplants, and imports. Volkswagen, PSA, GM, Ford, Fiat, and Renault are the top producers in this market representing 85 percent of production. The second tier is dominated by luxury car makers like BMW and Mercedes and single product firms like Volvo. Recently, mergers and consolidations have reduced the number of independent companies. Furthermore, competition has also redistributed market share among the largest firms, with GM and VW on the ascendancy¹⁵ and Fiat and, to a lesser extent, Ford struggling somewhat. Non-U.S. transplant production initially involved Nissan's entry into Britain. However, Toyota and Honda have also recently established facilities. By the mid-1990s, Japanese transplant production capacity in Europe will exceed 500,000 units annually. A primary concern in these transplant locations is the continuing threat of trade retaliation and a stated EC policy to limit Japanese nameplates to a market share of 16 percent or less. (Current sales levels are still below this target.) The Big 3 have also added capacity due to stronger sales or, in the case of Chrysler, reestablishing a position in the market.¹⁶

Japan

Japan is the largest single country producer in the world in combined car and light truck production. Annual production levels by 1991 exceeded 13 million units annually. Almost 45 percent of this production (over \$65 billion a year) is exported and, consequently, Japan is the world's largest exporter of vehicles. Toyota, Nissan, Honda, Mazda, and Mitsubishi are the primary, but not necessarily the dominant, producers. Altogether, the domestic market actually is comprised of 10 manufacturers with pro-

duction above 500,000 units annually. Of greater significance is the fact that certain manufacturers, like Fuji and Daihatsu, have significant influence in important market niches.

In the extended outlook, Japanese production will be influenced by three primary trends. First, production of parts and some finished assembly are becoming more mobile, for example, moving toward offshore sites in Asia and other developing markets. Due to labor shortages and rising costs in Japan this trend seems inevitable as an alternative to domestic production. Additionally, offshore facilities provide a means of entry into an expanding global consumer market. Production can then include exports back to Japan, as well as some production for the local market. The potential growth of these non-Japanese Asian markets may be significant in the years ahead, and companies like Toyota and Nissan have attempted to anticipate their development.

Second, transplant operations in the U.S., Canada, and western Europe continue to increase capacity and plans for further expansion are in the works. Concern over political pressure, trade barriers, and economic considerations continue to push Japanese producers toward local production. As this trend continues, production in Japan will be reduced by falling exports which are being replaced by Japanese nameplate production in the States and western Europe. Unless exports from Japan find new markets, the impact on domestic Japanese production may be severe.

Finally, domestic Japanese production is evolving technically and moving increasingly toward luxury, mid-size, and sports models to suit the changing preferences of consumers. In an economically mature and aging domestic market, Japanese producers not only must grapple with sales stagnation but a changing product mix. Their technological gains in these areas also influence their export product mix and will continue to do so in the foreseeable future.

Asia-Pacific region (excluding Japan)

Non-Japanese Asian production in 1991 was almost 4 million units, a level which has increased tenfold in the last decade.¹⁷ The fastest growing production area has been South Korean facilities, which produce almost 1.5 million vehicles annually. The birth of the Korean industry is relatively recent. The industry did not begin in earnest until almost 1980. However,

production has grown from 100,000 annually in the 1980s to a projected level of over 1.6 million in 1992. Production in Taiwan has also grown and now approaches half a million units annually. Assembly and parts facilities are also well established in Malaysia, Indonesia, and Thailand. Additionally, major facilities have been and are being added in India and China. Currently, production in these two markets exceeds 1 million units. Recent expansion in China, in particular, bodes well for production capacity.

Overall production in Asia has traditionally had an export flavor, with one-third of the production in this region destined for exportation. The trend is still strong in spite of the establishment of Japanese nameplate production facilities in Europe and North America. Non-Japanese markets are not as export oriented as Japan, although they are becoming more so. South Korea may be a reflection of the future; net exports of vehicles for the country are almost 400,000 annually, almost 30 percent of total production. Other nations in the region have not experienced such a share of export orientation. However, there does seem to be a learning curve, and once facilities are established, some export potential will likely exist.¹⁸

Eastern and central Europe

Almost all current production in eastern and central Europe involves inefficient state producers who are or will likely be disbanded. Current annual production has fallen to approximately 2.5 million units, with the CIS responsible for over 70 percent of combined vehicle production. The severe economic slump, combined with the break up of the centralized manufacturing system, has produced a contraction in production in the last two years that is likely to continue in the near term. The civil war in Yugoslavia and decline of the Yugo has also adversely affected the Yugoslavian economy, which was the second largest producer in the region prior to 1992. Over the long term, production will likely continue its trend away from state owned production to the private sector. One element is the inefficiency and quality concerns with traditional products like the Yugo, Trabants, and Ladas.¹⁹ Increasingly, however, private sector production has come from western firms that have established bases in the region. BMW, Volkswagen, and GM all have major expansion efforts in former commu-

nist countries and production from these facilities should maintain or at least partially offset the decline in state companies which are being liquidated and/or downsized. Volkswagen's presence in Czechoslovakia is indicative of what the future may bring. The company is adding facilities to expand production to perhaps over 200,000 units annually; of this total, a portion will be exported to the West. This trend will likely continue as the relatively cheap skilled labor and the opening of new markets provides a magnet to U.S., European, and Japanese firms.

Latin America

Currently, Latin America is an important producer, both for domestic consumption as well as for exportation. Of course, domestic content restrictions and other trade barriers have produced some distortions in domestic production. However, current production in excess of 2 million units annually generally reflects the comparative advantage of these areas as a low cost production base. Most of these units are produced in two markets, Mexico and Brazil, with a limited amount of assembly occurring in other markets. In Mexico, a million units are assembled annually, of which over 500,000 units are exported.²⁰ In Brazil, a combination of vehicle sales and exports are responsible for almost 1 million units annually. Brazilian production is not quite as export oriented as Mexico, primarily due to a larger domestic market as well as economic problems in the last twenty years.

Current production activity is increasing due to the rapid expansion of facilities. In fact, capacity estimates indicate that future expansion plans are accelerating, and production should continue to grow, especially in Mexico where a trade agreement with the U.S. should provide a stimulus to the market. Mexican capacity and, therefore, production have doubled in the last ten years. This expansion reflects the economic reforms in the country as well as the development of Mexico as an export center of certain models to the U.S. market. The competitive position of the Mexican production environment bodes well for expansion of production facilities in North America, especially due to the continued importance of the sales market.

U.S. and European firms are expected to continue the trend of the last twenty years by

increasing their production capacity in this region in order to breach the local market as well as provide exports to established markets. The potential for future growth also includes Japanese nameplates, which to date have had only a minimal presence (with the possible exception of Nissan). The domestic content provisions of the North American Free Trade Agreement may provide a strong impetus for auto plants locating in Latin American markets, principally Mexico.

Global trends and implications for Midwest auto producers

Sales data for 1991 indicate the diversity of activities throughout the world and highlight the environment U.S. nameplates face as the decade progresses. In 1991, total vehicle sales in the world broke down as follows: 33 percent of all sales occurred in western Europe, 30 percent in North America, 15 percent in Japan, 8 percent in Asia, 7 percent in eastern and central Europe, 3 percent in Latin America, and the remaining 3 percent in the rest of the world. *Prima facie*, it would seem that the Big 3 would be well positioned in the world, given that almost two-thirds of all sales occur in North America and western Europe, their two traditional strongholds. Unfortunately, such a conclusion ignores developments discussed in this article. The most important concern is the fact that sales growth is accelerating in Asia (excluding Japan), Latin America, and eastern and central Europe where the Big 3 generally are not active, and decelerating in traditional Big 3 strengths: the U.S. and western Europe. At the same time the current market standing for firms in traditional markets is under stress from foreign competitors and, with the integration of the EC, competition should accelerate.

The prospects of a sluggish domestic vehicle market with intensifying competition at the same time developing markets are expanding abroad poses many questions for the Midwest. Whether restructuring and downsizing of domestic operations continue is, of course, at the forefront of these questions, especially if the Big 3 fail to penetrate new markets through expansion programs. Moreover, even foreign market penetration may be insufficient to supplement U.S. domestic development and employment, unless this penetration involves exports of U.S. made products.

Of greatest concern is the further employment and income erosion in the Midwest as Big 3 facilities are streamlined. Current employment in auto manufacturing is estimated at slightly over 800,000 jobs in finished and parts assembly. Projections of white collar support staff and retail distribution employees include an additional 500,000 workers. A large portion of these workers are in the Midwest, which is still responsible for nearly 60 percent of the assembled U.S. vehicles and is home to the headquarters of the Big 3. There is a strong probability of further economic restructuring in addition to the overwhelming adjustment which has occurred already. Since 1979 the domestic industry has closed numerous U.S. plants, pared production costs throughout the entire manufacturing process, and will eliminate more than 400,000 jobs by 1995. The impact of this restructuring has been especially severe in the Midwest. In Michigan alone, the Big 3 reduced their work force by more than 150,000 between 1979 and 1991. GM's planned job cuts through 1995 will reduce the work force in the state by an additional 25,000 jobs.

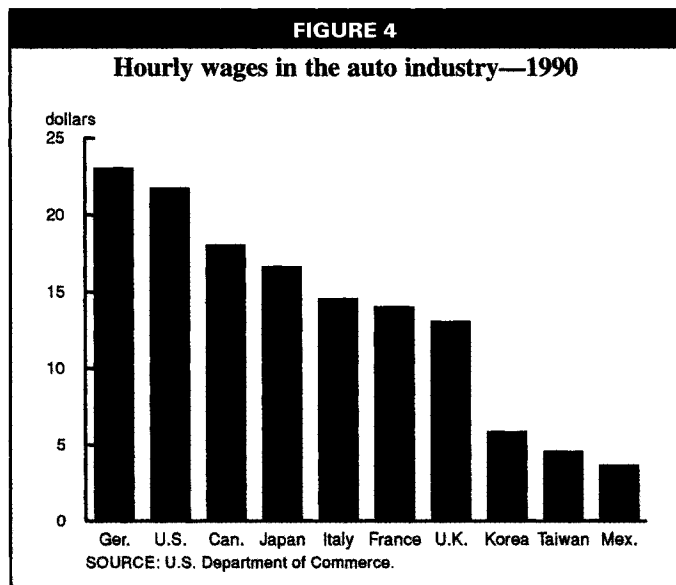
A weak sales environment intensifies the need to restructure and will likely prompt further efforts to speed up the adjustment. This factor will also likely encourage all producers, domestic and foreign, to explore new opportunities, many of which will be external to the U.S. market. Whether or not these opportunities are or will be available is likely to become a major issue which each manufacturer will have to address.

Future prospects resulting in adjustment of the current trade flow and stimulation of exports will be influenced by a variety of factors. Of primary concern are the following:

- 1) Continued improvements in U.S. manufacturing competitiveness relative to the international marketplace: U.S. manufacturing wages relative to the developed world have declined in the last decade. Additionally, productivity gains have been strong and, therefore, unit labor costs have improved in relative terms. However, the automotive segment has not experienced the

same improvement as other manufacturing sectors. As indicated in Figure 4, U.S. motor vehicle wages in 1990 were still one of the highest in the world and may not be fully offset by productivity differentials. Higher benefit costs push this differential higher, especially health care which is currently estimated at 20 percent of overall payroll costs for the Big 3.

- 2) Competitiveness relative to the developing world: as emerging markets reform their economies and integrate into the international marketplace, competition will intensify, especially in the new sales markets. These new markets are also a source of competition, and their wage rates may give them a competitive advantage compared to the industrialized nations. Overall wages in Mexico are currently one-seventh the U.S. level for workers in the motor vehicle industry, rates in Korea are still only one-fifth, and so on. Of course, productivity differentials and other factors are considerations in this environment. However, it is questionable whether or not the productivity differentials can or will account for such a wide difference of compensation.²¹
- 3) Regional and multilateral trade agreements: successful completion of the North American Free Trade Agreement (NAFTA) and the General Agreement on Tariffs and Trade (GATT) round will impact the development of the industry by shifting some production activities between nations, and also by influ-



encing income growth, job creation, and other macroeconomic developments. Of course, the primary concern for workers in the industry is the potential increase of production shifting to Latin America which may be facilitated by NAFTA. Unfortunately, the impact of the agreement is not that easy to quantify; for example, the agreement would also open the Mexican market to U.S. exports and remove many of the current trade distortions. It is likely, however, that some labor in certain segments would be adversely affected, especially in the semi-skilled categories where the compensation differentials are the greatest. Segments affected may include the assembling of light trucks (which currently face a relatively high barrier) and some parts components. Of course, export potential also exists in more value added components.

- 4) Other trade developments: from an export standpoint, U.S. growth will be influenced significantly by domestic content rules, tariffs, quotas, and other political restrictions. Developing nations prefer to increase domestic production in lieu of importing significant quantities. The 2-for-1 rule of exports to imports which has been imposed in Mexico is an example of such policy. Future expansion into other non-North American markets, especially in Asia, will have to deal with such policies. Additionally, U.S. trade policies will influence the degree of competition in the U.S. from

abroad. Japanese voluntary export restraints are being bypassed by transplant production, but are such policies mandatory on Korean or other Asian production? These issues will impact nameplate activities in the U.S., especially the Midwest.

Over the long run, location of manufacturing facilities in the Midwest for domestic and/or export production depends on the costs of production, including shipping, trade restrictions, and location concerns, relative to other markets. In a competitive marketplace these pressures are felt much faster and to a greater degree than in insulated markets. Consequently, when evaluating further global integration and its impact on the Midwest one should also consider taxation, education and training, regulation, shipping fees, transaction costs, and overall production costs. These elements determine the competitiveness of the firm and will, in the long run, play an important role in determining location, production activity, and export growth for any industry. Overall, external growth and domestic restructuring will continue to be the dominant issue for the domestic auto industry, especially in the Midwest. The future for the motor vehicle industry is increasingly a global one, both in terms of production and sales, and hopefully U.S. industry can benefit and get in the game. Otherwise, change and the resulting economic pain for the Midwest in particular may be severe.

FOOTNOTES

¹The Midwest is defined as the East North Central census region which includes Illinois, Indiana, Michigan, Ohio, and Wisconsin.

²Among other estimates the University of Michigan, Euro-motor, and the Commerce Department all conservatively estimate sales growth at this level. Estimates provided in this analysis have come from these sources.

³The recent sales declines may be a reflection of the general downward adjustment in the trend in auto sales. Demographic shifts, minimal income growth, and price increases may mean that further expansion in the market is unlikely. These factors may cause multiple problems for many producers, especially given the level of competition that already exists in the market.

⁴The expression "foreign nameplate" refers to vehicles produced by a company headquartered abroad. Production activity may well, and in fact does, occur in the U.S. For-

eign transplants refer to U.S. facilities of foreign nameplates. The initial development of transplant facilities began in 1982 when Honda established U.S. assembly facilities in Ohio.

⁵Domestic competition is also increasing. For example, Chrysler recently unveiled the first full sized model in two decades to compete with the highly popular Ford (F series) and GM (Chevy truck) models.

⁶Light trucks in this discussion exclude vehicles classified as Class 5 and greater.

⁷Recent EC rulings have encouraged the removal of auto trade restrictions within the community. These revisions are forcing significant changes within the Italian market.

⁸Regulatory procedures, specifically emission requirements, do encourage a higher replacement rate for autos than would otherwise be expected in a mature economy.

However, reduced prices for slightly used vehicles are beginning to put pressure on new car sales. Along with other adverse trends, one would expect only modest sales gains in the future.

⁹Conservative estimates of gross domestic product (GDP) in the dynamic Asian economies places growth at approximately 7 to 8 percent per year throughout the decade. Southeastern China, with a population equal to the U.S., has an economy growing at a 12 to 14 percent annual rate with industrial production growing in excess of 20 percent per year.

¹⁰Other elements are also important to support an expanding consumer market for vehicles. Infrastructure, especially roads and parking facilities, is an important factor. Additionally, there may be constraints on specific markets which will hamper growth. Hong Kong, for instance, because of space difficulties, has a very small vehicle market in spite of its relatively high income levels.

¹¹One qualification to the claim of apparent market dominance by domestic producers to the exclusion of other manufacturers is that cross ownership stakes are significant and therefore other manufacturers successfully permeated markets through equity stakes. For instance, GM has a 50 percent equity stake in Daewoo, while Ford has a 10 percent equity stake in Kia Motors.

¹²See Ballew and Schnorbus (1992).

¹³Recent acquisitions have reduced the number of independent automakers, especially in Europe, where intense restructuring appears to be occurring. These acquisitions have not dampened the degree of competition in the marketplace. If anything, competition has become more aggressive recently.

¹⁴Note that U.S. nameplates have been relatively aggressive in developing light vehicles that combine the strengths of trucks with the ride and comfort of cars. Minivans and many sports utility vehicles possess these characteristics.

Domestic nameplates' market share have also been helped by import quotas and the 25 percent tariff levied on imported light trucks.

¹⁵The expansion by VW and GM has recently added capacity in excess of 500,000 units annually.

¹⁶Chrysler is building built a facility in Austria and is targeting production of at least 150,000 units annually.

¹⁷Overall, production in this region (including Japan) currently exceeds 17 million units annually and estimates of additions to current capacity indicate that, by the mid-1990s, production will be well in excess of 18 million units. An increasing portion of this production originates in more diverse areas, including Japanese transplant facilities in Asia. Additional capacity in mainland China, Thailand, and Indonesia may increase capacity above 18 million units by the mid-1990s. Given the difficulties in measuring existing capacity and additions to capacity, a reasonable forecast would place the level at more than 18 million units by 1995.

¹⁸As illustrated by South Korea, emerging producers may have difficulties in exporting to mature markets due to quality problems, trade restrictions, and other factors. However, low labor and other production related costs are an offsetting factor in export growth to other emerging markets.

¹⁹Production of the Yugo and Trabant has been disrupted by current events. Production of the Lada is still occurring at the Nizhny Novgorod facility, an industrial behemoth employing 160,000 workers.

²⁰Some Mexican exports are the result of 2-for-1 import requirements. However, in general the exports reflect the cost effectiveness of Mexican labor.

²¹Note that product quality is a major concern with regard to foreign manufacturing locations. These concerns may offset other competitive disadvantages.

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