

# ***The Road Ahead for the U.S. Auto Industry***



**Office of Automotive Affairs  
Basic Industries  
International Trade Administration  
U.S. Department of Commerce  
March 2000**

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## ***Summary***

Sales of cars and light trucks set an unexpected record in 1999 of 16.9 million vehicles – nearly one million units higher than the previous all-time high reached in 1986. This year sales are expected to remain near or even above this level. Industry analysts are predicting anywhere from a 5 percent gain to a 5 percent loss.

The continued strength of European product offerings is expected to contribute significantly, along with those from Korea, to the continued resurgence of import sales. Japan will remain by far the major overseas supplier. U.S. production should grow by as much as 5 percent, augmented by increased output at the local plants of Japanese and German producers – and by modest export growth.

The ongoing global consolidation of the auto industry will have little, if any, adverse impact upon the U.S. operations of vehicle and parts producers or their employees. Nonetheless, consolidation will be a significant factor in the U.S. market, its imports, and its exports.

## ***Sales Set New Records***

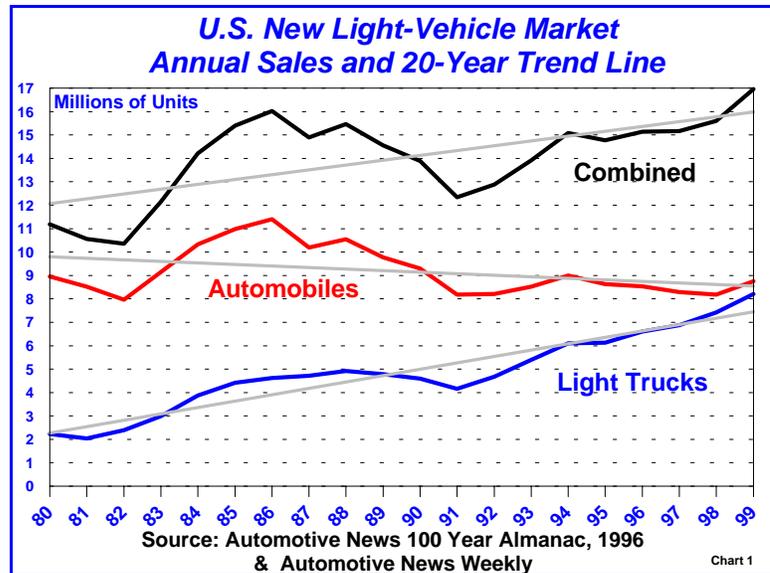
In 1999, record sales of light vehicles (passenger cars, station wagons, vans, sport utilities, pick-up trucks and “cross-over vehicles”) surprised everyone. Instead of the expected decline, the market rose by nearly 9 percent to an historical high of 16.9 million units. This surpassed 1986’s previous record of 16.1 million vehicles by almost 5 percent (Chart 1). Last year marked the first time in U.S. history that a consecutive 6-year period included five years with sales above 15 million units annually. (The laggard was 1995, with sales of “just” 14.7 million light vehicles.)

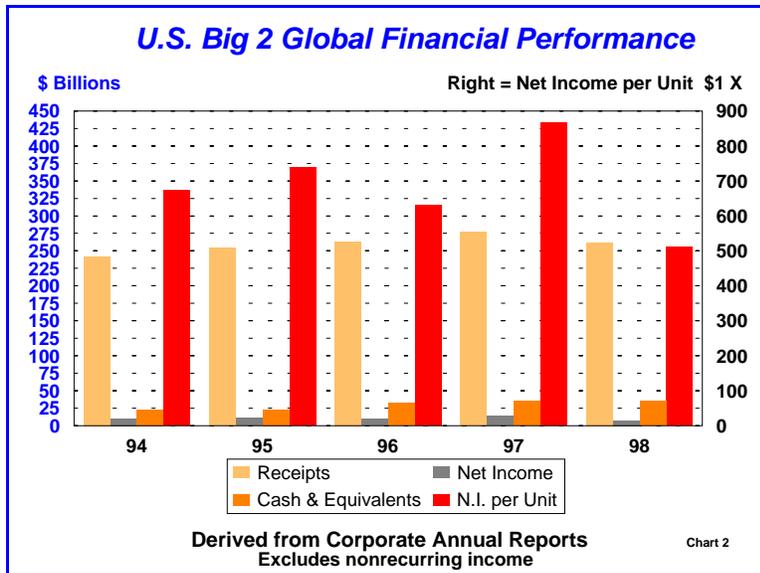
In value terms, consumers and business purchases jumped nearly 15 percent in 1999, rising from \$349 billion to an estimated \$400 billion, according to the Commerce Department's Bureau of Economic Analysis.

The U.S. industry should continue to perform well in 2000, infused with the energy of both a robust domestic market, as well as renewed demand from the Asian nations. High levels of

U.S. employment, consumer confidence, and purchasing power are predicted, all supported by the wealth engine of the U.S. stock market, and by unprecedented advances in manufacturing and office productivity that will continue to restrain inflation. Followers of this scenario see another record year on the horizon for the auto industry, with some forecasts calling for sales reaching as high as 17.7 million units. One well respected industry newsletter notes that a review of sales cycles over the past 40 years suggests the possibility of sales totaling 17.8 million cars and light trucks. Other analysts are more subdued, expecting higher interest rates on consumer loans, as well as increased consumer debts, and more caution in the stock market. They sense that the market is due to contract, never having grown so steadily for so long, nor to such heights. These analysts see a market of no more than 16 million units, which would still be remarkable. Through the two months of the year, the optimists are winning. Sales are being generated at a rate that would, in fact, translate to a total market of 20 million units for the full year.

On the corporate front, there remain only two U.S. manufacturers in the high-volume light vehicle arena – General Motors Corporation, and Ford Motor Company. Through a friendly acquisition in 1998, Chrysler Corporation was merged into the Mercedes Benz unit of Daimler-Benz AG, creating DaimlerChrysler AG, a German registered corporation. GM and Ford are themselves (as was Chrysler Corporation) the product of numerous merges and acquisitions in the immediate and distant past. They are the two largest producers in the world, accounting for 25 percent of all vehicles produced around the globe in 1998. DaimlerChrysler ranked fifth, while Chrysler alone also would have ranked fifth, because of its far greater unit volume, compared with Mercedes Benz.





In revenue terms, Daimler-Chrysler ranks third behind General Motors and Ford.

Between 1994 and 1998 the combined global net income of the "Biggest 2" totaled \$52 billion on revenues of \$1.3 trillion. 1997 was the best calendar year of the period, producing income of \$13.6 billion on revenues of \$277 billion, their highest ever and 5 percent above 1996, itself a record year (Chart 2). Although

their 1998 net income slipped to \$7.7 billion on revenue of \$262 billion, the two regained their momentum in 1999, posting a new record of \$13.3 billion net income on revenue of \$339 billion. In contrast, the Japanese Big 4 – Honda, Mazda, Nissan, Toyota – reported global earnings of \$19 billion in the five year fiscal period ending in 1998, on revenue of \$1.1 trillion. Their fiscal 1998 net income was \$6.4 billion, up 19 percent on revenue of \$224 billion, up 13 percent<sup>1</sup>.

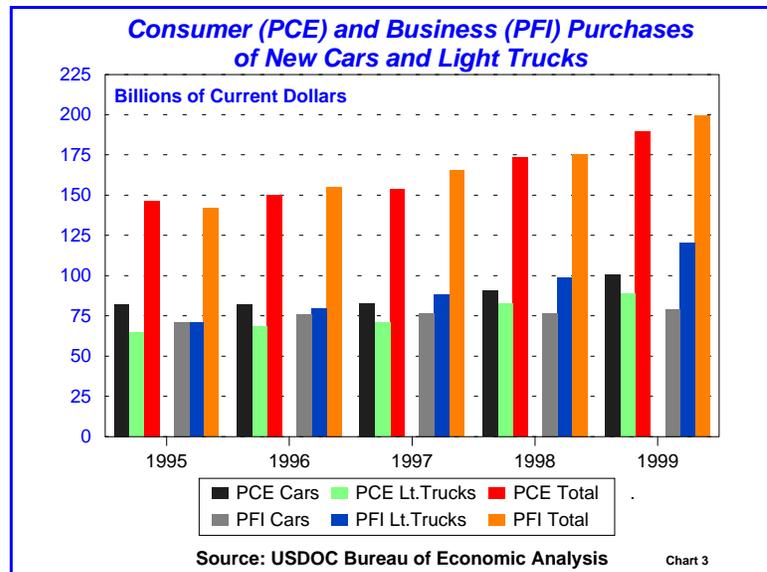
## The Market Evolves

At the last peak in total U.S. light vehicle sales – 1986, 16 million units – light trucks (vans, pickups and sport utilities) supplied just 29 percent of the market. Their share has risen every year since (Chart 1), and in the opinion of many analysts will exceed 50 percent this year. During 1999, light trucks continued their rush towards the head of the class. Overall, unit sales jumped 11 percent, fueled by a 15 percent increase in purchases of sport utility vehicles and their derivatives. Although passenger car sales also increased, growing by 7 percent, the result was a slight increase in the light truck overall share, rising from 47.5 percent to 48.4 percent.

Information developed by the Bureau of Economic Analysis (BEA) bears further witness to the truck phenomena. Their data indicate that light trucks now account for 54 percent of

<sup>1</sup> Converted at prevailing annual exchange rates. Because of exchange rate fluctuations, caution must be exercised in comparing converted values.

total expenditures by consumers and businesses, compared with 47 percent in 1995 (Chart 3). BEA data also show that business outlays for light trucks have been steadily outstripping expenditures by consumers. The differential increased from \$6.2 billion in 1995 to \$31.3 billion in 1999.



Before light trucks take over the U.S. market, the clear delineation that exists between passenger cars and consumer-

oriented trucks most likely will disappear. Demand is growing for more upright, more versatile, more comfortable 'cross-over' vehicles that blend the best attributes of passenger cars with the carrying capacity and ruggedness of sport utility trucks. Adding momentum to the trend is the convergence underway between the federal government's safety standards for light trucks and passenger cars, as well as a narrowing of the differentiation in fuel economy requirements and emission standards for these two segments of the market. The appeal of a 4-door passenger vehicle combined with an open, but shortened cargo box is developing a following that quickly could return the simple pick-up truck to the minuscule and relatively unprofitable share of the consumer market from which it sprang.

The first of the new breed of cross-over vehicles, built upon car platforms and 'disguised' to appeal as civilized and luxury sport utility vehicles, appeared in the offerings of the foreign affiliated manufacturers in 1997-98. Honda's CRV, Mercedes' M-Class, Subaru's Forester, and Toyota's RAV4 are all examples. New offerings are on the way, including the Ford Escape, Pontiac Aztek, DaimlerChrysler PT Cruiser, and Volkswagen's AAC.

In fact, all of the producers are working feverishly to develop new "segment busting" products. Each is seeking to create a magical mix of never-before-seen features that will offer greater practicality, price, performance and styling than anything yet offered. They recognize that to turn a profit in a slow-growth market means they must find a way to take market share from their competitors. In fact, the 20-year trend line for the U.S. suggests that growth will average no more than 1 percent annually for the next several years. Thus the imperative to fracture the market into new segments.

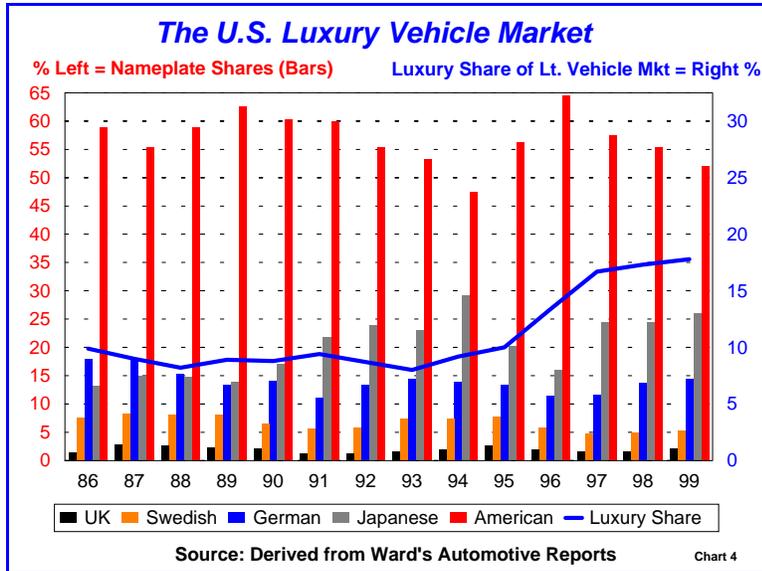


Chart 4 indicates another trend, the significant increase in the sale of all cars and light trucks categorized as luxury vehicles by Ward's Automotive Reports<sup>2</sup>. This segment of the market is growing larger, increasing its consumption of luxury vehicles from 10 percent of total sales in 1986 to nearly 18 percent in 1999, a total of almost 3 million units. Within the highly profitable luxury category, traditional American brands have slipped from a 65 percent share

in 1996 to 52 percent in 1999. The Japanese share peaked at 29 percent in 1994, fell to 16 percent the following year, and now stands at 26 percent. German brands, which supplied 18 percent of the 1986 market, slipped to 11 percent in 1991. They now account for 15 percent overall. There are, as yet, no Korean brands competing in the luxury category.

Chart 4 is based on old-line brand affiliations as recognized by the public, and is useful for showing the progression of market shares over the past several years. However, the industry's ongoing global consolidation (see the following section) is rendering such comparisons based on geography less meaningful. For example, adding Chrysler's luxury sales to that of German, because it is now a unit of DaimlerChrysler, would reduce the 1999 American share to 37 percent. It would more than double the German share to 30 percent. But, adding all of Sweden's Volvo and Saab brands to the American share, since Ford and GM now own these two companies, would increase the American share to 42 percent. Adjustments also could be made for Britain's share, which – like Sweden's – would completely disappear. VW owns Rover, Ford owns Jaguar. Distributing these brands produces a final "American" share of 43 percent, and for Germany, 31 percent<sup>3</sup>.

<sup>2</sup> Generally, vehicles priced above \$22,000 in 1993, and above \$24,000 in 1999.

<sup>3</sup> Ward's Automotive Reports, the source of most of our sales data, does not report sales for very limited volume producers, including Aston-Martin, Lotus, Morgan, Rolls Royce, and TVR. Ford owns Aston-Martin. VW and BMW "share" Rolls Royce.

## ***Technology Changes Everything***

The most important phenomenon to emerge in 1999 was the impact that high technology is beginning to have on vehicle manufacturers. New processes, procedures, and products are beginning to rapidly permeate every facet of the industry, resulting in changes so extensive that it is clear that the industry soon will be irrevocably redefined and restructured.

The first indicator of the new order is the emergence of 'eco-cars' that significantly lower the adverse impact of the motor vehicle upon the environment. Both the public's and the industry's interest in these vehicles was accelerated by the 1990 amendments to the U.S. Clean Air Act that mandated greatly reduced levels of environmental emissions by all motor vehicles, beginning in 1994. Additional stimulus came from the California Air Research Board, which requires that 10 percent of all new vehicles sold in California in 2003 and beyond produce no air pollution. The public's response to the first industry offerings – typified by GM's first-to-market all-battery EV-1 and Honda's similarly powered EV Plus – was best described as underwhelming. Even so, it is clear that a strategically significant market is developing both within and beyond California's borders for eco-vehicles that effectively combine low environmental impact with outstanding operating economy, excellent comfort and performance, adequate range, and an acceptable price. Consequently, the industry is pouring huge sums of money into the effort.

Hybrid power systems, which combine small gasoline or diesel engines with battery packs and electric motors, appear to be the next best step in the evolution of the eco-car. Honda was the first to market with its hybrid, Insight, in late 1999. A small two passenger vehicle reminiscent of Honda's mid-1980s CRX coupe, Insight generates impressive acceleration and 70 mile per gallon fuel economy. Toyota soon will market its hybrid, Prius, a 4-door 5-passenger compact that returns 55 miles per gallon of fuel. In January, GM showed its Precept prototype, an 80 mile per gallon, mid-sized, 5-passenger diesel-engine hybrid. GM also displayed an even more advanced version that will use an on-board hydrogen generator 'fuel cell' to power the vehicle's electric motors to the equivalent of 108 miles per gallon – while emitting no harmful emissions at all. Ford and DaimlerChrysler also are preparing to launch their own hybrids. All three are offspring of the government-industry Partnership for a New Generation of Vehicles, PNGV, administered by the U.S. Commerce Department's Technology Administration. The three companies have stated that they intend to have their hybrid vehicles on the market by no later than 2005.

The next technology innovation on the automotive horizon is "telematics," the convergence of the automobile, not with trucks, but with electrons. As exemplified by Ford's

experimental, boxy-shaped 24-7 show car displayed this January, automakers are rushing to incorporate into their vehicles everything the electronic information age has to offer, including global positioning devices, wireless internet web connections, remote emergency assistance, remote engine diagnostics, and ultra-sophisticated on-demand entertainment systems. Producers, claiming that vehicles aren't just about transportation anymore, are attempting to create not only a living room on wheels, but the home office as well. This trend probably will not end until it has merged with the decades-old 'smart highway' development project, creating self-guided mobile entertainment lounges and porta-offices – the internet portal become the portable internet.

Not only is the auto industry moving rapidly to include the internet in its products, it is moving even more rapidly to include itself in the internet. This February, General Motors and Ford synergized the creation of a virtual global-marketplace. At the urging of their suppliers, the two agreed to merge their internet-based purchasing hubs to create what could prove to be the most revolutionary development in the auto industry since Henry Ford pioneered mass production. DaimlerChrysler has also joined, as may Nissan, Renault, Toyota, and others.

Originally, mass production was hailed as the most effective way to lower manufacturing costs, generating great efficiency through the repetitive production of vehicles using components that were exactly interchangeable. Today, the internet's ability to establish a simultaneous communications link between all involved parties – customer, dealer, vehicle assembler and parts supplier – promises eventually to deliver even greater efficiency. On its simplest level, the virtual marketplace will enable auto makers to more efficiently and effectively solicit bids from existing and potential suppliers around the world. Cost savings just for GM, Ford, and DaimlerChrysler are estimated at \$50 billion a year from annual purchases that tally about \$250 billion. But even more savings are possible.

Mass production virtually guarantees that some unwanted products will be produced, often in great quantities, irrespective of how efficiently those products were produced. In essence, the mass production = efficiency equation is incomplete, as it can neither accurately quantify, nor guarantee, consumption of a product. The internet offers a way to perfect the equation. It will enable massive groups of individual customers to individually specify and to make a down payment for the exact product they wish to purchase, before even the smallest component is ordered by the vehicle assembler. Parts suppliers, assemblers, and dealers will no longer have to stockpile products. There will be no need to entice buyers to purchase vehicles that they may really not want.

Ironically, the internet provides a methodology for moving the industry forward by moving it backward – back from the mass production of pre-configured vehicles, and toward the custom assembly of vehicles one-at-a-time, in the “bespoke” fashion upon which the industry was originally established more than 100 years ago. The efficiencies inherent in this new, old approach already have been demonstrated clearly by the computer assembly industry. Savings in the auto industry will be nothing short of astounding, perhaps enabling a 25 percent reduction in the price of finished vehicles. We are about to enter a new age, one that is, perhaps, best described by DaimlerChrysler’s chief designer, Tom Gale, who labeled it “mass customization.”

## **The Industry’s Global Structure Also Evolves**

Driven by an excess of existing and expensive worldwide capacity for the production of motor vehicles (as much as 20 million units by some estimates – the equivalent of 80 assembly plants overall – nearly 50 percent of which are located in the Asia/Pacific region), and by slowing growth in the developed markets, the global auto industry has entered a period of swift and far-reaching consolidation. Left standing probably will be no more than ten producers, from a field that now numbers more than 200 major and minor firms.

Daimler-Benz and Chrysler triggered the current flurry of activity in November 1998. They stunned the automotive community by crafting a \$90 billion transaction that was the largest acquisition-merger ever undertaken in the industrial world. Chrysler, ranked seventh worldwide on the basis of production volume in 1997, and Daimler’s Mercedes Benz, ranked fifteenth, created DaimlerChrysler A.G., a German registered corporation that is the world’s fifth largest volume assembler. It trails GM, Ford, Toyota and Volkswagen, while displacing Fiat and Nissan.

Ford was the first to respond, acquiring Volvo’s automobile operations in March 1999 for \$6 billion. GM responded by increasing its position in Suzuki, a Japanese producer of small and mini-cars, to 10 percent, and followed that by raising its share of Japanese truck producer, Isuzu, to 49 percent. In December 1999, GM announced it would acquire 20 percent of Subaru for \$1.4 billion. Curiously, GM stated that although it was not taking control of Subaru, by terms of the investment agreement it would claim all of Subaru’s 2.3 percent Asian market share as its own. This raises GM’s ‘own’ share of Asian sales to over 6 percent, putting it more than half way to its goal of 10 percent. In 1989, GM bought one half of Sweden’s Saab Automobile for \$700 million. Earlier this year, it exercised its right to acquire the remaining half for a reported \$125 million. GM now is actively pursuing Daewoo Motors (which has an estimated \$16 billion in debt), in competition with Ford,

Fiat, Hyundai, and possibly, DaimlerChrysler. The Korean government has scheduled an auction of the firm for April of this year.

The Korean manufacturer, Hyundai, successfully outbid Ford in late 1998 for ownership of Korea's second largest producer, Kia, and also has expressed interest in acquiring Samsung Motors. Samsung has installed capacity for 180,000 cars, but is estimated to have assembled just 28,000 in 1999. It carries some \$5 billion in debt. In early January of this year, Renault stated that it is engaged in exclusive talks with Samsung's parent to acquire the firm. This follows Renault's March 1999 \$5.4 billion expenditure to acquire 37 percent of Nissan Motor's stock and management control. Nissan Motors had placed itself on the auction block in late 1998, seeking a partner to help it eliminate debt and restructure its operations. Renault also purchased 22 percent of Nissan Diesel, the equally troubled heavy truck affiliate of Nissan. Recent press reports suggest that once it returns to profitability, Nissan Diesel will be sold to a third party.

Toyota increased its already controlling position in mini-car producer, Daihatsu, to 51 percent in 1998. Although Toyota announced this January that it was not interested in pursuing other acquisitions, in March it upped its stake in the heavy truck maker, Hino, to a controlling 33 percent. Toyota has expressed interest in arranging more non-equity technology development tie-ups with worthy partners, similar to its 1999 partnering with GM to research and develop fuel cells and gas-electric hybrid propulsion systems.

For its part, Honda stated in 1999 its unequivocal intention of growing only the old-fashioned way – by internal expansion. Nonetheless it, too, has sought to develop cooperative relationships. Earlier this year Honda announced that it has already undertaken one – a venture to supply GM with a new generation of six-cylinder gasoline engines and transmissions, in exchange for small diesel engines from GM's Isuzu affiliate. They will be used in Honda's European products.

Despite the consolidation that has already taken place, the industry's restructuring is still not over. Firms continue looking actively for acquisitions, mergers, and non-equity ventures that will help them both to share and to reduce development costs, production expenses, and marketing overhead. When the consolidation is finally done, it is unlikely that there will have been any measurable negative impact upon the U.S. economy, or upon the existing operations of U.S. vehicle producers, or upon their U.S. employees. For others, the prospects are not so sanguine. In particular, local vehicle assemblers in the emerging markets are not likely to remain economically viable, except with the protection

of their host countries; and that portends clashes with other governments seeking to further expand international trade.

## U.S. Market Shares Continue to Shift

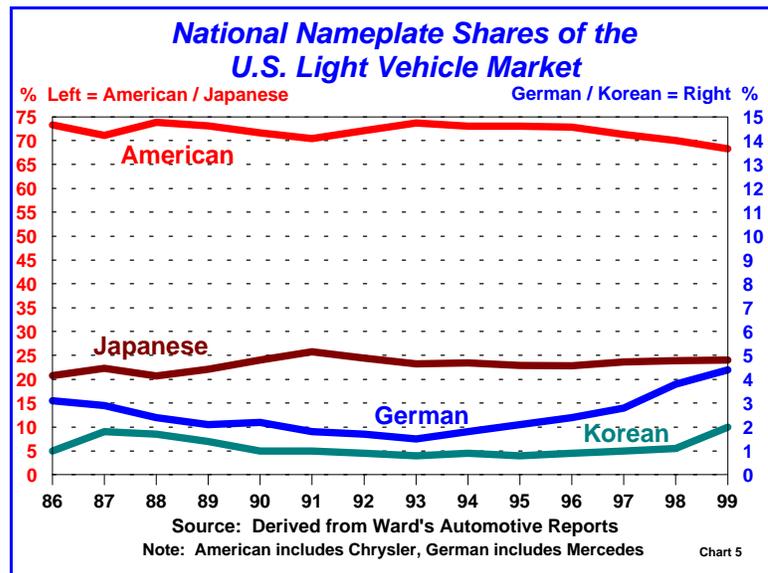
While the U.S. market has been expanding since 1986, sales volume for the traditional Big 3 American brands traveled in the opposite direction. They sold 11.8 million units in 1986, but only 11.5 million vehicles in 1999, a decline of 2½ percent. (Even so, their 1999 volume was 6 percent higher than in 1998). The Big 3's combined overall share fell from 73.3 percent in 1986 to 68.3 percent in 1999 (Chart 5).

Since 1995, they have lost share in every year. Given current trends, the Big 3 may continue to lose share in 2000 in both cars and light trucks.

Within the passenger car segment, Big 3 American brands (GM, Ford, Chrysler) have lost share in almost every year since 1986, and in every major sub-segment – except large cars. In 1986, their overall share of all new car sales was 71.5 percent.

It dropped from that peak to 56.1 percent in 1999. Their share of small car sales dropped from 66.2 percent to 53.7 percent. Their mid-size share went from 72.4 percent to 57 percent, while their share of luxury car sales fell from 57.3 percent to 34.6 percent. The Big 3 continue as sole supplier of the large car segment<sup>4</sup>. Unfortunately, that sector declined from 11.4 percent of the passenger car market in 1986 to 8.2 percent in 1999.

The Big 3 had been able to take comfort (and most of their profits) from their dominance of the light truck market, where they have more than held their own against Japanese and European producers for years. The Big 3 increased their share of this segment from 78.1 percent in '86 to a high of 86.2 percent in 1996. In 1998, their competitors revamped their products and began offering more attractive products. Big 3 shares started to slip. By



<sup>4</sup> Toyota's Avalon, although similar in size, is cataloged as a luxury vehicle by Ward's.

1999, their overall share was 81.4 percent, having lost ground in all three major sub-segments. Their share of the van market dropped 4.5 points in 1999 from the previous year, falling to 86.3 percent. Their share of the 1999 pickup market slipped three-tenths of a point from the previous year's high water mark of 89.6 percent. Their share of the sport utility market also fell, dropping 2.4 points to 70.8 percent.

GM's American brands' share of the overall light vehicle market – which once exceeded 50 percent – has been in steady decline since 1991, falling from 35 percent to an all-time low of 29.1 percent in 1998. However in 1999, their share ticked up slightly, gaining one-tenth of a point. Volume rose 9 percent to 4.9 million units. Ford's American brands have lost share every year since peaking at 25.7 percent in 1995. By year-end 1999, their share was 23.5 percent, down 1.2 points from last year. Sales volume gained 3.3 percent to 4 million units. Chrysler's American brands share peaked in 1996 at 16.3 percent. Their 1999 share fell to 15.6 percent, down six-tenths of one point from 1998, on a 5 percent gain in volume to 2.6 million units. (Combined with Mercedes 1.1 percent share, Chrysler's 1999 share would be 16.7 percent. This would still have been a decline of six-tenths of a point, as Mercedes' share was the same in both years. However, volume would have risen by an additional six-tenths to 5.6 percent, growing from 2.68 million to 2.83 million vehicles.)

Sales in 1999 of Japanese brands (including vehicles produced in the United States) totaled 4 million units, up 9 percent. Their share edged up slightly, reaching 24 percent of the overall market, compared with a peak share of 25.8 percent in 1991. Mitsubishi was the surprise winner in volume growth, jumping 37 percent in 1999 to 261,000 units. Their share increased to 1.6 percent of the overall market. Suzuki also had a significant growth spurt, increasing volume by 32 percent to 50,000 vehicles and their overall share to 0.3 percent. Nissan appears to have regained its balance and sales are growing, putting a halt to its 4-year slide. Volume was up 9 percent for the year, reaching 677,000 units. Nissan's 4 percent market share was unchanged.

Honda first moved ahead of Nissan in U.S. sales volume in 1988 – and in Japan, in 1999. Honda's 1999 U.S. volume nearly reached 1.1 million units, up 6.7 percent. Its share, however, slipped one-tenth to 6.4 percent. Honda sells nearly as many passenger vehicles in the United States as in Japan, where it recorded sales of 1.14 million units in 1999. Toyota's 1999 share of the U.S. market was virtually unchanged from last year's all time high of 8.8 percent. Volume grew 8.4 percent to 1.5 million units, Toyota's highest.

Sales of German brands (including U.S. production, but excluding Chrysler) jumped over 27 percent in 1999, reaching a volume of 747,000 units. This produced a 4.4 percent

overall share, exceeding last year's high water mark by 7-tenths of a point. The German brand share has risen steadily since reaching a low of 1.5 percent in 1993. Volume for all German brands advanced last year, led by VW's 43 percent increase to 382,000 units, which netted the firm a 2.3 percent market share, its highest. Mercedes regained second place among German firms, overtaking BMW in 1998. Its 1999 volume grew 11 percent to 189,000 units, 1.1 percent of the total market. BMW's 1999 volume jumped 18 percent to 155,000 units, yielding a 0.9 percent share. Porsche's volume gained 21 percent, to a total of nearly 21,000 units. Its share remained virtually unchanged at 0.1 percent.

One of the biggest surprises to some analysts last year, was the growth in sales of Korean vehicles. Volume for the three Korean brands surged by 88 percent, reaching 330,000 units. This raised their market share from 1.1 percent to 2 percent, their highest level ever. Daewoo, despite its tentative situation in Korea, increased its 1999 U.S. sales by 1,200 percent over its introductory year. Sales totaled 31,000 vehicles, 0.2 percent of the market. Kia, now a Hyundai subsidiary, recorded sales of 135,000 units, up 62 percent. Its share rose by 3-tenths to 0.8 percent. Hyundai's sales increased 82 percent to 164,000 units, their highest since reaching 264,000 in 1998. Its 1999 volume increased the firm's U.S. market share by 4-tenths of a point to 1 percent.

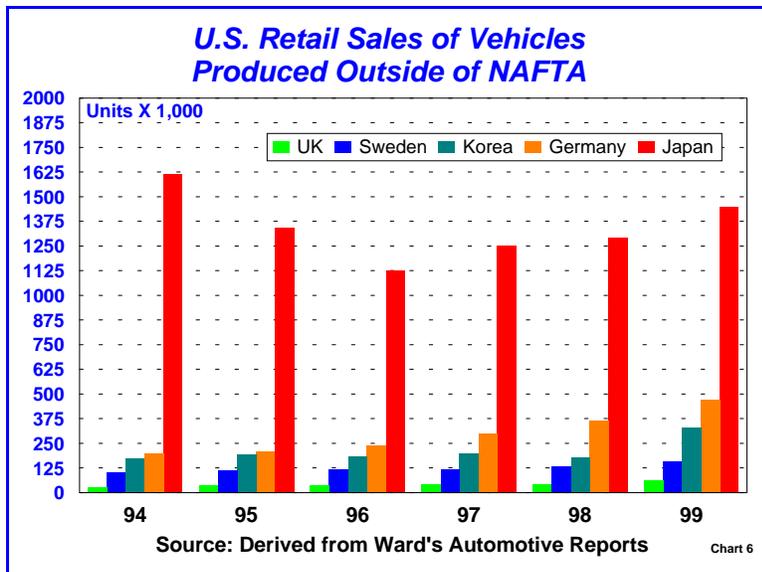
## ***Sales of Imports Expected to Increase***

U.S. sales of light vehicles imported from overseas (i.e., vehicles assembled in plants outside of the United States, Canada, or Mexico) peaked in 1986 at 4.2 million vehicles, 26.2 percent of the total market. Nearly 80 percent of these vehicles, 3.3 million units, came from Japan. This equaled 20.7 percent of the market. (The U.S. Big 3 accounted for 379,000 units of the Japanese sourced total in 1986.) German imports supplied 429,000 units of the market in 1986, a 2.7 percent share. Korean import sales supplied 169,000 vehicles, 1 percent of the total<sup>5</sup>.

In the 10 years since 1986, import sales from all sources declined steadily until reaching 1.7 million units in 1996, when they accounted for 11.3 percent of the total market. In 1997,

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<sup>5</sup> There is a significant distinction between industry reported "import sales" and "vehicle imports" reported by the U.S. government. The industry treats sales of vehicles made in Canada and Mexico as domestic, while government trade data reports them as imports. Moreover, there is a difference in timing a reported transaction. A vehicle that passes through U.S. Customs in December may not be reported as a retail sale until the following January, or even the year after that. Also, some imports may not be sold in the U.S. retail market. Finally, the international Harmonized Tariff System used to classify imports of passenger vehicles and light trucks does not match precisely the definition used in industry sales statistics. A discussion of U.S. trade will be provided in a separate paper, "Road Motor Vehicles, A Decade of Trade," to be released in the spring of 2000.



import sales grew by 224,000 units. Their share increased to 12.8 percent (Chart 6). By 1999, import sales reached 2.5 million units, 14.7 percent of the market.

Imports from Japan, now sold only by Japanese manufacturers, grew by 12 percent in 1999 over 1998. Sales totaled 1.5 million units, 8.6 percent of the market. Sales of German imports increased by 28 percent to 470,000 units, equal to 2.8

percent of the 1999 market. The German gain is the result of a shift in marketing philosophy that has produced vehicles that now are designed to appeal to American buyers, and that are more attractively priced. Also affecting the apparent rise in German import sales was VW's decision to shift production of its Golf model to Germany. Because it was previously assembled in Mexico, it was not counted as an import in U.S. sales statistics.

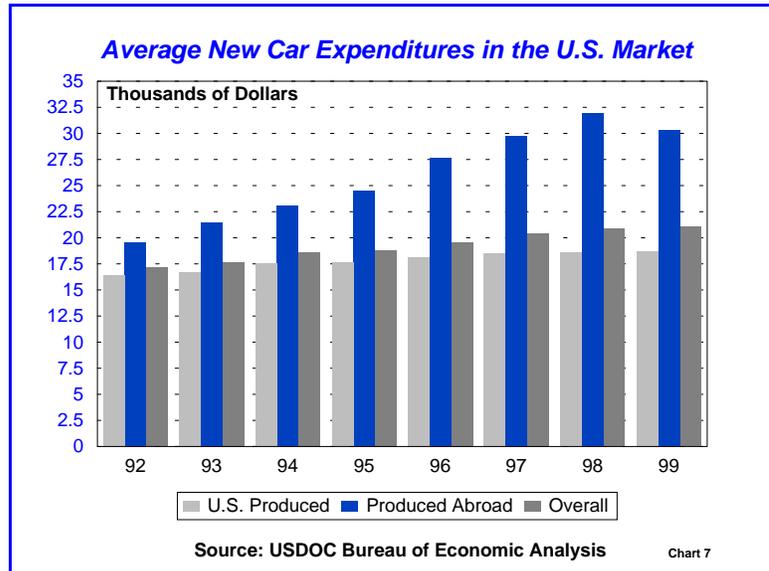
In addition to Korea<sup>6</sup>, there are only two other "country brands" supplying significant quantities of imports to the United States: Great Britain and Sweden. Sales of British imports peaked in 1987 at 40,000 units, 0.26 percent of the market. Sales declined steadily, falling to 13,000 units in 1992. They then began to rise steadily, reaching 44,000 units in 1998. Last year they jumped to 64,000 – a 0.4 percent market share. Swedish imports declined from their 1986 level of 189,000 until bottoming at 92,000 in 1993. They have risen steadily since, gaining 18 percent in 1999 to total 156,000 units, a 0.34 percent share.

It appears likely that sales of imports will not trend downward again during the next several years. In part this is because many of the imports are directed to newly emerging niche market segments that are too small to sustain local production; partially because many imports are greatly improved and are being offered at very competitive prices; and because

<sup>6</sup> All sales of vehicles produced in Korea are now accounted for by the Korean manufacturers. At one time, Ford, GM, and Mitsubishi also sold vehicles imported from Korea. The last GM sales occurred in 1993, Mitsubishi's in 1994, Ford's in 1998. Thus, Korean import sales and shares are as reported in the previous section on brand market shares.

there will always be significant demand in the United States for something new from somewhere else, especially in times of prosperity.

Indeed, the perceived cachet that derives from being imported does not apply only to wine and cheeses. Chart 7, based on BEA data, points out that what American consumers are willing to pay for imported vehicles greatly exceeds that of vehicles produced in the United States. Moreover, the gap has been widening rapidly. The average transaction for new imported cars rose steadily from \$19,600 (current dollars) in 1992 to almost \$30,400 in 1999.



Expenditures for locally assembled cars averaged \$16,400 in 1992 and reached \$18,700 in 1999. Thus a gap of 20 percent in 1992 more than tripled by 1999, rising to 63 percent. (It would be even wider, had not low-priced Korean imports surged last year.)

Even though they now have substantial excess capacity at home, Japanese firms remain committed to localizing production to serve their largest foreign markets. They will undoubtedly continue to add to their U.S. capacity. However, low volume, high value sport utilities and luxury passenger cars probably will be shifted to the United States only in limited instances. Isuzu, Mazda, and Subaru all lack either the resources, or the U.S. sales volume, or both, that would enable them to add significantly to their U.S. capacity, except at the margins. Nissan and Mitsubishi, on the other hand, are struggling to expand their U.S. production volume. Both have announced plans to produce new sport utility vehicles in their existing U.S. plants, joining similar efforts begun in 1999 by Honda and Toyota.

Imports from Germany also will continue to grow. BMW's imports, including the 3 Series, continue to be highly attractive to U.S. buyers. Except for adding capacity for the X5 new sport utility vehicle to its South Carolina plant, however, the firm has no announced plans for expanding production in North America. DaimlerChrysler has not indicated any near-term plans to utilize Chrysler's U.S. facilities to produce Mercedes-branded vehicles. Thus

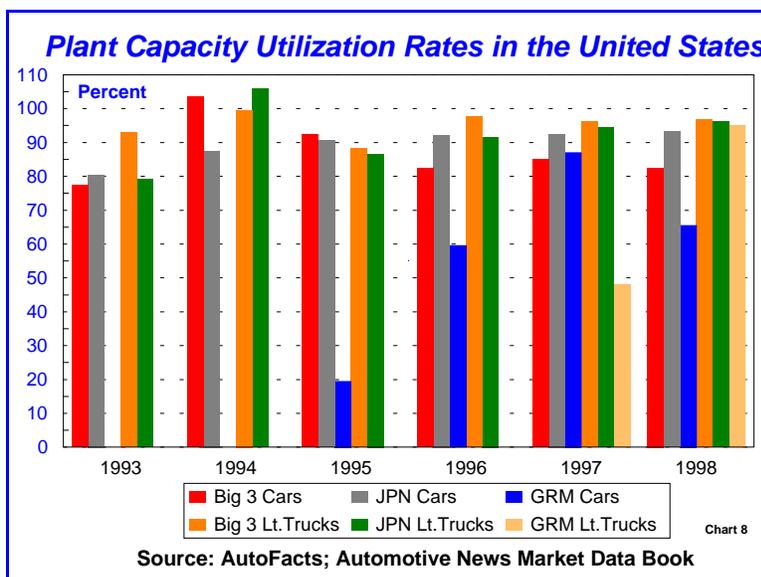
their imports will continue to register healthy gains. Porsche sales, which have been on the rebound since their near collapse in 1993, are growing strongly on the strength of a pared down, but improved product line. Its two sports cars soon will be joined in the United States by Porsche's first ever sport utility, produced in cooperation with VW. VW has also recently shown its own 'crossover' vehicle that may soon cross over to the United States. The "newly" imported Golf also shows no sign of losing popularity.

Sales of imported British and Swedish brands probably will continue to rise significantly in the near-term. Jaguar, Volvo, and SAAB, are all experiencing competitive advantages resulting from their absorption by Ford and General Motors. BMW has indicated that it will supplement the offerings of its struggling British subsidiary, Rover, bringing a modern rendition of the Austin Mini to the United States by 2001. It likely will be well received, albeit in limited quantities.

It is difficult to evaluate the trend for Korean imports. Both Hyundai and Daewoo carry heavy debt that is complicating their product plans. In addition, Hyundai is still working to absorb Kia, while Daewoo will be acquired soon by somebody. Quality is improving rapidly, but none of the three manufacturers are yet able to compete effectively in the United States on any aspect other than price.

## Capacity Utilization and Output Jump

Between 1993 and 1998, plant capacity utilization in the United States (a ratio expressing the volume of vehicles actually produced in a year, relative to a plant's designed capability to produce them) exceeded the



to produce them) exceeded the 80 percent rate that many consider to be optimal. The industry generated an overall rate of 84 percent in 1993 and 92 percent in 1998. Data for 1999 will probably be even higher, and may have equaled 1994's 99 percent overall rate. Industry data show that during 1998, rates averaged 86 percent for all passenger car plants and 99 percent for all light truck plants. Chart 8 provides details

on the variances between manufacturers, and between car and light truck plants.

The Big 3 collectively averaged between 86 and 101 percent utilization between 1993 and 1998. In 1998, DaimlerChrysler's Chrysler group averaged 98 percent overall for its nine U.S. plants. Ford's 16 plants ran at an average of 100 percent, while General Motors, suffering the effects of a major strike, produced at an 84 percent overall rate in its 25 plants. Between 1995 and 1998, the two plants operated by BMW and Mercedes ranged between 20 percent – in a start-up year – and 79 percent. BMW's 1998 rate was 66 percent, Mercedes' was 95 percent.

The Japanese-affiliated plants averaged 90 to 94 percent capacity utilization between 1993-98. Honda's two U.S. assembly plants ran at 115 percent of rated capacity in 1998. Nissan's single U.S. plant builds cars and trucks on separate lines. They ran at a combined rate of 69 percent. For most of 1998, Toyota operated two plants, each with two lines for cars and light trucks. Their combined utilization rate was 97 percent. Mitsubishi's single plant ran at 66 percent of capacity producing cars. (The firm will soon add production of a sport utility to its mix.) Mazda's joint venture with Ford ran at 94 percent. Subaru and Isuzu share one plant. One line produces cars; the other, sport utility vehicles. The plant ran at 103 percent of rated capacity.

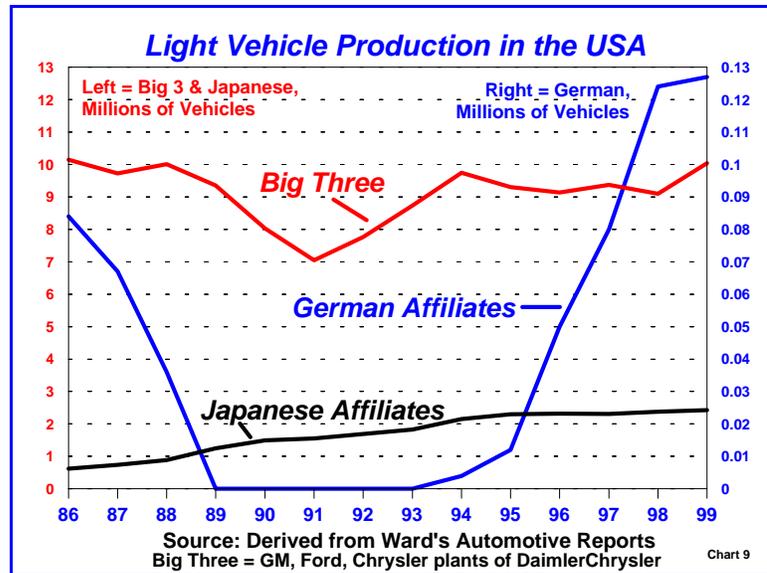
In 1998, total U.S. light vehicle production slipped 1 percent to 11.6 million units, mostly the result of lost production at GM's striking assembly plants. Production bounced back in 1999, gaining nearly 9 percent to reach a record 12.6 million units. Although U.S. passenger car sales have not yet been outstripped by light truck sales, light truck production jumped ahead of car production in 1998, accounting for 52 percent of the total. In 1999, their share went to 55 percent, on volume that gained 15 percent to a total of 6.9 million units. Car volume was up just 1.5 percent, totaling 5.6 million vehicles. This year could produce another record, with a volume of 13 million cars and light trucks possible.

Chart 9 shows that the Big 3's total output jumped 10 percent in 1999, reaching 10 million units, nearly the same level recorded in 1986. Their light truck output gained 14 percent, totaling 6.3 million units. Car production increased by 5 percent to 3.8 million vehicles. The Big 3 produced 3 million light trucks and 7.2 million cars in 1986.

GM's 1999 production totaled 4.4 million units, up nearly 16 percent. Light trucks gained 22 percent (totaling 2.3 million). Cars were up 9 percent (2.1 million). Ford's 1999 output grew by 6 percent to 3.6 million units. Light trucks were up 8 percent (2.4 million

units). Cars gained 1 percent (1.2 million units).

DaimlerChrysler's Chrysler group output in 1999 grew by 8 percent for the year to 2 million units. Light trucks advanced 11 percent to 1.5 million units. Cars declined 0.4 percent to 432,000 units. Chrysler has gone the farthest in turning to light trucks. Its car volume declined by 67 percent from 1986, while light truck volume (minivans, sport utility vehicles and pickup trucks) was 10 times larger.



GM has struggled for several years with an imbalance in capacity. It not only has had too much for its market share, it also has had the wrong kind – cars. In January, GM announced plans for a new \$558 million assembly plant that it is building in Lansing, Mi. This is GM's first new vehicle plant since opening its Saturn facility in 1986. It also is GM's first plant capable of building either cars or light trucks. Lansing Grand River will represent a large – but probably not final – step by the company toward incorporating modular assembly techniques into the production of vehicles.

For several years, Japanese firms have been displacing their own imports into the USA by transferring production to the NAFTA region – primarily the United States. In 1986, Japanese affiliated plants in North America supplied 12 percent of their total U.S. sales. By 1998, their share was 63 percent. Local production by the seven Japanese companies with U.S. manufacturing operations grew 2 percent in 1999, reaching a total of 2.4 million units. However, imports grew so rapidly that the locally produced share of total Japanese sales slipped to 62 percent.

Honda's U.S. production – until now, all cars – fell 1 percent to 686,000 units in 1999. Honda announced in mid-year 1999 that it has committed \$400 million to build a light truck and engine plant in Alabama. Annual capacity for each product is 120,000 units. Job 1 is scheduled for 2002. In late 1998 Toyota opened a new light-truck plant in Indiana with an annual straight-time capacity of 150,000 units. Capacity will be doubled by the

time additional construction is finished next year. This follows a 1997 expansion of their Kentucky plant capacity by 50,000 cars and 50,000 vans. Toyota's three U.S. plants (the third is a joint venture in California with GM) increased production by 6 percent overall in 1999, reaching a total of 838,000 units.

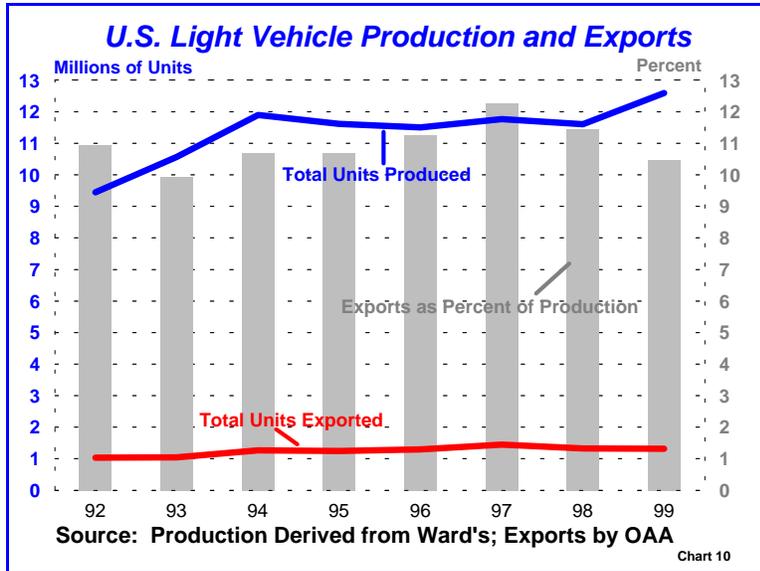
Last year, total production in Nissan's Tennessee plant, rated the most efficient of all plants in the United States by Harbour & Associates, plummeted 23 percent to 309,000 units. Nissan began shifting production of its slow-selling Sentra from its U.S. plant to Mexico in 1997, completing the transition in early 1999. Nissan's total U.S. production recovered in 1999, gaining 5 percent to 325,000 units. While car production dropped by 25 percent to 168,000 units, truck volume jumped 82 percent to 157,000 units.

German firms increased their U.S. production by 3 percent in 1999 to 127,000 units. Both BMW and Mercedes Benz have taken advantage of the market opening provisions of NAFTA by building plants in the United States to serve all three markets. They are also exporting from the United States to other countries, including Germany and Japan. In 1998, Mercedes increased capacity at its Alabama SUV plant, adding 15,000 units to the original 65,000 unit capability. Mercedes 1999 production gained 10 percent, reaching 76,000 units. Production at BMW's 80,000 unit South Carolina plant fell 12 percent in 1999 to 48,000 units, the second decline since the plant opened in 1995. In 1999, BMW completed a \$650 million expansion. The investment created a separate line that will have 60,000 units of capacity for its new X5 sport utility truck. Like the Z3 sports car now being produced, the X5 will be built exclusively in the United States for all markets.

## **Exports May Drift Upward**

Over the past 10 years, exports of new passenger vehicles and light trucks from the United States has averaged close to 11 percent of total light vehicle production each year. U.S. exports slipped 1 percent in 1999 to a total of 1.3 million vehicles, dropping the export share to 10.5 percent (Chart 10). More than a million units of the 1999 export total went to our NAFTA partners, Mexico and Canada. If these units are excluded from the total, then exports as a share of U.S. production drops to an even more modest 2.5 percent share in 1999, compared with 3.5 percent last year.

The top 20 markets for U.S. built passenger vehicles and light trucks accounted for 97 percent of the \$19.7 billion total that was exported last year. The top 20 list has changed little since 1992. It includes nine emerging markets – few of which are expected to exhibit



strong demand for imported motor vehicles<sup>7</sup>. Consequently, even though economic recovery is now building in many of the world's emerging markets, the potential for significant U.S. motor vehicle export growth in the near term is probably no more than "modest." Shipments might reach \$20 billion in 2000, an increase of 2 percent.

Three factors contribute to this prognosis. First, most of the growth in the global vehicle

market will occur in the emerging markets of Asia and Latin America. U.S. manufacturing capacity, however, is dedicated to vehicles designed first and foremost to appeal to the uniquely American market. Only Canadian, Mexican, and Saudi Arabian buyers share a similar taste in motor vehicles. In most other markets, U.S.-designed cars and light trucks generally are perceived as unsuitable, unappealing, or unaffordable. A notable exception are sport cars, sport utilities, and cross-over vehicles. They have excellent prospects in many countries as niche (i.e., low volume, but high margin) products.

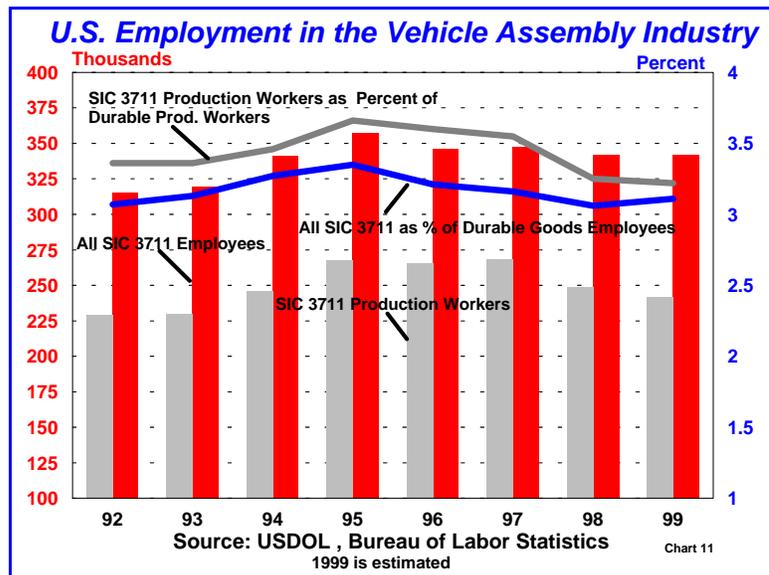
Secondly, virtually all vehicle manufacturers have reached the conclusion that to be competitive in the emerging markets, they must invest directly in them, rather than relying upon shipments from their existing factories. Finally, there is the reality that most governments in most of the emerging markets are intent upon fostering local vehicle assembly. Typically, these governments try to require foreign manufacturers to undertake joint-ventures with local partners as the price of market entry. They often demand a high level of local content, and offer investors high tariff walls and strict quotas to protect them from third-party imports. Compounding the problem of limited market access, some manufacturers actively seek such arrangements, the better to limit entrance to the market by their late-arriving competitors.

<sup>7</sup> In descending order: Canada, Mexico, Germany, Japan, Belgium, UK, Saudi Arabia, Australia, Spain, Kuwait, Taiwan, France, Italy, United Arab Emirates, Sweden, Switzerland, Dominican Republic, Chile, Venezuela

## Employment Will Moderate

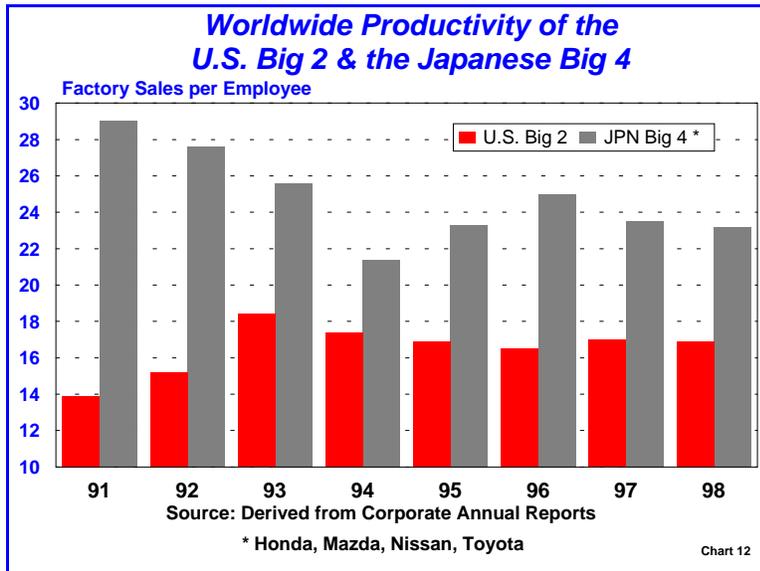
Production worker employment in the U.S. motor vehicle assembly industry (SIC 3711, Motor Vehicles and Passenger Car Bodies) peaked most recently in 1995 at a monthly average of 268,000 employees. In 1999, the industry employed an average of 242,000, a decline of almost 3 percent from 1998 (Chart 11). 1998's monthly average dropped by 7 percent, in large part because of the almost two-month long strike that stopped production at all but one of GM's 25 U.S. plants.

Because of the industry's emphasis on increasing productivity, employment levels for both hourly and salaried workers probably will continue to decline over the long term. This trend could be accelerated by the vehicle industry's ongoing efforts to redefine itself, moving further away from the concept of in-house, do-it-yourself manufacturing and closer to the computer industry's approach of coordinating the assembly of components supplied by contract vendors. This is evident in the modular assembly techniques now being used in Brazil by VW, GM, Ford, and DaimlerChrysler.



Modular production passes both engineering and subassembly responsibilities to a limited number of primary, 'Tier 1' vendors. The vendors provide fully built-up component modules which their own employees then bolt onto the vehicle as it passes their station on the manufacturer's assembly line. Contrast this with the traditional approach of a multitude of individual vendors supplying boxes of individual bits and pieces to the vehicle manufacturer's factory gate. Those parts, plus the parts designed and fabricated by the auto producer itself, are combined in the factory by the vehicle manufacturer's employees into units that subsequently are bolted to each vehicle. The modular technique enables vehicle producers to reduce their employment rolls (perhaps, by as much as 30 percent), and may also help vendors reduce theirs, if they subsequently can rationalize their own operations.

The Japanese-owned vehicle producers have long been recognized as the most efficient among all the global vehicle manufacturers. Compared with the Japanese Big 4's worldwide operations, the global operations of the American Big 2 continue to be less efficient. However, a look at the companies' annual reports reveals that the gap is closing in the ratio of total vehicle output (as measured by factory sales) to total corporate employment. In



1991, the Big 2 generated just 14 factory sales for each employee on the corporate payroll (Chart 12). The Big 4 sold an average of 29 vehicles per employee, more than twice as many as the Big 2.

By 1998, because their employment rose steeply while factory sales declined slightly, the Big 4's ratio dropped to 23 units per employee. The Big 2's ratio grew to 17 units per employee. Their total employment dropped sharply,

while factory sales grew strongly. Thus, the differential in favor of the Japanese producers has been reduced to 35 percent. Because American firms are pioneering techniques to improve productivity and have greater flexibility to reduce their payrolls, the gap probably will continue to narrow – provided, of course, that demand for their products continues to grow. And that, of course, is the greatest challenge of all.

In the very near future, the auto industry as we know it today will have been completely transformed by the relentless adoption and application of technology, most of it bred of the electron. Fewer competitors, but increased competition; lower manufacturing and distribution costs; reduced employment and greatly increased productivity; different and more efficient propulsion systems; enhanced vehicle capabilities and new styling packages; all are on the horizon. Through it all, and as it has been for over a century, the automobile industry will remain the source of much of the nation's economic wealth.