

The Road Ahead for the U.S. Auto Market



INTERNATIONAL
T R A D E
ADMINISTRATION

Manufacturing & Services
Office of Aerospace and Automotive Industries
U.S. Department of Commerce
March 2008

Table of Contents

Executive Summary	3
Introduction.....	5
2008 Forecast	6
Restructuring of the Detroit 3	6
General Motors	7
Ford.....	8
Chrysler.....	10
Motor Vehicle Employment	11
Detroit 3's 2007 UAW Contract.....	12
Health Care	14
U.S. Light Vehicle Production.....	15
U.S. Light Vehicle Sales.....	15
Energy & Environmental Issues	17
Rebates/Incentives	18
Product Changes & new Investments	18
General Motors	19
Ford.....	21
Chrysler.....	24
Toyota	25
Honda.....	27
Nissan.....	29
BMW.....	30
Daimler & Mercedes.....	31
Volkswagen.....	32
Hyundai-Kia.....	32
Innovation	34
U.S. Plant Capacity.....	37
Trade Overview	38
U.S. Exports.....	38
U.S. Imports.....	39
China.....	39
Korea.....	40
Japan	42
India	43
NAFTA	44
Road Ahead.....	46
Fact Sheet.....	49
Tables.....	51
Charts	59

Executive Summary

Domestic Trends

The U.S. market for cars and light trucks declined slightly for the second year in a row to almost 16.1 million vehicles in 2007, but overall sales remained strong, marking the ninth consecutive year with sales above 16 million units. Although light trucks still accounted for over half of the U.S. passenger vehicle market in 2007, sales declined for the third straight year. Sales of passenger cars also declined after increasing for the previous two years. Cross utility vehicles' sales increased, but sales in every other light truck segment (sport utility vehicles, pickup trucks and vans) decreased. Sales of hybrid vehicles increased significantly, up 40 percent, to reach 350,000 vehicles. This hybrid trend is likely to continue as more manufacturers introduce new hybrid and alternative fuel products in the coming months and years.

With increased competition, the combined market share of the Detroit 3 (GM, Ford and Chrysler) continued to fall, decreasing from 71.3 percent in 1997 to 50.9 percent in 2007. The loss of North American profitability and the need to control legacy costs led GM and Ford to announce massive restructuring plans in late 2005 and during 2006. After being sold by Daimler, Chrysler also announced restructuring plans in February 2007. Meanwhile, foreign competitors continue to invest in U.S. auto assembly plants and their individual, as well as cumulative U.S. market share continues to grow. Japanese brands had a 37.2 percent market share, and German brands had 5.9 percent in 2007. The Korean manufacturers, in particular, continue to make inroads in the U.S. marketplace with their market share growing from 2 percent in 2000 to 4.8 percent in 2007.

International Trends

The U.S. light vehicle trade deficit remained the highest in the world; however, it decreased in 2007 by 10.4 percent to almost \$97 billion (this is related to the dollar's decline in the global currency market). U.S. light vehicle exports increased 26.1 percent in 2007 to reach \$50.7 billion, and imports decreased 0.5 percent to \$147.6 billion, with a substantial portion of U.S. auto trade being intra-NAFTA. During 2007, imports from Japan remained flat, increasing by 0.5 percent, imports from Korea decreased by 5 percent, and imports from Germany decreased by 8 percent.

Capacity

U.S. light vehicle manufacturing capacity has slightly increased over the last decade, up from 12.91 million units in 1996 to 12.95 million units in 2006. In 2006, the Harbour Report showed that average capacity utilization was 83.9 percent. However, there are large differences among individual plants. Reductions in the Detroit 3's production will only be partially offset by new investments from foreign-affiliated firms.

Outlook

Market analysts are forecasting U.S. vehicle sales and overall production volumes in 2008 to be lower than in 2007, citing record oil prices, a housing slump, and consumers' decreased confidence in the economy. GM, Ford, and Chrysler will continue to implement their restructuring plans and battle for market share. In addition, the industry faces a growing consumer interest in fuel-efficient vehicles, stricter fuel economy regulations, and increased North American production from the Japanese, German, and Korean automakers.

The Road Ahead for the U.S. Auto Industry 2008

Introduction

Despite the ninth straight year of sales levels above 16 million vehicles, it was another difficult year for some of the individual automakers, particularly the Detroit 3. The domestic automakers continued to restructure their North American operations in order to meet challenges such as U.S. market share loss to foreign competitors, and high legacy and commodity costs. During the fall of 2007, labor negotiations were held between each of the Detroit 3 and the UAW. The resulting landmark contracts, which will reduce the Detroit 3's workforce, wages, and healthcare costs, will improve the automakers' competitiveness and save the companies approximately \$1,000 per vehicle.

In 2007, U.S. light vehicle sales totaled 16.1 million units, down 2.4 percent compared to 16.5 million units in 2006.¹ Although light trucks still accounted for 52.6 percent of the U.S. light passenger vehicle market in 2007, sales fell to 8.5 million units, a decrease of 2.4 percent from 2006. While cross utility vehicles' sales increased 8.4 percent, pickup trucks' sales fell 6.2 percent. Sales of passenger cars also decreased 2.6 percent last year, with an 18.1 percent decrease in sales of large cars.

According to the Department of Commerce's Bureau of Economic Analysis (BEA), consumer expenditures on new vehicles have been in flux over the past several years. (Chart 1) After consecutive decreases during 2004-2006, spending on new trucks increased 4.9 percent last year to \$140.7 billion. Conversely, expenditures on new cars decreased 3.8 percent to \$103.0 billion during 2007 after consecutive increases during 2003-2006. (Table 1)

U.S. light vehicle production also declined in 2007, falling by 3 percent to a total of 10.5 million units. (Table 2) Sales of vehicles produced outside the NAFTA region continued to rise in 2007, and their share of the market grew to 23.3 percent of total sales, an increase of 1.9 percent in sales. The share of U.S. sales of vehicles produced in Japan reached 13.6 percent of the U.S. market in 2007, an increase of 4.2 percent in sales; the share of imported German vehicles sold in the United States grew slightly to 3.8 percent of the market, a 2.3 percent increase in sales; and, the share of imported Korean vehicles fell to 4 percent of the market, a decrease of 3 percent in sales.²

¹ Automobiles, station wagons, vans with not more than 15 passenger capacity, sport and cross utility vehicles, and pickups. All rated at not more than 10,000 pounds of gross vehicle weight.

² The industry includes sales of vehicles made within the North American Free Trade Area [NAFTA] as 'domestic' vehicles. Everything else in industry sales data is an 'import.' The industry defines an 'import brand,' as any line other than those of GM, Ford, or the Chrysler Group. Import brands include vehicles their parents produce in the United States. Note, however, that U.S. government trade data counts all vehicles made in Canada and Mexico (including those of GM, Ford, Chrysler, Honda, Nissan, Toyota, and VW) in its import tally ('true imports') for determining the balance of trade with other countries.

Crystal Ball Shows Lower Sales Volume in 2008

Analysts caution that vehicle sales in 2008 could be the worst in a decade, with most predicting sales to fall below 16 million units. Predictions range from 15.5 million to 16.1 million vehicles. Fuel-price concerns, declining home values, difficulties in the credit market, stock market fluctuations, and consumer's shaky confidence in the economy are expected to negatively influence U.S. vehicle sales this year.

Many economic indicators predicted for 2008 are mixed, as they were in 2007. Income is up, but so are debt levels. The average interest rate for new car loans in 2007 was slightly lower, mainly due to rates falling during the second half of the year. Disposable personal income (DPI) was up 5.8 percent to \$10.2 billion in 2007. Per capita DPI reached \$33,712 in 2007, up 4.8 percent in current dollars, and up 2.2 percent in constant dollars.³ The national unemployment rate ended the year at 5 percent, higher than the year's average rate of 4.6 percent, and higher than December 2006's rate of 4.4 percent. The last peak rate was 6.3 percent in June 2003. Data from the Federal Reserve Board shows that total consumer non-revolving debt, which includes automotive loans, was projected to reach \$1.58 billion dollars in 2007, up 4.2 percent from 2006's level of \$1.52 billion.⁴ Interest rates on consumer motor vehicle loans at auto finance companies decreased last year, and were projected to average 4.54 percent for the year. For the fourth quarter of 2007, they were projected to average 4.07 percent, down from fourth quarter 2006's level of 5.62 percent. Consumers are taking longer-term loans to finance their vehicles, with many new vehicle loans being provided for five years or more. According to Bureau of Economic Analysis data, personal outlays for all non-mortgage interest payments continue to rise, reaching \$262 billion for 2007, up significantly from \$238 billion in 2006.

Participants at the November 2007 Federal Reserve Bank of Chicago's Economic Outlook Symposium projected economic growth in 2008 to be restrained by a weak housing sector, with GDP forecast to grow by 2.5 percent. Both short-term and long-term interest rates are expected to increase by 17 basis points and 30 basis points respectively, and oil prices are expected to decrease slightly, but remain above \$82 a barrel by the end of the year.⁵ Consumer's confidence of current-day conditions was slightly down in January 2008, and consumers' outlook for the next six months also was more pessimistic compared with December 2007.⁶

Restructuring of the Detroit 3

After experiencing losses in both market share and profitability, the Detroit 3 and their workforce have had to take drastic measures to cut costs and increase revenue. The Center for Automotive Research (CAR) reported in early 2008 that the Detroit 3 lost 32 percent of their U.S. employment between 1999 and 2006. CAR also reports (as of November 2007) that GM,

³ Current BEA data is available at: <http://www.bea.gov/beanipaweb/SelectTable.asp?Selected=N>. Scroll to Section 2 and select Table 2.1 for Personal Income; Scroll to Section 7 and select Table 7.2.5B for "Motor Vehicle Output."

⁴ See the Federal Reserve Board's monthly consumer credit report at: <http://www.federalreserve.gov/releases/g19>.

⁵ http://www.chicagofed.org/economic_research_and_data/index.cfm

⁶ <http://www.conference-board.org/economics/consumerconfidence.cfm>

Ford and Chrysler will shut down 34 U.S. and Canadian plants between 2005 and 2011. The UAW contracts negotiated in 2007 are a major step in narrowing the difference in labor costs and improving the Detroit 3's competitiveness. In addition, all three domestic automakers are currently in various stages of implementing restructuring plans to help them compete. Stout Risius Ross reported in 2007 that the profit-per-vehicle gap between the Detroit 3 and the top three Japanese companies (Toyota, Honda and Nissan) increased 32 percent between 2005 and 2006, reaching \$3,814. The rationale for the discrepancy includes: the Detroit 3's reduced sales; lack of parts and platform commonization; increased raw material costs; and, the impact of the exchange rate.

General Motors

In 2007, GM continued to implement its North American turnaround plan, which was initiated during 2005. However, the automaker reported a record annual loss of \$38.7 billion in 2007. The majority of the loss came from a non-cash \$38.3 billion special charge in the third quarter related to future tax benefits, as well as a \$1.1 billion net loss attributable to GMAC. GM still has a 49 percent equity interest in the financial services company.

For the third consecutive year, a majority of GM's sales, almost 60 percent, were outside of the United States. In fact, North America was the only region in 2008 where the automaker lost money, a \$1.5 billion full year pretax loss. GM attributes the loss to a softer U.S. market, a strategic decision to reduce dealer inventory by approximately 150,000 units, and lower sales of daily rental vehicles by 108,000 vehicles in the United States. GM's U.S. light vehicle sales declined almost 6 percent in 2007, and its U.S. market share declined from 28.1 percent in 2000 to a historic low of 23.6 percent in 2007. The automaker's U.S. light vehicle production also declined 9.1 percent.

Improving the product lineup and strengthening brands have been priorities for GM. Many of GM's recently launched vehicles are receiving positive reviews and experiencing strong sales, including the Cadillac CTS, Chevrolet Malibu, GMC Acadia, Saturn Outlook and Buick Enclave. Fifteen GM nameplates have been eliminated, while seven have been added over the past two years. The automaker is also investing in technology and engineering teams to speed up development of electric and hybrid vehicles. GM has already introduced a range of advanced technologies, which includes unveiling the Chevrolet Volt, a plug-in hybrid to be introduced in 2010.

To increase average transaction prices and strengthen GM brands, the automaker has reduced sales to daily rental fleets, not relied on incentives to move products, and better aligned its production with sales. GM also plans to organize its seven U.S. brands into four distinct dealer channels: Chevrolet, Saturn, Buick/Pontiac/GMC and Cadillac/Hummer/SAAB in order to enhance dealer profitability and further differentiate its products.

Moreover, GM reduced its annual structural costs in North America from 2005 to 2007 by \$9 billion. Savings have come from the 2005 hourly employee healthcare agreement, revisions to U.S. salaried employee healthcare and pension programs, capacity reduction actions, special attrition programs for 34,000 hourly employees, and other activities resulting in greater

efficiencies. Despite lower sales volumes in the United States, the automaker has reduced its global automotive structural cost as a percent of revenue from 34 percent in 2005 to 29.7 percent in 2007, with targets of 25 percent by 2010, and 23 percent by 2012.

Over the last 15 years, GM's hourly and salaried pension and healthcare costs have averaged \$7 billion per year. As a result of the UAW agreement and other cost-saving initiatives, GM expects these costs to be reduced to approximately \$1 billion per year beginning in 2010.

After announcing a first round of buyout incentives in January 2008 to 5,200 hourly workers at job banks, Service Parts Operations and other key sites, GM extended an enhanced offer in February 2008. During this second round, GM announced all of its 74,000 blue-collar workers would receive some form of buyout offer or retirement incentive. The retirement incentives have the option of having cash payouts rolled into a retirement or 401(k) account, which could delay tax charges. This offer is the first of its kind for the auto industry. Skilled-trade workers eligible for retirement will receive \$62,500 plus retiree benefits to leave, and production workers will receive a cash payment of \$45,000 and benefits. The buy-outs are intended to lower labor costs by making way for lower-paid new hires as part of GM's new labor contract with the UAW. A new worker hired into a lower-tier job will earn \$25.65 in combined wages and benefits versus current worker's earnings of \$78.31. For both phases of the program, 46,000 existing employees are eligible to retire. GM expects to complete the buyout by July 1, and anticipates seeing savings during the second half of 2008.

GM's former parts unit, Delphi, has been under Chapter 11 protection since October 2005. In 2007, GM had a special charge in the fourth quarter of \$622 million associated with its support of Delphi's restructuring efforts and \$552 million for pension benefits provided to Delphi employees and retirees. By 2010, GM expects the cost premiums it has historically paid to Delphi for systems, components and parts to be reduced by approximately \$1 billion. Those savings will be offset by various labor and transitional subsidies of \$400-500 million under Delphi's proposed reorganization, resulting in net savings of approximately \$500 million. As of February 2008, Delphi was still trying to emerge from bankruptcy.

To strengthen GM's liquidity, GM announced in June 2007 that it reached an agreement to sell its Allison Transmission commercial and military business to The Carlyle Group and Onex Corporation for approximately \$5.6 billion. The sale, which was completed in August 2007, covered seven Allison Transmission manufacturing facilities in Indianapolis, Indiana and its worldwide distribution network and sales offices. The transmission production facility in Baltimore, Maryland, will remain with GM. Also, in December 2007, GM and International Truck and Engine Corporation entered into a non-binding memorandum of understanding under which Navistar would purchase certain assets, intellectual property and distribution rights for GM's medium-duty truck business. The deal is expected to close during 2008.

Ford

On January 24, 2008, Ford announced preliminary financial results for the fourth quarter of 2007 and full-year 2007. Ford reported a full-year loss of \$2.7 billion, an improvement of \$9.9 billion from the 2006 loss of \$12.6 billion. For the fourth quarter of 2007, Ford lost \$2.8 billion, down

from a loss of \$5.6 billion during the same period in 2006. All operations, with the exception of North America, were profitable. In 2007, Toyota surpassed Ford in U.S. sales, putting Ford in third place for the first time in 31 years. Ford reported that significant progress was made on its plan to restructure the company and accelerate the development of new products. Although North American revenue increased, Ford blamed the very high auto and light truck incentives for most of the loss. With a decrease of 32,000 workers in 2007, less reliance on fleet sales (which are marginally profitable at best), a new contract signed by the UAW that will reduce labor cost substantially by 2009, and the reduction in capacity, Ford will be much more competitive in North America.

On January 23, 2006, Ford announced a major six-year restructuring plan for its North American operations, called Way Forward. To realign Ford's North American production capacity to match expected demand and reduce fixed costs, the company announced it would close 14 manufacturing facilities, including seven assembly plants by 2012. Ford reported it would reduce production by 1.2 million vehicles, or by 27 percent. At the time of the announcement, Ford predicted there would be a decrease of 25,000 to 30,000 hourly manufacturing jobs and an additional 4,000 salaried positions.

Other elements of the original Way Forward plan included: reducing parts and material costs by \$6 million by 2010; building a new low-cost manufacturing plant in North America; strengthening the identity of the Ford, Mercury, and Lincoln brands; using straightforward pricing on cars and trucks to avoid the need for discounts and dealer incentives; leveraging the company's global product-developing resources and flexible manufacturing systems to bring new models to the market faster; and no longer giving investors earnings estimates so the company could remain focused on long-term profitability.

Since the original Way Forward plan was announced, Ford has announced additional measures. Ford reported it will probably not be profitable until 2009 (originally set for 2008), but would dramatically reduce losses in 2007 and 2008. Originally, Ford announced it would close nine plants by the end of 2008, and another seven by the end of 2012 when the Way Forward plan is to be completed. The new UAW contract calls for two fewer plants to be closed (assembly plants in Louisville, KY and Wayne, MI). Also, no new plants will be built because the UAW hourly workforce will be much more flexible with job assignments which will improve productivity in the two other plants that were to be closed.

Regarding new models, Ford announced it will build a new subcompact, or "B-sized" vehicle, that will be a worldwide vehicle. Based on a concept car introduced at various auto shows under the Verve name, Ford will build different sizes and designs worldwide, all based on the Verve architecture. The United States and maybe the European Union will have a larger model, while countries such as China and India will have a smaller subcompact. Each model will be built to satisfy the tastes of consumers in each region, but cost savings will be realized due to a similar structure. Ford is also experimenting with different hybrid models whose commercial success will depend on new developments in batteries, alternative fuels, etc. Ford introduced the new F-150 pickup truck, its largest selling model, and announced a newly designed Taurus and Lincoln sedan and Lincoln crossover that will most likely go on sale during 2010.

On February 10, 2008, Ford told its dealers that a revamped marketing plan should be ready by April. Ford would not reveal details of the plan, but mentioned to dealers that more rear-wheel drive vehicles are in the early planning stage. The vehicles will be built on the new architecture from the company's large Australian cars. Ford also told the dealers it would lay out its incentive plans once a year instead of the current three month program. The one-year plan gives dealers time to better plan their marketing and inventory strategies. The dealers were also told Ford will refresh its models every three years. The vehicle may have the same architecture, but the newly introduced model will not have minor changes such as grills, bumpers, taillights, etc. Instead, Ford wants the consumer to recognize the vehicle as a new model. By 2012, about 70 percent of Ford's global volume will be built on eight architectures as Ford comes close to finalizing its first major Way Forward plan.

In order to improve cash flow, Ford sold Aston Martin in 2007 after owning it for 20 years. Ford is in the process of selling Jaguar and Land Rover to Tata Motors of India. That leaves only one European brand left, Volvo. Although Ford has stated it has no intention of selling Volvo, there is speculation that it, too, may be sold in the future. In 2007, Ford sold two of the 17 plants it bought back from Visteon with intentions to eventually sell all of their formerly-owned Visteon operations. The automaker sold the components driveshaft business to Neapco Drivelines and most of its automotive interior operations to Johnson Controls. Neapco is a subsidiary of Wanxiang Group headquartered in Hangzhou, China.

On January 18, 2008, Ford offered a new buyout program to all 54,000 hourly workers. Ford would like to trim an additional 2,000 salaried positions and 9,000-11,000 hourly workers in its U.S. plants. Since 2006, Ford has eliminated 44,000 hourly workers through cash buyouts, college tuition grants, and other incentives. During February, Ford began pushing the buyouts by sending a DVD to all 54,000 hourly workers explaining the advantages of accepting a buyout. If an employee accepts the college tuition route, the worker receives four years of paid tuition up to \$15,000 annually, plus health care coverage for four years and a stipend of 50 percent of their current base wage. For unskilled workers, the buyout is \$35,000, and for skilled workers it is \$75,000. Ford is even offering workers \$50,000 to start a new business, along with health care benefits for five years. If the employee is 55 years old and has at least 10 years service, the buyout amounts to \$140,000, there is no lifetime pension.

Although the first one/two years of the new UAW contract are costly to Ford, most hourly new workers will receive half the rate of current workers, less in health care benefits, and a 401K plan instead of a set amount every month for the rest of their life (defined pension). For salaried workers, the benefits are not as generous. If buyouts are declined from enough workers, there is the possibility of being fired. On the other hand, if too many workers opt for the buyout, the company may deny this benefit to some.

Chrysler

In August 2007, Daimler sold a majority share of Chrysler to U.S. private equity group, Cerberus, for \$7.4 billion. Under the terms of the agreement, Daimler was paid \$1.35 billion, while the remainder was used as equity for Chrysler. Daimler also contributed \$2 billion to

Chrysler, as well as paying \$650 million to dissolve the partnership. Daimler retains a 19.9 percent stake in Chrysler.

In 2007, Chrysler sold 2.08 million vehicles. This represents a 3 percent decline from 2006 sales. The company ranked fourth in U.S. sales. According to industry analysts, Chrysler lost \$1.6 billion in operating costs and \$1.3 billion in one-time costs, totaling \$2.9 billion in 2007. (As a private company, Chrysler is not required to make its financial statements public). In early 2007, Chrysler announced its Recovery and Transformation Plan. The plans called for developing new models, engines and transmissions. It required 13,000 job cuts throughout North America. However, in November after reaching an agreement with the UAW, Chrysler increased the job cuts to between 8,500 and 10,000 additional manufacturing jobs, as well as 1,000 salaried positions and a 37 percent reduction in contract workers.

In addition to reducing its workforce, Chrysler is reviewing plans to reduce its product portfolio by nearly half and to cut its current dealer network of 3,000 dealerships in an effort to be more efficient. It is reported that Chrysler may trim the number of models sold under its Chrysler, Dodge and Jeep divisions to 15 from 30.

Although small in comparison to total sales, Chrysler's international sales in 2007 are gaining in importance. Chrysler's sales outside of North America increased by more than 15 percent to 238,218 vehicles. This represents 9 percent of total sales. The automaker is targeting international sales of 400,000 by 2012.

According to Chrysler, which sells its vehicles in more than 125 countries, Jeep brand sales grew 11 percent, while Dodge brand sales jumped 39 percent. The automaker said its minivans were its highest volume sellers.

One of the most important new launches, however, could be a compact car produced in conjunction with China's Chery Automobile. Chrysler formed an alliance with Chery Automobile in December 2006, to fill a small-car gap in its product portfolio. Next year, Chrysler expects to begin offering a variant of Chery's A1 small car in Latin America. But because of quality, safety, and emission problems, sales of the new car in Europe and the United States are at least three years away. At a time when fuel prices are increasingly dictating a company's product range, this could be one of the bigger launches for Chrysler.

Motor Vehicle Employment

Direct employment in the domestic motor vehicle assembly industry (NAICS 33611), which includes both production workers and salary employees, was down 7 percent in 2007 to 185,500 employees. (Table 3) This number has slipped considerably from its most recent high-water mark of 251,300 persons in 1995. While American vehicle assemblers restructure and reduce their workforces to reflect their declining share of the domestic market, foreign automakers continue to add to their U.S. employment rosters as their U.S. production increases, but their additions will not offset the Detroit 3's reductions.

Motor vehicle production employment has declined in the last ten years by 36 percent from 235,600 workers in 1997 to 151,000 in 2007, while overall motor vehicle employment decreased 24 percent. Improved worker efficiency and productivity were contributing factors to the decline in production employment, but most losses are a result of GM's and Ford's decreased U.S. production resulting from increased foreign competition. New jobs created by the foreign-affiliated auto companies' new U.S.-based auto plants provide only partial replacement for jobs lost by GM, Ford and Chrysler.

As mentioned above, as the Detroit 3 restructure, there continues to be further job cuts in North America, with thousands of salary and hourly jobs being eliminated, mostly in the United States. CAR estimates 115,500 workers will leave the Detroit 3's U.S. operations between 2007 and 2016. The Detroit 3 are not the only automakers in the United States whose employees are affected by shifts within the marketplace. In February 2007, Nissan North America offered buyouts to 6,200 workers at two Tennessee manufacturing plants due to decreased demand for trucks and sport utility vehicles. Nissan reported that 775 workers accepted voluntary buyouts, representing a 12.5 percent reduction of the 6,200 employees at the engine and assembly plants.

While the number of employees in the industry shrinks, the remaining jobs continue to pay well. (Table 4) According to the U.S. Census Bureau's 2002 Economic Census, wages alone were worth \$12.9 billion in 2002, while fringe benefits added an additional \$7.4 billion to the total earned by all employees in the car and light truck assembly industry. The Department of Labor's Bureau of Labor Statistics data also indicate that motor vehicle production workers (NAICS 33611) remain among the highest paid in the U.S. economy. Their average hourly rate (excluding benefits) was \$30.33 in 2007, 74 percent higher than the average wage for all manufacturing workers.

This hourly rate will inevitably decrease as a result of the labor contracts negotiated between the UAW and each of the Detroit 3 during the fall of 2007. The new contracts, which reduce wages, and healthcare and pension obligations, will help the Detroit 3 to compete with the foreign automakers, with a combined annual savings of approximately \$8 billion. However, it is estimated that it will take the automakers approximately two to four years to fully benefit from the contracts.

Detroit 3's 2007 UAW Contract

During the last decade, the Detroit 3 have contended that their legacy expenses (retiree health insurance, pensions and automatic pension raises each year) and labor/health care costs for current hourly workers have caused their U.S.-built vehicles to cost between \$1,200-\$1,700 more to build than U.S. transplant vehicles and many imported models. In addition, the Detroit Three have not been allowed to outsource many positions such as landscaping, janitorial, repacking subassembly and many other "non-core" jobs.

The 2007 UAW/Detroit 3 contracts marked the first time since the beginning of the UAW in the mid-1930's, that the UAW gave back major benefits negotiated through the years and accepted

other changes it stated it would never allow. All three contracts have been signed. The major changes negotiated are:

- A two-tier wage system in which most newly hired workers receive a lower hourly rate and lower benefits.
- The establishment of a Voluntary Employees Beneficiary Association (VEBA) guaranteed to be funded for decades to cover health care costs for retirees/spouses. The VEBA, which becomes effective 2010, sets up an independent trust mostly funded by the Detroit 3, but the funds would be turned over to the UAW to be administered. Each company would provide an initial amount of cash (varies by company), securities, and stocks to meet the negotiated amount.
- Changes to the Job Bank to decrease the number of workers and length of time they are eligible for continued pay after they are laid off or their job is eliminated. Each employee would be offered a job in other plants, but after turning it down a certain number of times, would lose their jobs.
- Each company set a number of early buyouts for higher seniority hourly workers that would have to be taken by a specific date, or no longer be paid.
- New workers would not receive health care benefits after retirement.
- Outsourcing of non-core jobs is now allowed. (Type of jobs may differ from company to company.)

These contracts are unique because they do not follow the traditional process of pattern-bargaining. In the past, a target company was chosen from the existing U.S. manufacturers, and when there was agreement with that company, all others would be offered a similar contract.

Ford, GM, and Chrysler's contracts differ slightly, but the major provisions are similar. Probably the most important change was the acceptance of a two-tier wage system. The UAW has always demanded equal wages for equal work. Every UAW president has stated that at no time would a worker performing the same job be paid less than another worker. In addition, workers performing some specialty jobs such as electricians and pipe fitters would be paid a little more per hour than assembly line workers, but all in the same job classifications would receive the same hourly rate for the same work. This is one area where GM and Chrysler versus Ford differ. All newly hired workers at Ford (up to 20 percent of Ford's total workforce), including those on the assembly line, will receive a lower hourly rate and benefits. GM and Chrysler will only apply the lower-tier wage system to new employees in the "non-core" jobs. Though yet to be fully defined, these appear to include jobs ranging from truck driving and material handling to machining on some non-core sub-assembly work. Even with the distinction contained in the Ford contract, there will be a significant number of non-core workers at both companies. Research by CAR indicates these levels could reach almost 23,000 workers for GM and over 13,000 for Chrysler. The first large U.S. company to negotiate a two-tier wage contract was

Goodyear Tire and Rubber in 2006, and it is expected that many U.S. companies will be demanding this in their upcoming contracts.

In the 2007 contracts, new workers will be paid approximately half what the current workers are paid. New workers will be paid approximately \$15 an hour and have an average of \$12-\$14 in benefits, while current workers are averaging an hourly wage of almost \$30 and \$30 in benefits. In the past, hourly workers have had what is called a defined pension (a specific monthly amount plus cost of living adjustments) while the Detroit 3 now will contribute to a fund a certain amount for each hour worked by new employees (basically a 401-K). When the employee retires he/she will receive whatever is in their account in a lump sum. In addition, health benefits will be reduced for all new hires. The contracts also stipulate the Detroit 3 can close certain plants. In early 2008, new buyout offers were announced by Ford, GM and Chrysler. In 2010, the UAW will be responsible for the health care costs. Each of the three companies will provide a lump sum payment and securities/stock to the new VEBA. The terms of the VEBA percentage of each company's obligation vary.

Health Care

Rising health care costs have repeatedly been cited as one of the primary reasons negatively affecting the Detroit 3's competitiveness. The root of the health care burden for the Detroit 3 lies in two parts – the rapidly rising labor/health costs and the heavy burden of legacy costs for retirees. The health care benefits provided to the Detroit 3's workers, their families, and the retirees are the result of previously negotiated contracts with the UAW. As mentioned above, in 2007, the Detroit 3 engaged in contract negotiations with the UAW to address, among other things, health care costs and its impact on the financial solvency of the domestic automakers.

As a result of these negotiations, dramatic changes have been made to the health care plans/obligations of workers, the union, and the Detroit 3. One key aspect of the 2007 contract negotiations for the UAW was the protection of retiree benefits already guaranteed by previous contracts. Due to the financial status of the Detroit 3, the UAW agreed to an open-ended commitment to retiree health care to a UAW-run independent trust (VEBA). The cost of the VEBA to each of the Detroit 3 varies, with GM contributing the largest amount of approximately \$30 billion. In return for this large upfront contribution, the Detroit 3 can minimize doubts of future retiree health care costs and the legal obligation to provide health care to retirees.

Foreign manufacturers have not faced the same health care costs as the Detroit 3, giving them a large cost advantage. A 2006 Harbour-Felax study reported that Toyota's competitive health care advantage is as high as \$1,400 per vehicle compared to the Detroit 3. Nearly all competitors are based in countries that have national health care systems, giving these companies the benefit of a large number of workers for whom health care is already provided. In addition, the foreign manufacturers with U.S. production plants generally have a younger workforce and have far fewer retirees on the books. Nonetheless, as the number of their U.S. employees and retirees grows, international automakers with U.S. operations are concerned about rising costs. Toyota's health care costs have doubled over the past five years to more than \$11,000 a year per U.S. plant worker. Nissan announced in February 2006 it was dropping company-sponsored health

care coverage for its retired U.S. manufacturing employees over the age of 65 and instead pay them an annual stipend of \$2,500 to supplement Medicare coverage and out-of-pocket medical expenses.

In addition to the new contract agreements, the UAW has a number of other goals it would like to see implemented in the future related to health care. The UAW would like to see the following: the United States having a comprehensive national health insurance program, legislation requiring Medicare to negotiate drug prices with pharmaceutical companies, and a significant increase in the funding for the State Children's Health Insurance Program (SCHIP), among other goals.

U.S. Light Vehicle Production Continues to Decline

Following Daimler's sale of Chrysler to Cerberus in August 2007, there were twelve manufacturers who produced cars and light trucks in the United States in 2007 - - BMW, Chrysler, Daimler (Mercedes), Ford, General Motors, Honda, Hyundai, Mazda, Mitsubishi, Nissan, Subaru, and Toyota. In 1999, U.S. light vehicle production reached an all time high of 12.6 million vehicles. Volume dipped to 12.4 million vehicles in 2000, before skidding to 11.2 million units in 2001 on the heels of the September 11 attacks and industry efforts to control inventory. In 2002, production gains were sufficient to generate the third highest volume on record - - 12 million units, an increase of over 7 percent for the year. However, 2003-2007 saw declines, with last year's production at 10.5 million units, a slight decrease from the previous year of 3 percent. (Table 2)

In 2003, the Detroit 3's share of U.S. passenger car production fell below 60 percent for the first time, accounting for only 57 percent. By 2007 it dropped to 41.8 percent. Conversely, in 2003, Japanese manufacturers exceeded 40 percent for the first time, accounting for 41.8 percent of the total car production market. In 2007, Japanese producers claimed 54.1 percent of U.S. car production. In 1986, Japanese automakers accounted for only 4.1 percent of the car market. Moreover, while the Detroit 3 remained dominant in light truck production, their share slid from nearly 84 percent in 2003 to 72.7 percent in 2007. The Japanese manufacturers continue to make steady inroads into the truck segment, reaching 21 percent of production in 2007, up from 11 percent in 2002. (Chart 2) The Korean and German manufacturers' light vehicle production is also on the rise.

U.S. Light Vehicle Sales Decline For Second Straight Year

Total U.S. light vehicle sales were at their lowest level in a decade, 16.1 million vehicles, which is a 2.4 percent decline from 2006. (Table 5) The year 2007 marked the ninth consecutive year with sales above 16 million units, but it also was the second straight year of sales declines and another rough year for the Detroit 3. (Table 6) As the U.S. market has become increasingly competitive, Detroit 3 sales have been on a long-term downward trend. Their combined market share was fairly stable from 1986 to 1995, averaging 72.4 percent for the period. Of course, this is far below the over 95 percent share they controlled in 1965 when they truly dominated the

U.S. market. The Detroit 3's share in 1995 reached 73 percent, but then began a long and steady decline. The automakers' market share dropped below 50 percent for the first time during the month of July, and ended at 50.9 percent for 2007.

While the Detroit 3's sales fell 7.2 percent in 2007, the Japanese automakers' sales increased 3.4 percent, the German automakers' sales increased 2.9 percent, and the Korean brands increased 3 percent for the same period. (Chart 3) After overtaking Chrysler in 2006 as the third largest selling automaker in the United States, Toyota became the second largest last year, displacing Ford.

Not only is the foreign automakers' versus Detroit 3's market share virtually at the 50-50 mark, the share of the total light vehicle market for cars and light trucks is also almost split in half. Sales of light trucks declined 2.4 percent with a volume of almost 8.5 million vehicles, and accounted for 52.6 percent of the U.S. light vehicle market (a very slight increase from 2006's share of 52.5 percent). (Table 7/Chart 4) Sales of passenger vehicles last year declined 2.6 percent to reach 7.6 million vehicles, and accounted for 47.4 percent of the market (a slight decrease from 2006's share of 47.5 percent).

The three-year decline in the Detroit 3's light truck sales (almost 1.3 million fewer units than 2004) is of concern, since the segment (especially the full-size pickup truck) has greatly contributed to Detroit 3 revenues over the past decade. It is unlikely this trend will reverse in the near-term, as consumers increasingly look at more fuel-efficient options.

In 2007, sales of light trucks made up 61 percent of sales for GM, 68 percent for Ford and 72 percent for Chrysler. While manufacturers can earn \$10,000 or more on the most popular light trucks, they often earn \$1,000 or less on passenger cars. In 2007, the Detroit 3 sold 5.4 million light trucks (1997: 5.8 million), accounting for 66 percent of their total sales volume (1997 volume: 53 percent). Despite the volume increases over the years, the Detroit 3's share of the segment has fallen from 84.4 percent in 1997 to 63.7 percent in 2007, as new competitors, mainly the Japanese automakers, entered the market and expanded their lineups. The Japanese share of the light truck segment has increased from 14.7 percent of the segment in 1997 to 29.3 percent in 2007.

Sales of pickup trucks and vans, segments where the Detroit 3 dominate, took a big hit last year, with sales of pickup trucks falling over 6 percent and sales of vans dropping 15.5 percent. In addition, SUV sales have been falling since 2001, and they dropped another 1.5 percent to almost 2.1 million units in 2007, their lowest level since 1995. The Detroit 3's brands, which have a 78 percent share of the SUV segment, have been especially hard-hit, selling 29 percent fewer units compared to 2000.

While the overall sales of SUV's are declining, Cross Utility Vehicles' (CUV) popularity and the number of models offered continue to grow, with sales accounting for over 16 percent of the U.S. light vehicle market. Sales increased 8.4 percent last year, and more than doubled over the past five years. The Japanese brands have 46 percent of the CUV market, and the Detroit 3 have 37 percent.

The Detroit 3's biggest losses have been in passenger car sales. For this segment, their share has been declining in a fairly steady fashion for the last twenty years. (Table 8) In 1987, their share of the passenger car market was an impressive 67.1 percent. When competition in the passenger car market heated up and consumers became more interested in light trucks, the American brands focused their attention more sharply on the more profitable truck market. Passenger cars saw an increase in popularity from 2004 – 2006, but along with the decline in 2007 vehicle sales, the passenger car segment fell 2.6 percent. Overall sales of large cars took the biggest hit last year, dropping 18 percent, while luxury cars decreased 2.7 percent, and mid-size cars decreased 1.7 percent. Small cars, being more fuel efficient, were the only passenger car segment to grow, increasing by a modest 1 percent. Overall, Detroit 3's share of the passenger car market fell from 42.6 percent in 2004 to 36.6 percent last year, with sales decreasing 11.4 percent.

Increased gas prices and a growing interest in the environment have led more consumers to buy fuel-efficient vehicles. It remains to be seen if consumers will continue to pay a premium to buy hybrids, or if they will consider other fuel-efficient options, such as compact cars, that are less expensive. So far, many automakers have lost money on their hybrid programs due to higher production costs and relatively small sales volumes. Sales of hybrid models grew from less than 10,000 vehicles in 2000 to approximately 350,000 vehicles in 2007.

Energy and Environmental Issues

In December 2007, the Energy Independence and Security Act (EISA) was signed into law, including provisions that will impact the automotive industry. This legislation is designed to increase energy efficiency and the availability of renewable energy. Specifically, EISA increases Corporate Average Fuel Economy (CAFE) standards and establishes a new target of 35 miles per gallon for the combination of cars and trucks by model year 2020. Manufacturers will be required to come within 92 percent of the standard for a given year or risk civil penalties assessed for non-compliance. Manufacturers will also have the ability to earn credits for exceeding standards in one vehicle class that can be applied to the CAFE of a different vehicle class that is failing to comply with the standards. This new legislation also extends and increases the renewable fuel standard set by the Energy Policy Act of 2005. EISA establishes a modified renewable fuel standard (RFS) that starts at 9 billion gallons of renewable fuel in 2008 and rises to 36 billion gallons by 2022. The exact terms of the rule are now being prepared by the Department of Transportation and the Environmental Protection Agency.

Further Congressional action related to energy and environmental issues is certainly possible in 2008. For example, the Farm Bill currently being negotiated in the House and Senate contains several mandates addressing biofuels production, research, and development. In addition, the House Committee on Energy and Commerce intends to draft legislation for a mandatory, economy-wide greenhouse gas control program and has already issued several white papers on this topic.

The battle between the states and the federal government over who may implement emission standards is continuing in 2008. On December 19, 2007, the Environmental Protection Agency (EPA) denied California's request for a waiver from federal rules in order to enforce state

regulations to limit greenhouse gas emissions. The EPA argues that the recently signed EISA legislation provides a more effective national approach. As a result, California filed a lawsuit in January 2008 for the right to limit greenhouse gas emissions, and a number of other states have already joined California's suit. The automakers, on the other hand, are strongly opposed to allowing states to set their own regulations, and they argue it could force them to stop selling certain vehicles.

Incentives Slightly Decline

Beginning with GM's "Keep America Rolling" zero percent financing campaign in 2001 shortly after the September 11 attacks, the U.S. auto industry, particularly the Detroit 3, offered consumers high incentives and low to zero interest rate loans to prop up sales and market share. The market continued to be incentive-driven through 2005, but for the past several years, the Detroit 3 have made an effort to reduce incentives to improve profitability. They are focusing instead on value-pricing strategies and longer factory warranties. Also, the Detroit 3's restructuring efforts to improve their products and better align production with sales, have resulted in less inventories and the reduced need for widespread incentives. Edmunds.com reports that overall spending on incentives was flat last year for the Detroit 3, Japanese, and Korean brands, but increased slightly for European automakers. GM's average spending on incentives last year was \$2,975, up \$79 compared to 2006; Ford spent \$3,105 (a decrease of \$305), and, Chrysler spent \$3,812 (an increase of \$16). Honda had the largest increase in 2007, with its average up \$366 at \$1,104 per vehicle sold; Toyota spent \$832 (a decrease of \$6); and, Nissan spent \$2,049 (a decrease of \$265).

Product Changes and New Investments

Overview

In increasing numbers, foreign companies are choosing the United States as the location for their production facilities, partly in response to the more competitive value of the dollar versus foreign currencies. The United States has one of the most favorable and least restrictive investment climates in the world. While the Detroit-3 share of U.S. production has declined, more foreign automotive direct investment has increased light vehicle production. Moreover, since the Korean manufacturer Hyundai began production in 2005, it has also experienced successive increases in production.

During 2007, Detroit-3 light vehicle production fell 6.5 percent to represent 61.1 percent of U.S. production (63.4 percent in 2006). On the other hand, U.S. production by the Japanese manufacturers (Toyota/NUMMI, Nissan, Honda, AutoAlliance/Mazda, Mitsubishi/Diamond Star, and Subaru) has been growing significantly. Their cumulative 2007 production grew nearly 2 percent to 33.4 percent of total U.S. light vehicle production (31.8 percent in 2006). German manufacturers (BMW and Mercedes) assembled over 323,000 light vehicles in the United States, up 16.4 percent from the previous year and representing 3.1 percent of total U.S. light vehicle production (versus only 1.9 percent in 2005). Finally, in just two years Korean production has grown rapidly to represent 2.4 percent of total U.S. light vehicle production in 2007.

General Motors

One of GM's main goals is to improve its product lineup. GM will introduce 14 new or significantly revised powertrains during the 2008 model year. The lineup includes hybrids, clean diesels and fuel-saving technologies such as Active Fuel Management, direct injection, variable valve timing, six-speed transmissions and flexfuel options. The automaker has received positive feedback from both critics and consumers for recent product launches, such as the Buick Enclave, the Cadillac CTS (2008 Motor Trend Car of the Year), and the Chevrolet Malibu (2008 North American Car of the Year). In 2007, GM also debuted the Chevrolet Tahoe and GMC Yukon Hybrids, which were the world's first full-size hybrid SUV's using a two-mode hybrid system, and the Saturn Aura Green Line, the lowest-priced hybrid on the market for 2007. For the next two years, GM plans to release an average of one new hybrid model every three months. The automaker will also supply 1,700 diesel-electric hybrid municipal buses to Washington, D.C., Philadelphia, and Minneapolis-St. Paul.

At the January 2007 North American International Auto Show, GM unveiled its first plug-in hybrid vehicle, the Chevrolet Volt, which is powered by lithium-ion batteries. Designed to run on the batteries for 40 miles, the vehicle can handle approximately two-thirds of daily commutes for American drivers on battery power alone. The vehicle, which is targeted to be introduced in late 2010, is GM's first vehicle to use GM's E-flex family of propulsion systems. The E-flex system is an all-electric production vehicle architecture that can be configured to run on electricity from a variety of sources, such as gasoline, ethanol, bio-diesel or hydrogen. Unlike currently available hybrids, the Volt can be recharged overnight when plugged into a household current and carries a small gasoline engine on board to recharge the batteries, which gives the vehicle a range of approximately 640 miles. At the Shanghai Auto Show in April 2007, GM introduced the Chevrolet Sequel, which is another E-Flex concept using GM's fourth generation fuel cell system. The Sequel stores 8 kg of hydrogen and gives the vehicle a range of roughly 300 miles.

During 2007, GM announced a number of investments related to engine technology. Specifically, GM announced in January 2007 that it will invest \$300 million in its GM Powertrain Tonawanda engine plant to manufacture an all-new dual overhead cam (DOHC) V-8 engine for luxury vehicles. Production will begin at the New York plant in 2009. The investment includes renovation to part of the plant, new machinery and tooling. Tonawanda will retain 150 jobs as a result of this new work. Including the \$300 million, GM has invested \$1.5 billion in the plant over the last ten years. The plant has produced nearly 68 million engines since opening in 1938, and employs 1,565 hourly and 260 salaried employees. In February 2007, GM announced that its Ypsilanti (Michigan) Transmission Operation is producing a new variant of its Hydra-Matic rear-wheel-drive six-speed transmission, which will be standard of the all new 2008 GMC Sierra and Chevrolet Silverado heavy-duty pickups. The Ypsilanti plant, which employs 500, has produced almost 200,000 transmissions since opening in January 2003.

GM announced in May 2007 that it will invest \$44 million in its Bedford (Indiana) Foundry to produce transmission cases and converter housings for GM's six-speed transmissions. The project will retain approximately 100 production jobs at the facility. The investment includes plant renovation and installation of new die casting machines with an automated (robotic) casting

processing cell for each machine. Full production is targeted for December 2009. GM invested a total of \$114 million in the Bedford facility over a one-year period. The plant employs 544 hourly and 115 salaried workers. On a daily average, the plant manufactures 10,000 transmission cases and converter housings, 34,000 pistons, and 350 engine blocks.

In May 2007, GM also announced it will invest \$61 million in new technology at its Defiance (Ohio) plant to produce aluminum engine blocks in 3.6-liter high-feature V-6 (HFV6) engines. The investment will be the first application of precision sand casting technology at the plant, which results in higher material strength properties needed to support GM's newer engines. The investment includes plant renovation and installation of new tooling and machinery for the new technology. Production of the precision sand engine block castings is scheduled to begin in December 2009. The Defiance plant, which began production in 1948, employs 1,554 hourly and 246 salary workers.

GM also announced a \$332 million investment at its Toledo, Ohio transmission plant to produce a new six-speed, front-wheel-drive automatic transmission for GM's mid-size vehicle segment. The investment includes facility renovation, new machinery, equipment and special tooling. GM will invest an additional \$57 million for vendor tooling, containers and investments at other locations to support the Toledo operations. Production of the transmission is scheduled to begin in February 2010. The \$332 million investment is in addition to a \$540 million investment GM announced in 2006 for rear-wheel drive six-speed transmission production at the Toledo Transmission plant. GM's Toledo plant opened in 1916 and moved to its current location in 1955. The plant employs 2,033 hourly and 265 salaried employees.

Also in May 2007, GM announced that it will invest \$63 million in its Saginaw, Michigan casting plant to produce cylinder heads for 3.6-liter high-feature V-6 engines. The investment includes plant renovation and installation of new tooling and machinery to support a new casting process. The project is expected to be completed by January 2011. The Saginaw facility opened in 1918 and is GM's largest aluminum producing facility. The plant employs 924 hourly and 167 salaried workers.

GM announced in June 2007 it will invest \$100 million in its Tonawanda (New York) engine plant to produce an all-new, 4.5-liter V-8 Duramax high-output diesel engine for the Chevrolet Silverado, GMC Sierra light-duty pickup trucks, and the HUMMER H2. The engine fuel efficiency improves by approximately 25 percent when compared with gasoline engines. Environmental benefits of the new engine include a 13 percent reduction in CO₂ versus gasoline engines, and at least a 90 percent reduction in particulates and NO_x when compared to current diesel vehicles. The investment includes a 200,000-square-foot facility renovation, new machinery, equipment and special tooling. GM also plans to invest an additional \$41 million for vendor tooling, containers and investments at other locations to support the Tonawanda operations. Production of the engine is scheduled to begin in the fourth quarter of 2009.

In October 2007, GM announced it will invest approximately \$73 million into its Shreveport, Louisiana truck assembly plant to prepare the plant for production of the all-new HUMMER H3T. The H3T will arrive in dealerships by third quarter 2008. The assembly plant, which has

built trucks since 1981, employs approximately 2,100 employees. GM has invested approximately \$1.5 billion in the facility over the last several years.

GM began production in October 2007 of its 2-Mode Hybrid transmission for the 2008 Chevrolet Tahoe Hybrid and 2008 GMC Yukon Hybrid, the industry's only full-size hybrid SUVs. GM invested \$118 million to prepare the Baltimore Transmission plant for production. In 2008, the plant will begin building the transmissions for another five hybrid vehicles, including the Cadillac Escalade full-size SUV and the Chevrolet Silverado and GMC Sierra Crew Cab full-size pickups. The plant opened in 2000, and its 415 hourly and salaried workers also build the A1000 Series automatic transmission.

GM announced in January 2008 a new partnership with Coskata Inc. to work on rapid commercialization of technology that affordably and efficiently makes cellulosic ethanol from almost any renewable source, including wood, garbage manure, old tires and factory waste, rather than food-based crops. The partnership includes joint research and development into emissions technology and investigation into making ethanol from GM's factory waste and non-recyclable vehicle parts. The new fuel will be tested in Fall 2008.

Ford

Like all large auto manufacturers, Ford is investing heavily in developing various types of hybrid and/or alternative fuel vehicles. One of them is the new TDV7 (the seventh in a series of Technology Demonstration Vehicles), version of the concept car introduced at the January 2007 Washington D.C. auto show. It uses a version of the powerplant envisioned in the Ford Airstream concept auto unveiled at the Detroit auto show in 2006. The concept vehicle is a hybrid that uses fuel cells as a charger for the 336-volt lithium-ion battery pack. The vehicle operates in battery-only mode for the first 25 miles at speeds of up to 85 mph; then the fuel cell automatically kicks in to recharge the battery. The vehicle can also be plugged into a standard electrical outlet and charged overnight. Instead of looking like a typical concept car, the TDV7 has the same outside styling as the Edge concept auto.

Probably the most important new Ford to be introduced is a new small car, currently named the Verve. The introduction date in the United States is projected for 2010 and it will be a basis for a whole line of small cars to be introduced globally. If there is demand for a diesel model, Ford will either import the engine from its UK plant and assemble the vehicle in the United States or import a complete diesel vehicle from another country. It will be the basis for a worldwide auto with changes in style, engine types, interior and even size to fit the consumer's taste for different regions of the world.

According to a Ford press release:

- The new Ford Verve small car concept will have the style, technology, premium materials, and more content than any other small car that will set it apart with other new cars that go on sale in 2010.
- The four-door Verve is designed to appeal to "Millennials," the fastest growing segment of the population.

- There will be various body styles that can be either built in the United States or imported from abroad.
- U.S. small-car sales are predicted to increase by more than 25 percent through 2012. Small cars and crossovers are the only models with projected near-term growth in the United States.

In the United States, Ford has introduced a new six cylinder gasoline turbocharged direct injection (GTDI) engine that will produce more horsepower and torque than an equally sized eight cylinder. Fuel economy will also increase because it is a smaller and lighter engine than the eight cylinder engines Ford now produces, and it will emit less CO₂. There will be 3.5L and 3.7L six cylinder model and a 2.0L four cylinder model for smaller vehicles. Ford also announced it would build a new 4.0L eight cylinder engine for the Mustang in Windsor, Ontario, with production to start by 2010. This may be the only eight cylinder engine Ford will produce in the future, and it is being used in the Mustang for “image.” Ford began production of a new low-carbon diesel engine (1.4L and 1.6L) last year at its Dagenham, UK plant. Initially, it will be used only in the EU, but if Ford decides to build a hybrid using a small diesel engine, it will be exported to the United States.

A new Ford Explorer concept vehicle was introduced at the 2008 Detroit auto show. Instead of the current SUV design, it will be a crossover design. It also will have the new Ford V-6 turbocharged, direct fuel injected engine. If customers want a more fuel efficient vehicle, the new four cylinder engine will also be offered. Although Ford declines to set an introduction date, it appears as though it will be sometime in 2010.

A new slightly redesigned Ford Taurus will be introduced in 2009, with no radical design or mechanical changes. In addition, the Ford Taurus SHO, a high performance sedan from the 1990’s, will make a comeback. The 2009 SHO will have the new GTDI D35 engine with a horsepower rating of about 415hp. Ford has not confirmed this, but it has hinted it is seriously considering this type of sedan. Along with the Ford SHO, Ford introduced a 540 horsepower Mustang, named the Ford Shelby GT500KR at the Detroit auto show. It will go on sale sometime in mid-2008. Only 1,000 will be produced, and will probably sell out quickly, perhaps before the first one reaches the showroom.

The revamped Ford F-150 truck was debuted at the 2008 Detroit auto show. It is the largest selling model in the United States, and has been for 31 years. It accounts for 30 percent of Ford’s sales and is one of the most profitable models Ford builds. One of the innovative features of the new F-150 is an in-dash computer developed with Magneti Marelli and powered by Microsoft Auto that provides full high-speed internet access via the Sprint Broadband Network and navigation by Garmin. It is the first broadband capable in-dash computer in production.

A new concept Lincoln, the MKR, was introduced at the 2007 Detroit Auto Show. Most likely a more conservatively styled MKR will be approved by Ford executives and go on sale in two or three years. According to Ford, the MKR has been met with very good reviews. Ford announced it will discontinue production of its Lincoln Town Car in three or four years and sell

the car only to fleets until production is stopped. The same basic architecture has been used for at least the last two decades, with styling changed periodically.

Another Lincoln concept car, a crossover, was shown at the 2008 Detroit auto show. It is called the MKT and derived from the current Ford Flex, also a crossover. However, the design is totally different with a much more luxurious interior and standard equipment that is optional in the Flex. It is much more aerodynamic with seating for four, but a third row of seating can be added. It will be equipped with the new 3.5L flex-fuel V-6 engine with Ford's new EcoBoost engine producing 270 horsepower or with twin turbocharging and direct injection 415 horsepower. Ford has not announced officially when the MKT will go on sale, but journalists estimate late 2009 or early 2010.

The gasoline-powered V-8 engine looks to be on its way out at Ford. After almost 75 years of popularity in the Ford lineup, there is little, if any, investment in developing a new V-8 engine or improving a V-8 for the mass market. The high performance Mustang may be the only exception, and with gasoline prices reaching well above the current price per gallon and CAFE standards requiring higher gas mileage, the V-8 is all but dead.

In August 2006, Ford announced its intention to invest up to \$1 billion in its Michigan facilities. These investments, which represent the first part of its commitment to the State of Michigan are supported by a Michigan Economic Development Corporation incentive package of \$151 million. In addition, the state and local communities are considering additional property tax abatements. The investments are as follows:

- Wayne Stamping and Assembly plant received \$130 million for tooling and equipment to build the 2008 Ford Focus, which was completely redesigned.
- Van Dyke transmission plant received \$320 million to install a flexible tooling line to assemble a fuel-efficient high performance 6-speed, front-wheel drive transmission for the next generation Ford Escape.
- Livonia Transmission Plant received \$88 million to install flexible tooling to increase its production of fuel-efficient, high performance 6-speed, rear-wheel drive transmissions for the 2009 Ford F-150 pickup truck.
- Woodhaven Stamping Plant received \$89 million for new dies and subassembly equipment to stamp parts for 2009 F-150.
- Dearborn Stamping Plant received \$31 million for new dies and subassembly equipment to stamp doors and hoods for the 2009 F-150.
- Dearborn Truck Plant received \$208 million to install additional equipment to build the 2009 F-150. Additionally, the investment will be used to convert Ford's historic Glass Plant on the Rouge site into a training center for the launch of the new pickup.

In March 2007, Ford announced it would invest \$200 million at its Sharonville (Ohio) Transmission Plant. The investment will be used to retool the plant for flexible manufacturing

and advanced powertrain production. Details of the new transmission have not been disclosed and will be discussed at a future date.

Chrysler

In the United States, Chrysler LLC sold approximately 2.1 million vehicles in 2007, a decrease of 3 percent from 2006. This ranks Chrysler fourth in U.S. sales after GM, Toyota, and Ford. Currently, Chrysler employs more than 64,000 in the United States. The automaker maintains 14 assembly plants, 11 powertrain plants, three stamping operations and six technical centers in North America and six manufacturing affiliations outside of North America.

In 2007, Chrysler launched the latest edition of its Dodge Caravan and Chrysler minivans. Chrysler pioneered the minivan in 1984 and has since sold over 12 million. Arguably Chrysler's most important vehicle, the launch of the latest edition minivan is crucial to Chrysler's immediate future. Although the minivan market is down nearly 20 percent, Chrysler is confident that its new product will have strong sales, particularly now that both GM and Ford have left the minivan market (GM announced it was leaving the segment in late 2006, and Ford made the same announcement in the spring of 2007).

In 2007, Chrysler announced that the company will invest \$1.2 billion in its Brampton (Ontario) Assembly Plant for the next generation of the Chrysler 300 series, Dodge Magnum, and Dodge Charger. The plant employs approximately 4,000 hourly workers.

Although Chrysler and Daimler split in 2007, Daimler still retains 19.9 percent stake in Chrysler and the two firms continue to cooperate on a number of fronts, such as advanced diesel engines, fuel cells and cutting edge safety technology. For 2008, Chrysler will offer six vehicles that average over 28 miles per gallon (highway). The vehicles include: the Jeep Compass, Jeep Patriot, Dodge Avenger, Dodge Caliber, and, the Chrysler Sebring sedan and convertible.

In addition to working with Daimler, Chrysler LLC is also cooperating with Mercedes, GM and BMW to speed up deployment of hybrid technology. The "Hybrid Development Center" opened in Troy, Michigan in 2006, after a \$300 million investment by the automakers. The center now employs more than 500 engineers, technicians and specialists, including more than 150 engineers from Europe. The center is focusing on development of a two-mode, dual hybrid system.

Chrysler designed three new electric concept vehicles for the 2008 North American International Auto Show: the Chrysler ecoVoyager Concept, an electric vehicle with fuel cell range extender; the Jeep Renegade Concept, an electric vehicle with BLUETEC diesel range extender; and, the Dodge ZEO Concept, an electric vehicle with 250-mile all-electric range.

In March 2008, the Detroit News reported that Chrysler plans to invest \$280.6 million to upgrade its Jefferson North Assembly plant located in Detroit. The plant will manufacture the next generation Jeep Grand Cherokee plus two additional new models. The upgrades will enable the plant to be more flexible to produce different vehicles and will increase capacity at the facility. The investment will mean 419 new jobs. Currently, the facility employs 1,500 and produces the Grand Cherokee and the Jeep Commander.

Toyota

Toyota ended 2007 with \$9.366 billion in global vehicle sales, pushing ahead of Ford's sales and slightly under GM's \$9.369 billion for the same period. This close margin between GM and Toyota indicates that both companies will continue to battle for the number one position in 2008. Toyota has relied on a steady stream of new vehicles (such as the recently showcased Venza crossover sedan), and a weak Japanese currency to amass its huge profits in recent years, while GM has concentrated mostly on its restructuring efforts.

Although Toyota had an average annual growth of 10 percent from 2004 to 2006, it expects a U.S. vehicle sales growth of only 1 to 2 percent in 2008, down from its previous estimate of 3 percent. There are a number of factors for this downward revision, including a widespread credit crunch, high gasoline prices, a housing downturn, and a very low consumer confidence level. Toyota will have to scramble to sell the Tundra full-size pickup trucks currently being produced at plants in Texas and Indiana. Despite incentives offered, sales of the Tundra have been below expectations.

Toyota currently operates thirteen vehicle manufacturing, powertrain, and components facilities in North America, and will open a second plant at Toyota Motor Manufacturing Canada (TMMC) in Woodstock, Canada during 2008. By 2010, Toyota will also begin production of the Highlander at its facility in Blue Springs, Mississippi. Toyota's investment in North America is valued at more than \$18.6 billion, with employment of over 41,000 jobs. In order to keep pace with growing demand, Toyota intends to continue further plant investments in North America, and has many prospects and locations under review. Several states are queuing-up to compete for these possible future sites and investments. In fact, Toyota annual production capacity in North America is expected to reach nearly 2.2 million vehicles (current capacity is 1.75 million vehicles) by 2010 as a result of the increased production capacity at several existing and potential new North American production sites. In 2008, Toyota will celebrate a milestone by building its 20 millionth vehicle in North America, including the five millionth Corolla.

Toyota Motor Engineering and Manufacturing (TEMA) was created in April 2006, following the consolidation of its North American R&D and manufacturing operations - Toyota Technical Center (TTC) and Toyota Motor Manufacturing North America (TMMNA). Toyota expects TEMA to increase operation efficiency and flexibility by reducing lead times for all related processes. Set up with the aim of allowing a more flexible response to changes in the market place, Toyota expects TEMA to open the door for greater localization.

Toyota also held a groundbreaking ceremony in Yorktown, Michigan in late 2006 to mark the expansion of TTC, a division of TEMA. To promote localization of research and development aimed at strengthening Toyota's North American line-up, TCC- Yorktown will supplement the Ann Arbor, Michigan campus. TCC-Yorktown is expected to be completed by mid-2008, and will feature an engineering design facility and a safety test facility at an investment of \$187 million. This will add a total of 400 new jobs to be added by 2010.

Toyota began production of its Tundra full-size pickup truck at its San Antonio, Texas plant in late 2006. Total plant investment was approximately \$1.28 billion, and it has a capacity of 200,000 vehicles, employing approximately 2,000 workers. Toyota will reportedly begin selling

a 5.7L V-8 Tundra capable of running on a mixture of 15% gasoline and 85% ethanol in late 2008 as a '09 model.

In February 2007, Toyota announced a \$1.3 billion investment for a manufacturing plant in Blue Springs, Mississippi, where it plans to produce 150,000 Highlander SUVs annually, beginning in 2010. The plant will create 2,000 new jobs and increase Toyota's U.S. manufacturing capacity to nearly 2.2 million vehicles. Groundbreaking for this plant occurred on April 18, 2007.

On April 20, 2007, Subaru of Indiana Automotive, Inc. (SIA) and Toyota held a ceremony to commemorate production of the plant's first Toyota Camry, creating about 1,000 new jobs. The news is part of a collaborative agreement announced between SIA parent Fuji Heavy Industries Ltd. (FHI) and TMC, a FHI stakeholder. Approximately \$230 million was invested to supplement SIA's production with Camry manufacturing capability. SIA's two lines now operate with one line devoted to producing about 100,000 Camrys annually, and the other line is devoted to approximately 140,000 Subaru units (Outback, Legacy and Tribeca models), for a total plant capacity of 240,000 units. Toyota also reportedly plans to add robotic welding technology to the SIA plant called the Global Body Line, which allows it to produce various types of vehicles on the same assembly line; however, Toyota declined to identify other candidate vehicles. Parts and materials for the Indiana-built Camry will be sourced and procured by Toyota. This supplemental Camry production in Indiana provides the necessary extra product to fill demand, and now replaces Toyota's need to import the car.

Toyota began its first hybrid vehicle production in North America with the Camry in late 2006 at its Toyota Motor Manufacturing Kentucky (TMMK) plant in Georgetown, Kentucky. The automaker invested an additional \$10 million towards production of the hybrid option for this vehicle, and capacity currently stands at 48,000 units. Given demand, this will reportedly increase to 60,000 vehicles a year. Further advancement of hybrid technology is a top priority for Toyota. In May 2007, cumulative sales of Toyota hybrid vehicles worldwide topped the one million mark, a global sales target the company hopes to hit annually in the early 2010's. In fact, by the end of 2007, the U.S. market accounted for nearly 750,000 combined Toyota and Lexus hybrid sales, out of approximately 1.25 million hybrid vehicles sales globally, since the first generation Prius was introduced in Japan in 1997.

Toyota also continues to localize parts production. For example, during 2007, Toyota completed an expansion resulting in increased gear production (which was previously only done at a Toyota facility in Japan) at its Buffalo, West Virginia engine plant. This required a plant expansion for the fifth time, and added 150 positions through a \$120 million investment. Moreover, Toyota's engine and transmission plant also completed an expansion resulting in increased production of an additional 240,000 automatic transmissions a year, raising annual capacity to 600,000 units. With these additional investments, Toyota will have spent \$920 million at the Buffalo plant, which produces 4-cylinder engines for the Toyota Corolla and Matrix; V-6 engines for the Toyota Sienna and Lexus RX 330; and automatic transmissions for the Toyota Camry, Solara, Sienna and Lexus RX 330.

During 2007 Toyota also expanded its Huntsville, Alabama engine plant with a \$490 million investment to increase V-8 output, bringing total engine capacity to 400,000 units. This plant

currently employs 950 workers. The Alabama plant supplies engines to Toyota's California and Mexico-built Tacoma compact pickup trucks, as well as the next generation Tundra full-size pickup, built in Princeton, Indiana and San Antonio, Texas. This plant already supplies the V-8s for the current generation Tundra and Sequoia full-size SUV, both built in Princeton. It has the capacity to produce 130,000 V-6s annually, as well as 120,000 V-8s.

Toyota continues to collaborate extensively with other manufacturers. For example, the Toyota and General Motors joint venture operation, New United Motor Manufacturing Inc. (NUMMI), will receive a \$143 million upgrade, focusing on improvements in its paint and assembly lines.

Moreover, Toyota appears to be making in-roads into the U.S. truck market via Hino Motors. In November 2007, Hino opened a vehicle production facility in Williamstown, West Virginia. The first truck rolled off the line after an \$8.6 million investment to renovate what was once a wire and cable management and distribution center. The planned capacity is 2,500 units a year, and employment at the start of production was 80 people. This project reflects Toyota's goal to compete in all segments of the U.S. market. Hino also has truck plants in California, and in Ontario, Canada, as well as an expanding parts facility in Marion, Arkansas, which employs approximately 700 people and represents a \$230 million investment.

Honda

Honda began sales operations in the United States in 1959 with the establishment of American Honda Motor Co., Inc., Honda's first overseas subsidiary. Honda began U.S. production operations in 1979. Since that time, Honda has invested over \$8.9 billion in its North American operations with 15 major manufacturing plants, employment of more than 33,000 associates and the annual purchase of more than \$16 billion in parts and materials from suppliers in North America. According to Honda, more than 76 percent of Honda and Acura cars and light trucks sold in America were produced in North America in 2007.

Honda produced a record number of vehicles in the United States in 2007, totaling over 1 million Honda and Acura vehicles. This equaled an increase of 4.2 percent from the previous year's record of 974,380 units. North American production also reached record performance with nearly 1.5 million total vehicles. It was the third straight production record and fourth consecutive year of production growth for Honda in the United States and North America. It was also the first time that U.S. auto production exceeded 1 million units in a single year. Total North American production of Honda and Acura vehicles rose 3.4 percent in 2007 with individual plant records set by the Marysville, Ohio automobile plant (up 2.3% to 458,842 units), the East Liberty, Ohio automobile plant (up 1.9% to 242,475 units) and the Lincoln, Alabama automobile plant (up 9.1% to 314,145 units). Production at the company's two automobile plants in Alliston, Ontario, increased 0.9 percent to 390,580 vehicles. Production at Honda's El Salto, Mexico automobile plant was up 10.1 percent to 26,689 vehicles for the year.

Three Honda models were among the top sellers in their vehicle classes in 2007, including the CR-V, which was America's best-selling SUV for the year. The result was Honda's twelfth consecutive year of record sales and 14th straight year of continuous sales growth in North America.

Honda celebrated several major production milestones in 2007. The company's Anna, Ohio plant turned out its 15 millionth engine in May 2007. The engine plant is Honda's largest and it began production in 1985. A \$74 million expansion project is underway at the Anna facility which will substitute for engine parts production currently imported from Japan. The company celebrated the 25th year of its Marysville, Ohio plant on November 1, 2007. The Marysville plant reached a production milestone of 9 million cars and light trucks later the same month. The Marysville plant was the first Japanese-based automotive manufacturing facility in the United States. With employment of roughly 5,300, the plant currently produces around 1,800 light vehicles per day, most of them Accords.

Honda unveiled its "2010 Vision" for North American automobile operations in May 2006. In addition to the new auto plant in Indiana (see below), Honda's North American plan also includes the following corporate initiatives: 1) construction of a new engine plant in Canada to begin production of 4-cylinder engines in 2008 with an investment of \$140 million and employment of 340 associates; 2) expansion of U.S. engine, transmission and powertrain component production in Ohio and Georgia, with an additional investment of \$125 million and additional employment of 80 associates; 3) introduction in the United States and Canada in 2009 of a new, more affordable, dedicated hybrid car; 4) introduction in the United States and Canada within the next three years of new 4-cylinder diesel engine technology and, 5) establishment of a voluntary goal to improve American Honda's Corporate Average Fuel Economy (CAFE) by five percent over 2005 levels by the year 2010.

As noted above, Honda announced in June 2006 that it would build a new \$550 million automobile manufacturing plant in Greensburg, Indiana. The plant is scheduled to begin production of vehicles in the fall of 2008, with an annual production capacity of 200,000 vehicles and employment of 2,000 associates. Honda broke ground for the new plant on March 19, 2007 and began accepting applications for production positions on August 26, 2007. This new plant will help boost Honda's total North American auto production capacity from 1.4 million units to more than 1.6 million units in 2008. It will also increase Honda's employment in North America to more than 37,000 and increase North American capital investment to more than \$9 billion. The new plant will have the same type of flexible New Manufacturing System that is found in Honda's other auto plants in the United States and Canada. Major processes performed at the Indiana plant will include stamping, welding, painting, plastic injection molding and assembly operations.

Honda announced in August 2006 an investment of \$40 million in an expansion of its Alabama engine plant's aluminum die cast production capabilities. The investment will add more than 41,000 square feet to the facility's floor space. Part of the new capacity began production in the fall of 2007 and the remainder should begin operation in the summer of 2008.

In May 2007, Honda opened the doors of its new Acura design studio in Torrance, California located adjacent to its existing Los Angeles Center and the company's U.S. sales headquarters. The \$15 million studio is intended to play a key role in the development of new Acura concepts and designs. The new Acura Design Center will focus exclusively on market research and 30 styling design activities for the Acura brand, while the existing Los Angeles Center will be responsible for market research, concept development and styling design for the Honda brand.

Honda's new advanced design studio will work closely with other Honda advance design studios around the world - specifically in Germany, Italy and Japan – to provide future product and brand direction to Acura and Honda product design stylists.

Honda launched the eighth-generation Accord in 2007 and debuted its newest hydrogen fuel cell vehicle the “FCX Clarity” at the Los Angeles Auto Show in November 2007. Honda said that it will begin marketing the vehicle to fleets and retail customers in 2008. The vehicle uses lithium-ion batteries to store the energy generated by its fuel cell. The FCX Clarity is the first fully certified fuel cell vehicle to meet safety and emissions standards, and will be leased to consumers in 2008.

In 2009, Honda will launch a hybrid vehicle with a newly developed lightweight and compact hybrid system. The vehicle is designed to achieve high fuel efficiency while meeting the needs of a family. Due to significant cost reduction efforts, Honda believes the vehicle will be affordable. Honda's global sales plan for this new hybrid vehicle is 200,000 units, of which half are targeted for the North American market. Honda also intends to market a new hybrid sports model based on the “CR-Z” show car. There was no target year given for the CR-Z-based vehicle's introduction, but according to Mr. Fukui, Honda hybrid models will account for approximately 10 percent of Honda's global automobile sales by 2010, from roughly 2 percent today.

Honda has also developed a new “i-DTEC” clean diesel engine series. The first i-DTEC engine meeting Euro5 emissions standards will go on sale this year in Europe. The unique i-DTEC engine technology will debut in the United States in 2009. It will meet the same emissions standard as current gasoline engine vehicles.

Nissan

In 2007, Nissan North America reported sales totaling 1,068,238 units, an increase of 4.5 percent over the previous year and the third year in a row with sales above 1 million units. In the global marketplace, the Renault Nissan Alliance sold 6,160,046 vehicles in 2007, a record for the Alliance; ranking fourth among major automotive manufacturers and accounting for approximately 10 percent of global sales. In the U.S. market, Nissan's light vehicle production decreased for 2007, but it retained its number six position behind GM, Ford, Chrysler, Toyota and Honda. Nissan ranked sixth in light vehicle sales.

Nissan's best-selling 2007 light truck in the United States, the Murano, has been redesigned for 2008. New features on the redesign will include mechanical improvements, such as a more rigid platform and engine upgrade, as well as speed-sensing power-steering and a new all-wheel drive system. Nissan North America also plans to further differentiate between its two smallest cars, the Versa and Sentra, in order to increase sales. Currently, the two vehicles overlap on price and features, so Nissan hopes to better distinguish the Versa as a subcompact and the Sentra as a compact. In May 2007, Nissan launched the '08 Altima coupe, which is expected to draw a different consumer than the Altima sedan. Built at the Smyrna Tennessee plant, the coupe is similar to the Infiniti G35coupe design, but is offered at a more affordable price.

During the January 2007 North American International Auto Show in Detroit, Nissan previewed two new vehicles: the Nissan Rogue crossover sport utility vehicle and an advanced design car called the Bevel. The Rogue is Nissan's first entry into the small crossover segment. It went on sale during the fall of 2007 and joined Nissan's other crossover and sport utility vehicles, including the Armada, Pathfinder, Xterra and Murano. The Bevel concept car was created at the Nissan Design Center in La Jolla.

Additional new products from Nissan include the all-new 2009 Nissan GT-R, which is expected to be available in June 2008. Nissan may also debut the Cube cross/utility vehicle at the 2008 New York auto show. It was also reported that the company is considering the possibility of reintroducing Infiniti's I-series model, which was discontinued three years ago.

In terms of new investments for North America, Nissan and Suzuki announced in December 2007 that Nissan North America will build a pick up for Suzuki in 2008. The truck will be based on the Nissan Frontier mid-range truck and built at Nissan's Smyrna, Tennessee plant. Investment details are not available. Finally, construction of Nissan's North American headquarters in Nashville, Tennessee began during 2007, and the \$100 million complex is expected to be completed by the end of 2008.

Nissan's all new X-TRAIL, built exclusively in Japan, will be making its European debut during the summer of 2008, which will be the first region to introduce it. However, it is unclear if/when this vehicle will be introduced into the U.S. market. Nonetheless, Nissan is reportedly studying the prospects of introducing an inexpensive car for the U.S. market to compete with the Chevrolet Aveo hatchback, currently the most affordable '08 model in the United States. at slightly under \$11,000 per car. The most difficult hurdle will be the ability of such a low-priced vehicle to meet tough U.S. safety and emissions standards.

BMW

With the three brands, BMW, MINI and Rolls-Royce Motor Cars, the BMW Group is focusing on the premium sector of the international automobile market. Since 2005, BMW has sold more vehicles in the United States than in its German home-market, making the United States its single largest market. During 2007, BMW was also the most popular European premium brand among U.S. consumers, with sales up 7.1 percent to 293,795 units.

The BMW plant near Spartanburg in South Carolina began producing BMW automobiles for the world market in 1994. This plant is the source of every X5 Sports Activity Vehicle (SAV), Z4 Roadster, M Roadster, Z4 Coupe and M Coupe. Due to the success of these automobiles, the Spartanburg plant has had to be substantially enlarged. Its output has been expanded by adding additional shifts, introducing flexible working hours, and hiring new employees. The Spartanburg plant is open six days a week, producing automobiles approximately 110 hours a week. It currently employs 4,700 workers, and can manufacture over 500 vehicles daily.

In May 2007, BMW announced that it would expand production capacity in the medium term from 140,000 to over 200,000 a year. According to press statements, this move will be part of BMW's future strategy of mitigating currency fluctuations. In addition to current models, the X6, as well as a possible successor to the X3, are to be built in the United States in the future. Reportedly, this production increase to approximately 240,000 annually is part of a strategic

realignment that includes a worldwide sales target of more than 1.8 million vehicles by 2012. BMW's strategic target through 2020 is equally ambitious, as it aims to raise global sales to more than 2 million vehicles. The production of the X-6 mid-sized crossover will begin during 2008. BMW also announced that the company is considering migrating its next generation X-3 cross-utility vehicle (CUV), currently built in Graz, Austria and its Z-4 sports car line to the new 3-series platform. Since Magna's contract to build the X-3 runs out in 2010-11 (auto parts supplier Magna has been the sole producer of the X-3 on a contract basis for BMW since 2003), the company is considering new locations to build the next generation vehicle, with the Spartanburg plant as a frontrunner, given BMW's flexible platform strategy.

BMW has also expanded its research and development in the United States. For example, BMW completed the BMW Information Technology Research Center (ITRC), dedicated to the research of advanced automobile information technology at Clemson University. BMW also constructed a Process Development Center, which links BMW with its North American suppliers, and provides pre-production evaluation of supplier components for U.S.-made BMW vehicles.

BMW also invested approximately \$50 million in the LSP Automotive Systems sheet metal stamping facility located in Commerce Park in Union, South Carolina. LSP will manufacture the molds for vehicles produced at BMW beginning in 2008. The molds are used to produce sheet metal stampings for the exterior of vehicles. LSP will invest \$96 million in its equipment and facility. The LSP investment is expected to generate 130 new jobs in Union County and will make BMW and LSP the county's largest taxpayer, paying an estimated \$2 million per year beginning in 2008, according to county officials.

Finally, in October 2007, BMW announced it will add six new vehicles to sell in the United States in the next three years - all in niches where it does not now compete. The BMW brand will get three more models, including a small crossover and two sedans - one of them priced above the 7 series. The Mini brand will add a crossover to its lineup and Rolls-Royce will add two models. BMW had largely stood by as rivals such as Audi and Mercedes expanded their lineups, but BMW CEO Norbert Reithofer outlined a broad strategy for the carmaker through 2020 that included the new-product blitz.

Daimler and Mercedes

The world's leading truck manufacturer, Daimler Trucks develops and produces vehicles within a worldwide network under the brands Mercedes-Benz, Freightliner, Sterling, Western Star, Thomas Built Buses and Mitsubishi Fuso. Its product range covers light, medium and heavy trucks for local and long-distance deliveries and construction sites, as well as specialty vehicles, Unimog and Econic. The product portfolio of the Mercedes-Benz Cars division ranges from the premium vehicles of the Mercedes-Benz, Mercedes-Benz AMG and Mercedes-Benz McLaren brands to the Maybach luxury sedans and the small cars of the smart brand. Most of these vehicles are produced in Germany, but the division also has production facilities in the United States, France, South Africa, Brazil, India, Malaysia, Thailand, Vietnam, Indonesia, and since the year 2006, also in China.

In January 2007, Mercedes introduced its C-Class, the world's first series-production vehicle that was conceived and fully developed as a digital prototype. Mercedes also significantly improved

the fuel-efficiency and reduced the CO₂ emissions of its engines, while increasing vehicle performance. In addition, Mercedes introduced two more new technologies to help protect the environment in the form of the cleanest diesel technology in the world, now found in the E320 BLUETEC, and the fuel-efficient direct-injection gasoline engine in the CLS 350 CGI.

Mercedes currently builds the M- and GL-class SUVs and R-class crossover in its only U.S. factory in Vance, Alabama. This plant was the first Mercedes passenger vehicle plant outside of Germany. The plant's workforce has grown from 1,900 employees to over 4,000 and has grown in size from 1.2 million square feet to more than 3 million square feet.

The Alabama plant and affiliated operations represent a \$3.5 billion investment -- more than \$1 billion in the plant, and the rest in research and development for two generations of M-Class and the new R-class. The U.S. operation will reportedly represent more than 20 percent of total revenue for the Mercedes Car Group.

In August 2007, Mercedes-Benz confirmed that its new compact premium SUV will be named the GLK class. The GLK was unveiled at the North American International Auto Show in January 2008, and will go on sale in Europe and in the United States. Although the Alabama plant had been considered, the GLK will be produced in Bremen, Germany. Mercedes plans to build 80,000 GLK class units annually in Bremen with half of these likely to be exported to the United States. This is Mercedes-Benz' second attempt to enter the compact SUV market.

Mercedes Chief Operating Officer Rainer Schmuckle announced that if Mercedes-Benz sales continue to grow in the United States, the automaker could build C-class cars. With a sales over 63,000, the C-class was Mercedes' top selling model in the United States during 2007.

Volkswagen

On January 1, 2008, Volkswagen of America was renamed Volkswagen Group of America, Inc. The automaker stated that "the new name better reflects the fact that the Volkswagen Group of America includes five distinct brands: Audi, Bentley, Bugatti, Lamborghini and Volkswagen." VW of America said the name makeover "prepares us for even more activities in the future."

By July 2008, Europe's largest auto maker will reportedly decide whether or not to build a new factory in North America. According to Bloomberg, Volkswagen has not posted a profit in the United States since 2002 and adding a plant may boost sales while reducing the impact of a weaker dollar on earnings. The company's only North American factory is in Mexico and it has not ruled out locating the new one there. Volkswagen's best U.S. sales volume was 569,696 vehicles in 1970, but discontinued production in the United States during the 1980's.

Nonetheless, Volkswagen acknowledges that only one plant in North America is insufficient. Yet, it is apprehensive to absorb the up-front costs of the investment, which could delay a return to profitability after five consecutive years of losses in the United States.

Hyundai-Kia

In January 2008, Hyundai announced that its worldwide sales for 2007 reached over 2.6 million units, a 4.1 percent increase over 2006. Its overseas sales (comprised of exports from Hyundai's three Korean plants and output of overseas manufacturing subsidiaries) rose by 1.6 percent to

nearly 2 million units, while domestic sales rose 7.6 percent to 625,275 units. Hyundai has set its 2008 target for worldwide sales at 3.11 million units, which would be a 19.6 percent increase. For 2007, Kia (Hyundai has controlling interest in Kia) announced global sales of 1,269,164 units (305,473 in the United States), up 3.5 percent from 2006's sales total.

In March 2006, Korean manufacturer, Kia, announced it would invest \$1.2 billion in its first U.S. production plant, which will be located in West Point, Georgia, on the border with Alabama. It is reportedly considering both fullsize pickups and convertibles for production. The plant, which is scheduled to open in fall of 2009, will employ 2,500 workers, and be capable of producing 300,000 vehicles a year. Kia said it has invested more than \$300 million in the United States over the last four years.

During 2006, Automotive News ranked the Hyundai-Kia Automotive Group as the 6th largest automotive manufacturer in the world, registering an 11.6 percent jump in global sales. It was the largest percentage gain of any carmaker in the million-plus sales category. With its large percentage gain, Hyundai and Kia climbed up one spot in the global rankings, unseating Nissan.

Hyundai's Montgomery, Alabama plant opened in mid-2005 and its total investment-to-date is \$1.1 billion. This plant initially produced the Sonata sedan and added the Santa Fe CUV during 2006. The plant produced 251,000 vehicles in 2007.

The co-located Hyundai Mobis plant supplies an array of parts and modules needed in producing the vehicles, which include: front and rear chassis modules, cockpit modules, airbag systems, bumper systems, and door-trim packages. Hyundai is reportedly considering a full-size pickup for the U.S. market. In addition, Hyundai has confirmed that it will introduce a hybrid model for the U.S. market before the end of the decade.

Hyundai's Ann Arbor, Michigan Tech Center opened during 2005 and represents a \$117 million investment over two phases, \$56 million of which is dedicated towards construction. Officials say that it provided 85 new job positions during the first year, and potentially 750 more down the road. This facility replaced an older facility built in 1986 that was dedicated to emissions work on U.S. products.

In January 2008, Hyundai officially announced its plans to enter the U.S. luxury vehicle market later in the year. Hyundai's first vehicle for the segment will be the Genesis, a rear-wheel-drive vehicle with a V8 engine. The car is aimed at competing with the BMW5 series, the Mercedes Benz E Class and the Lexus GS, but priced closer to \$30,000. Interestingly, Hyundai has chosen not to create a new luxury brand like Toyota (Lexus) and Nissan (Infiniti) but instead to badge its premier luxury vehicle as a Hyundai – a brand Americans have long associated with entry level vehicles. Time will tell if this strategy will help bring up the other models in the brand or make it more challenging to sell the Genesis to luxury buyers who wouldn't ordinarily consider a Hyundai.

Innovation

According to the Auto Alliance, of the world's top research and development investors in 2005, three of the four top companies were automakers. In addition, increased global competition has led to more innovation by the automakers and additional choices for consumers. Global Insight Inc. estimates the number of car models being offered in the United States will increase to 330 during 2008, up from 250 in 1999. With more competitors in the market and increased competition, there are now a variety of small-volume, niche vehicles attempting to meet the diverse needs of individual consumers and families.

In addition to more model choices, there are now more features as well. Computers have revolutionized automobiles. New advanced active safety features and electronics, such as intelligent cruise control, electronic stability controls (ESC), vehicle-to-vehicle communications, and, crash avoidance systems are now widely available. Ford and Microsoft have teamed-up to create Sync, a factory-installed in-vehicle communication and entertainment system. McKinsey & Co. predicts electronics will jump from 20 percent of the cost of building a car today to 40 percent by 2015.

Automakers continue to invest billions in developing fuel-efficient vehicles with cutting-edge technologies. It is clear that a significant market is emerging for vehicles with reduced environmental impact, so long as they do not compromise operating economy, comfort and performance, driving range, or price. Helping to foster their demand are rising gas prices, technological breakthroughs, and state (especially California) and federal government efforts to improve both emissions and fuel economy. New federal tax credits that began on January 1, 2006 are aimed at encouraging consumers to buy advanced technology vehicles.

The U.S. Department of Transportation (DOT), administrators of the federal corporate average fuel economy (CAFE) regulations, raised the bar for light trucks from 20.7 mpg for model year 2004, to 21.0 mpg in 2005, and an additional 0.6 mpg for 2006-7. Moreover, in March 2006, DOT announced new fuel economy standards for light trucks in the 2008-2011 model years, and, for the first time, the regulations include trucks exceeding 8,500 pounds. The standard will be 24 mpg by 2011. After a three-year transition period beginning in 2008, all new light trucks will be required to meet miles per gallon targets based on six vehicle size categories. DOT has also announced a preliminary regulation requiring ESC technology on all new vehicles. Experts are asserting that this technology is the most important breakthrough since the development of seatbelts. ESC uses electronic sensors linked with onboard computers to detect, and correct, loss of steering control.

Hybrid vehicles have become the first advanced technology of significant interest to American consumers. J.D. Power estimates hybrid sales will increase to 780,000 by 2012 with 52 models being offered. Hybrid power systems combine small gasoline or diesel engines with battery packs and electric motors.

Further development of hybrid technology is a top priority for Toyota. Toyota currently offers five hybrids: Camry, Prius, Highlander, Lexus GS, and the Lexus RX400h SUV, and is developing an additional ten hybrid models. By the end of 2007, the U.S. market accounted for

over half of Toyota and Lexus' combined global hybrid sales, at 750,000 vehicles out of the approximately 1.25 million hybrid global sales since the first-generation Prius was introduced in Japan in 1997. In fact, the automaker expects to sell one million hybrid vehicles annually in the United States early in the next decade.

At the Chicago Auto Show in February 2008, GM introduced the 2009 GMC Sierra hybrid pickup. This new hybrid is expected to achieve a 40 percent improvement in fuel economy during city driving and a 25 percent improvement in fuel economy overall. The GMC Sierra pairs a two-mode hybrid system with a six-liter V-8 engine that features cylinder deactivation technology, relying on only four cylinders under light loads. It also employs a late intake valve-closing technology, a fuel saving measure that allows the engine to more easily suck air into its cylinders. GM has already released the Chevrolet Tahoe hybrid and the GMC Yukon hybrid, with plans to start selling the Cadillac Escalade hybrid, the Chevrolet Silverado hybrid, the Saturn Vue Green Line 2 Mode hybrid, and the GMC Sierra hybrid later this year. In addition, GM has also said that it is hoping to launch the battery-powered Chevrolet Volt plug-in hybrid by 2010 as part of a kick-off to the company's 100th anniversary.

Daimler's focus has been on environmentally-friendly cars, including hybrids. The Smart Fortwo micro hybrid drive consumes around 47 miles per gallon, thanks to a new, sophisticated start-stop function that uses the idling phases to completely shut down the engine. As soon as the brake pedal is released, the engine starts automatically with little perceptible delay. The Smart Fortwo combustion engine (cdi) has the world's smallest direct injection diesel engine, and achieves around 60 miles per gallon. It can travel approximately 530 miles without refueling. In 2006, Mercedes-Benz launched the E 320 BLUETEC which ushered in a new era for diesel engines in the United States. BLUETEC has made the diesel nearly as clean as the gasoline engine in terms of pollutant emissions, without sacrificing its efficiency and fuel economy. Mercedes has also launched a new engine technology, called DIESOTTO, which makes a gasoline engine function like a diesel.

Chrysler's President remarked at a recent auto show that research and development of alternative fuels needs to be the auto industry's top priority in the immediate future. To this end, Chrysler has pledged to build a 50 percent flexible fuel fleet by 2012. Chrysler, a proponent of biodiesel, is set to become a leader in diesel powertrain availability. According to Chrysler, modern diesel technology offers significant fuel economy improvement over comparable gasoline engines, and a clean, quiet driving experience with a 15 percent reduction in green house gas emissions. In the long term, Chrysler is betting that consumers will go for the sleek, environmentally-friendly designs of three new concept vehicles: the Chrysler ecoVoyager Concept, the Jeep Renegade Concept, and the Dodge ZEO Concept. The three concepts include a hydrogen fuel cell range extended battery vehicle (BEV), a diesel range-extended BEV, and a full BEV.

According to some automakers, 'fuel cell' power systems promise to revolutionize the motor vehicle industry. Similar in concept to the technology employed by NASA to provide electric power on the space shuttle, fuel cells produce electricity through a chemical reaction involving hydrogen and oxygen. The electricity energizes motors that turn the vehicle's road wheels. The concept is so promising that an earlier joint project (the Partnership for a New Generation of Vehicles, PNGV), begun in 1994 between the American industry and the U.S. government to

develop a five passenger, low environmental impact, 80 mpg motor vehicle, was replaced in January 2004 with the five-year \$500 million 'Freedom CAR' (CAR = Co-operative Automotive Research) project and the companion five-year \$1.2 billion Hydrogen Fuel Initiative. (For more information, please see: <http://www.eere.energy.gov/vehiclesandfuels/> and <http://www.eere.energy.gov/hydrogenandfuels/>)

All vehicles have the ability to use a blend of up to 10 percent ethanol with gasoline. Currently, many engines are built with the capability to use up to 85 percent ethanol and 15 percent gasoline (E85). Ethanol is typically produced in the United States from corn and other grain products, though ethanol can be derived from other biomass resources and forestry wastes. GM recently unveiled the Denali XT hybrid concept vehicle able to run on E-85. The 2009 Chevrolet HHR will be GM's first four cylinder model that can run on either gasoline or E-85.

The Detroit 3, in particular, are working to raise awareness of E85 ethanol fuel use and other alternative fuels. In June 2006, GM, DaimlerChrysler and Ford announced that they intend to double their production of vehicles capable of running on renewable fuels by 2010. That would amount to more than two million E85 and biodiesel-capable vehicles a year by the end of the decade. In November 2006, the Detroit 3 announced that the domestic auto companies were prepared to make half of their annual vehicle production bio-fuel capable by 2012, provided there is ample availability and distribution of E85.

Other initiatives also aimed at increasing fuel efficiency. In May 2005, the U.S. Department of Energy and the U.S. Council for Automotive Research (USCAR) announced a \$70 million, five-year agreement to develop lightweight, high-strength materials aimed at improving fuel efficiency by reducing a vehicle's weight, without sacrificing safety. This agreement was followed by additional agreements in July 2005 with investments of an additional \$125 million for continued research and development in lightweight materials and advanced vehicle battery technologies.

Proponents of diesel engines claim diesel technology is more widely available, and can reduce oil dependency more quickly and cost effectively than hybrids and ethanol. While diesel engines account for approximately half of the European market, they have not been popular in the United States, accounting for less than 1 percent of cars and light trucks. Some of the reasons for this have been the higher sulfur content in U.S. fuel compared to Europe's fuel, strict U.S. air pollution regulations, and tax advantages making diesel fuel cheaper versus gasoline in Europe. Five states, including California, do not even allow sales of new light vehicle diesels. In addition, U.S. consumers have not been interested because they remember the noisy, smoky, unreliable diesel engines of the 1980's. However, new federal rules required low-sulfur diesel fuel to be sold in the United States by the fall of 2006. This change, combined with improvements in diesel technology, could allow diesels to meet the new restrictions requiring diesel and gasoline engines to meet the same tough emission standards that began to be phased in with the 2007 model year.

Because diesel engines can provide 25 percent more fuel-efficiency and more torque at lower than gasoline engines, automakers are betting that U.S. consumers, weary of higher gas prices, will give them another chance. In fact, five automakers announced plans at the North American

International Auto Show to introduce diesel engines in their vehicles. J.D. Power and Associates' research predicts more than twice the amount of diesel powered vehicles will be sold in the United States by 2012. The Environmental Protection Agency estimates that if one-third of U.S. light vehicles had diesel engines, it would save 1.4 million barrels of oil per day in the United States, the amount of oil the United States currently imports from Saudi Arabia. Some of the challenges of future diesel sales include: the additional costs associated with developing the technology to comply with state and federal emission standards long-term, the availability of low-sulfite fuel, and overcoming diesels' reputation with consumers. To help offset the added costs to consumers, Congress' 2005 energy legislation included tax credits of up to \$3,400 for buyers of clean diesel vehicles. However, none of the light-duty diesels currently on the market qualify for the credits because of their emissions.

An additional area where the automotive industry's innovation is evident and growing is recycling. For over 75 years, the industry has placed a heavy focus on developing cradle-to-grave technologies. In fact, the automobile is the world's number one recycled consumer product and automotive recycling is the 16th largest industry in the United States, estimated to be about \$25 billion per year. Approximately 95 percent of vehicles retired from use are processed for recycling each year. According to the Automotive Alliance, the recycling of these vehicles saves an estimated 85 million barrels of oil that would have been used in the manufacturing of new or replaced parts. Daimler Corporation recycles over 186,500 tons of cardboard, paper, plastic, aluminum, wood and steel a year. GM returns more than eight tons of old or obsolete paint to vendors for recycling, and Toyota recycles about 99 percent of all scrap steel generated in its plants. In an effort to reduce waste, automobile manufacturers constantly look for ways to reuse parts such as engines, transmissions, doors and bumpers. Parts that are remanufactured or rebuilt include alternators, water pumps, and clutches. Automakers continuously look for innovative ways to reduce waste and increase recycling opportunities.

Plant Capacity Stable, Utilization Rates Down

According to other industry data, the average vehicle assembly plant capacity utilization rates in the United States have routinely exceeded 80 percent, and are often closer to 90 percent. Some plants routinely run at over 100 percent of capacity (through the use of overtime, extra shifts, etc.). Data in the annual Harbour Reports show that as light vehicle production was peaking in 1999, the average car plant utilization rate exceeded 87 percent and light truck plants approached a rate of 105 percent. In 2006, capacity utilization was down 2.8 percentage points compared to 2005, decreasing to 83.9 percent. Car plant utilization rates increased compared to 2005 levels, from 83 percent to 85 percent, and light truck plant utilization rates declined again from 89 percent to 83 percent.

These mathematical averages hide large differences among individual plants. Some facilities are grossly underutilized, while others run at herculean rates that are neither sustainable, nor conducive to maintaining product quality or employee morale. Harbour reports significant variances among productivity levels in the American, Japanese, and German manufacturers' car plants in the United States. (Chart 5)

The Federal Reserve Board (FRB) also measures plant capacity utilization. By FRB measures, plant capacity utilization (for autos and light trucks [NAICS 33611]) reached 76.3 percent in December 2007, slightly higher than the year average of 76 percent. For the entire industry including automotive parts (NAICS 3361-3), the FRB measured capacity at approximately the same level as for the light vehicle segment alone, ranging from a high of 79 percent to a low of 72 percent, with an average of 76 percent. However, capacity for the entire automotive industry ended the year lower than for vehicles alone, reaching 72.1 percent.⁷

Trade Overview

International trade and globalization continues to impact the U.S. automotive industry, as production grows in low-cost countries and foreign competition in the U.S. market increases. The automotive industry's future growth markets are expected to be outside of North America. U.S. motor vehicle exports continue to increase, while U.S. imports decreased for the first time in over five years. This positive trade combination, with the help of a weak dollar, resulted in an eleven percent decrease for the U.S. light vehicle trade deficit which now stands at almost \$97 billion (from \$108 billion in 2006). (Charts 6 & 7) However, the United States still has the world's largest vehicle deficit.

There are several reasons to explain these statistics. As the world's largest single automotive market, the United States naturally attracts participation. The United States serves as a magnet for shippers from approximately 50 countries that face no non-tariff barriers in the United States, and low duty rates that have only a limited impact. In addition, a number of foreign governments have created and promoted export-oriented economies.

In addition to attracting imports, the United States has attracted investment. German, Japanese and Korean auto manufacturers have increasingly relied on their U.S manufacturing facilities to supply the U.S. market. The result has been a substitution of local production for imports. A dramatic example of this is Hyundai. After increasing by 17 percent in 2003 and 26 percent in 2004, the value of imports from Korea fell by almost 13 percent in 2005 and 1 percent in 2006 as a result of a new Hyundai manufacturing facility in the United States. U.S. consumers are increasing their purchases of "import brands" that are made in the United States.

Exports

On the export side of the trade equation, light vehicle exports in 2007 increased 26 percent over 2006. In 2007, the United States exported almost 2.5 million units to the world compared to almost 2.1 million in 2006. U.S. light vehicle exports went to over 200 countries in 2007,

⁷ The Federal Reserve Board constructs estimates of capacity and capacity utilization for industries in manufacturing, mining, and electric and gas utilities. For a given industry, the capacity utilization rate is equal to an output index (seasonally adjusted) divided by a capacity index. The Federal Reserve Board's capacity indexes attempt to capture the concept of *sustainable maximum output* – the greatest level of output a plant can maintain within the framework of a realistic work schedule, after factoring in normal downtime and assuming sufficient availability of inputs to operate the capital in place. For details see: http://www.federalreserve.gov/releases/G17/cap_notes.htm

reaching a value of almost \$50.7 billion, a 26 percent increase over 2006. The top five export markets continue to be Canada, Germany, Mexico, Saudi Arabia, and the UK. (Table 9)

Exports to Canada increased by almost 19 percent in 2007 to reach almost \$21.5 billion. In 2006, Germany became the second largest export market, a spot it held in 2007. U.S. exports to Germany increased 38 percent to almost \$7.2 billion in 2007. Mexico was in third position with exports increasing almost 8 percent to \$4.5 billion. Mexico has become a key auto-trading partner compared to pre-NAFTA when it was not even in the top 15 export destinations. U.S. vehicle exports broke a long steady decline by posting an increase of over 7 percent, selling 20,685 vehicles in Japan. Exports to Saudi Arabia decreased slightly by 1.3 percent to 118,263 units, and exports to China increased by 12 percent to 21,759 units. Although still small compared to other export markets, light vehicle exports to Korea have grown in the last two years, increasing by 140 percent in 2007 to reach \$383 million. This represents unit sales increasing from 5,732 in 2006 to 12,510 in 2007.

Imports

Passenger vehicles and light truck imports fell to \$147.6 billion in 2007, decreasing by half of a percent over 2006. Although this is the first decrease in many years, the United States still imports more vehicles by volume and value than any other country. This is largely explained by shipments from plants in Mexico and Canada. Our NAFTA partners accounted for 43 percent of U.S. light vehicle imports. This is down from 47 percent in 2006. Along with Germany, Japan, and Korea, the NAFTA countries account for over 94 percent of all U.S. light vehicle imports. (Table 10)

Germany was the primary source of U.S. light vehicle imports in 1965, while Canada was a distant third behind the UK. Canada rose to the top in 1970 because of the Big Three investment in production facilities in Canada. In 1976, Japan, aided by the first oil shock in 1974, quickly rose to the top source for U.S. imports. Canada has since regained its top U.S. supplier status aided by Japanese investment in new production facilities there.

The import statistics of our primary import suppliers were mixed in 2007. Imports from Canada were up 2.5 percent to \$44 billion while imports from Mexico decreased by 5 percent to \$20.5 billion. Imports from Japan increased by 0.5 percent to \$43 billion while imports from Korea decreased by 5 percent. Imports from Germany were down 25.6 percent, falling to \$10.5 billion.

China

China continued to be the envy of the world with a sales growth rate of 22 percent with total sales of 8.79 million vehicles in 2007. China is now the second largest vehicle market in the world after the United States, knocking Japan down to third place with 4.4 million passenger vehicles sold in 2007. Chinese automotive exports increased by 79% in 2007 to 612,700 units (including bus, truck and off road vehicles), according to Chinese customs authorities. In terms of value, exports rose 130 percent to \$7.31 billion. Passenger car exports more than doubled to

188,600 units in 2007. The leading export companies were Chery, Geely and Brilliance. The Chinese government predicts that vehicle exports will top 1 million units by 2010.

General Motors Corporation's full-year sales in China totaled over 1 million units in 2007, an increase of 18.5 percent over 2006. As a result, GM also became the first global automaker to sell one million vehicles in China in a single year. GM's flagship joint venture, Shanghai-GM, experienced domestic sales growth of 16.9 percent to 479,427 units. GM also has the best selling brand in China, selling 332,115 Buicks in 2007, compared to 54,969 Buicks sold in the United States. GM's Asia Pacific division's reported income in 2007 was \$681 million in 2007, with China accounting for an increasingly significant share.

Ford Motor China realized even larger percent gains in China. Sales of all brands under Ford Motor in China, including Ford, Lincoln, Volvo, Jaguar and Land Rover, totaled 216,324 units for the full year of 2007, up 30 percent from the same period of 2006. Chang'an-Ford-Mazda Automobile (CFMA), Ford's passenger car joint venture in China, also recorded a record year of sales - - rising 60 percent to 217,100 units in 2007. The Ford Focus, introduced in 2006, became one of the 10 best selling vehicles in the Chinese market in 2007, with total sales of 124,972 units. Ford's total production capacity in China has reached 546,000 units.

In spite of increased local capacity in China, U.S. exports to China continue to do well, due to the market liberalizing provisions required of China joining the WTO. Import duty rates that were as high as 220 percent have dropped to 25 percent. Quota restrictions were eliminated on January 1, 2005. Exports to China by all U.S. shippers of cars and light trucks reached \$673 million in 2007, an increase of 32 percent over 2006. Volume was over 21,759 units, representing a gain of 12 percent compared to 2006.

The Geely Automotive Holding Company from China made a big splash at the 2006 Detroit Auto Show when it was the first Chinese company to display a car at the show. For the 2007 Detroit Auto Show, four Chinese auto manufacturers displayed 20 vehicles. Five Chinese manufacturers displayed at the 2008 North American International Auto Show in Detroit, Changfeng Motor Group; BYD Auto Co.; Geely International; Zhongxing Automobile Co. and China America Co-operative Automotive (Chamco); and, Li Shi Guang Ming Auto Design Co.

Korea

Throughout 2006 the United States and Korea engaged in Free Trade Agreement (FTA) negotiations. These negotiations resulted in an agreement that, if passed by Congress will address the specific market access barriers raised by U.S. industry and will include unprecedented measures to enforce the agreement. This agreement will offer new opportunities to U.S. automotive exporters by removing tariff barriers, addressing the most pressing non-tariff barriers present today, and creating mechanisms for dealing with any future non-tariff barriers.

In addition, Korea will eliminate duties on key priority passenger vehicles immediately. Under the FTA, Korea has codified solutions to standards barriers, such as its Ultra Low Emission Vehicle regulation and problems with the implementation of its self-certification system.

Korea will eliminate the discriminatory aspects of its Special Consumption and Annual Vehicle Registration Taxes, and will reduce existing tax rates. Korea has also committed to not impose any new engine displacement taxes and to maintain the nondiscriminatory application of these taxes. Finally, to address past problems with anti-import campaigns, Korea committed that it is not its policy to discourage the purchase or use of U.S. goods or services.

To prevent future non-tariff barriers from becoming issues, the agreement includes a provision to create an Automotive Working Group, which will provide a specialized “early warning system” to address regulatory issues that may develop in the future. Korea agreed not to adopt technical regulations that create unnecessary barriers to trade, and to cooperate to harmonize standards. Perhaps the most progressive provision to address future problems comes in the area of dispute settlement. The agreement contains an innovative process for settling disputes on auto-related measures within six months after they arise. If a panel finds a violation of an auto-related commitment or the nullification/impairment of expected benefits, the complaining Party may suspend its tariff concessions on passenger cars and assess duties at the prevailing MFN rate (i.e., may “snap-back” any tariff reductions provided by the FTA).

The South Korean automotive industry is world class, and exports from South Korea’s automakers go to all of the key world markets, including the United States. Hyundai (including Hyundai controlled Kia) is the 6th largest vehicle manufacturer in the world, with 2006 sales of 3.75 million vehicles (up from 3.55 million in 2005). Hyundai is the largest vehicle manufacturer in Korea, with 2006 domestic sales of 816,116 units. The Hyundai group controlled 69 percent of the Korean Market in 2006. While Hyundai is based in Korea, the company is heavily reliant on export sales. In 2006, Hyundai exported 69 percent of the passenger cars it produced in Korea.

The United States and South Korea already have a history of negotiations on automotive trade, having reached agreement on two Memoranda of Understanding to improve access to the Korean market, one in 1995 and another in 1998. These MOUs were negotiated because U.S. vehicle manufacturers were highly restricted from selling into the Korean market by a variety of measures.

In 1994, before the first MOU was signed, import sales in the Korean auto market totaled 3,810 vehicles (0.3 percent of the market), with Ford, Chrysler and General Motors accounting for slightly over half that total. By 1997, total import share had only climbed to 0.7 percent, with U.S. manufacturers accounting for approximately half (or 0.35 percent of the Korean market). During that time, the U.S. automotive trade deficit with Korea rose dramatically, up 30 percent to reach \$1.8 billion. As a result of unsatisfactory progress under the 1995 MOU, a second more comprehensive agreement was negotiated and put into place in 1998 (for more detailed information on the 1998 MOU see the report “World Motor Vehicle Import Requirements,” also on the Office of Aerospace and Automotive Industries web page: www.ita.doc.gov/auto). While import sales in Korea have improved slowly, they are still low representing slightly over five percent of the total market in 2007. Meanwhile, the U.S. automotive trade deficit with Korea has continued to climb. Between 1996 and 2007, this deficit increased from \$1.7 billion to \$9.5 billion.

The Korean manufacturers have been enjoying a current string of success in the U.S. passenger vehicle market. Every year since 1993 they have either maintained or increased their share of the U.S. market, rising from 0.8 percent with sales of 109,000 vehicles in 1993 to 4.8 percent of the market with sales of 772,000 vehicles in 2007.

Korean automakers have a long history in the United States – one that, contrary to current trends, has not always been successful. The first Korean automaker to enter the United States was Hyundai in 1986. Kia followed much later in 1994 and Daewoo started sales in 1998. However, Daewoo left five years later after declaring bankruptcy, and eventually re-entered the U.S. market badged as Chevrolet and Suzuki products, after GM purchased Daewoo assets and created a new company.

In 1986, Hyundai introduced the Excel, a small sedan, priced well below competitors' brands. Sales of the Excel reached 264,000 units by 1988. To build on the brands growing popularity, in late 1988, Hyundai opened a plant in Canada, producing the Sonata (primarily for the Canadian market, with some exports to the United States). However, after a few years of success, the Excel developed a reputation for poor quality, and sales plummeted. By 1992, Excel sales were down to only 42,000 and total Hyundai sales reached only 109,000 units. After only three years of production, the Hyundai Canada plant closed. It wasn't until the year 2000 that Hyundai sales began to approach the peak year of 1988, with sales surpassing that peak in 2001.

After a long period of supplying the U.S. market entirely through exports, Hyundai has now (from 2003 to present) invested over \$1 billion in its first U.S. manufacturing plant in Montgomery, Alabama and last year sourced over half (51 percent) of its U.S. sales with U.S. produced vehicles. Hyundai produces the Sonata and the Santa Fe SUV at the Montgomery plant.

The plant is now operating near capacity with production of 251,000 vehicles in 2007, employing more than 2,000 people. In March 2006, Kia announced its first U.S. production plant in West Point, Georgia. The plan calls for an investment of \$1.2 billion. The plant will begin production in 2009, eventually reaching full capacity of 300,000 units and employing 2,500 workers.

Japan

The United States has had a growing automotive trade deficit with Japan for over three decades. This imbalance has had significant economic and political impacts, and has dominated our trade relationship with Japan over much of this period. U.S. automotive companies' sales in Japan have not improved, while Japanese companies have continued to gain market share in the United States.

The automotive trade deficit with Japan is the largest U.S. sectoral bilateral imbalance. It has grown from the \$30 billion dollar level in the early 80's to \$55.6 billion in 2007 (\$43.1 billion deficit in autos and \$12.5 billion deficit in auto parts). Meanwhile, overall sales of North American-made vehicles and parts in Japan remain low despite an upturn in U.S. vehicle exports

in 2007. Sales of U.S. produced motor vehicles in Japan increased by 7.4 percent in 2007 to 20,658.

Over the last twelve years, the Detroit 3 have lost 22.2 points of U.S. market share, declining from 73.1 percent of the market in 1995 to only 50.9 percent of the U.S. market in 2007. Japanese brands have made strong headway during this period, climbing from 22.9 percent to 37.2 percent, a gain of 14.3 points of market share.

The Japanese auto companies have supplied the U.S. market through both export and investment in U.S. manufacturing facilities. Imports from Japan were down slightly by 0.8 percent in 2007 to 2,176,153 units compared to 2,193,554 units in 2006. However, the value of Japanese imports increased by 0.5 percent to \$43 billion.

The cumulative Japanese investment in the United States stands at almost \$31 billion. Japanese manufacturers produced nearly 3.4 million cars in the United States in 2006. The largest Japanese investor, Toyota, has invested over \$14 billion in twelve U.S. manufacturing facilities that produced 1,260,200 vehicles in 2006. Toyota employed 26,128 in the U.S. in 2006. In February 2007, Toyota announced that it would build a new vehicle assembly plant in Tupelo, Mississippi. Other Japanese manufacturers are similarly increasing their presence in the United States. Honda of America has invested over \$8.9 billion in ten U.S. manufacturing facilities that produced 974,380 vehicles in 2006. Nissan has invested over \$5.1 billion in three U.S. manufacturing facilities that produced 715,800 vehicles in 2006. Mazda, in a joint venture with Ford, has invested over \$1.9 billion in one manufacturing facility that produced 249,844 vehicles in 2006.

India

As the second most populous country, automakers recognize the long-term potential of investing in the Indian market. While the percentage of the Indian population that owns a vehicle is low, less than 1 percent, the proportion of the population able to afford buying a car could double by the end of the decade according to some estimates. In addition, with a vast supply of cheap, skilled, English-speaking labor, India has potential as an export center. Both of these points are demonstrated by the fact that Indian exports grew 13 percent year over year for the financial year ending March 2007, according to Business Monitor International, and FDI has also risen steadily in recent years.

In 2006, India released the Automotive Mission Plan which details development goals for the years 2006-2016. The Plan recognizes the importance of the automotive industry for all levels of society, and describes the government's role in supporting the automotive industry. However, today there are still a number of barriers that limit the development of the Indian automotive industry, both domestic and foreign. Some of these limitations include high tariffs on automobiles, customs procedures that impede importation of automotive products, lack of adequate infrastructure that causes overcrowded roads and heavy congestion, and inflexible labor regulations.

Despite these limitations, U.S. carmakers continue to invest in the Indian market. Ford announced its intention to invest \$500 million in its Indian subsidiary, with a new engine plant expected to open in 2008 that will produce 250,000 engines per year. GM is building a second plant in India that is expected to begin manufacturing in August 2008. However, while foreign investment in India has increased, Indian automakers control the market. For example, Maruti Suzuki controls over half of the Indian passenger car market. In addition, the Tata Nano, also known as the “People’s Car” due to its low price (\$2500), made its world premiere at Auto Expo India 2008. Tata expects to initially manufacture approximately 250,000 annually. In contrast, India’s Mahindra & Mahindra is hoping to make a splash in the U.S. market starting as early as 2009 by offering pickups and SUVs that are assembled in Ohio from parts made in India.

NAFTA

Implementation of the NAFTA has had a tremendous impact on automotive trade in North America. Shipments of new passenger vehicles and light trucks between the United States and its two partners have grown tremendously. In 2007, cross-border trade hit a new record high, reaching \$88.4 billion. In the year before NAFTA, two-way shipments were \$35.8 billion far less than half the 2007 total. Most of the growth during this period was the result of increased imports by the United States, which rose from \$27.8 billion in 1993 to \$64.6 billion in 2007. The increase in 2007 can be attributed to increased exports to Canada, up \$2.7 billion (a 15.4 percent increase) and increased exports to Mexico up \$307 million (an 8.7 percent increase). The U.S. auto trade deficit in new vehicles with both NAFTA and the world decreased in 2007. The decrease in the deficit with NAFTA was primarily due to U.S. exports to Canada, which rose 13 percent. (Chart 9)

In 2007 imports of new passenger vehicles from Canada and Mexico reached \$64.6 billion – more than double the size of 1993's sum. U.S. exports also have more than doubled, growing from \$8 billion in 1993 to \$23.8 billion last year. The United States continues to experience deficits with both countries. However, their combined share of the U.S. global deficit in these products has declined steadily, dropping from a high of 54 percent in 1996 to 37.6 percent in 2007 (down slightly from 2006).

Most trade in automotive products between Canada and the United States was liberalized by two bilateral agreements enacted well before the NAFTA agreement was implemented. Therefore, little of the growth in trade between the two countries can be attributed directly to the NAFTA agreement. Bilateral trade with Canada in these products, \$32.1 billion in 1993, reached \$64.1 billion in 2007. U.S. exports have increased by 152 percent to \$20 billion, while imports from Canada grew 82 percent above 1993's total to \$44.1 billion.

Before NAFTA was enacted, exports to Mexico from the USA were artificially constrained by a host of measures enacted by the Mexican government to force firms to produce in Mexico, if they wished to export there. In 1993, our shipments of new passenger vehicles and light trucks totaled less than \$95 million. They jumped 500 percent in 1994, the first year of the agreement, reaching \$580 million. By the end of 2007, U.S. exports to Mexico totaled \$3.8 billion. Mexico is our third largest export market, after Canada and Germany. Those increases came about

because U.S. firms were able to rationalize and relocate some of their Mexican production to U.S. plants, and because they could export more models to Mexico from the United States without being subject to artificial import and local production constraints.

Imports from Mexico have grown rapidly since the agreement was signed, climbing from \$3.6 billion in 1993 to a total of \$20.5 billion in 2007. Because the U.S. border was already largely open to Mexican imports before the trade pact was signed, it would be a mistake to attribute this surge entirely to the NAFTA agreement. The exception is the increase in U.S. imports of those trucks that have an MFN duty rate of 25 percent (those primarily designed for cargo, such as two-door pickup trucks and certain medium/heavy duty trucks). Imports of these trucks have increased 1,450 percent (up \$7.9 billion) since 1993. This increase represents 47 percent of the total increase in new passenger vehicle imports from Mexico during that time. Chrysler, Ford, General Motors and Toyota manufacture pickup trucks in Mexico.

However, the growth in U.S. exports can be directly credited to the agreement, since there were significant changes in market access for goods heading to Mexico, with the removal of Mexican restrictions that constrained U.S. shippers. For example, a Mexican requirement that producers assemble vehicles in Mexico and export a certain percentage of them in order to import vehicles into Mexico, was immediately phased out for commercial vehicles and reduced for passenger vehicles. On January 1, 2004, the remaining restrictions were entirely eliminated. Strict quotas, high tariffs, and minuscule import market share allocations that applied to motor vehicle imports from the United States have been eliminated. Mexican content requirements were substantially curtailed and were eliminated entirely by January 1, 2004. Import duty rates for U.S. products, which reached as high as 20 percent, were voluntarily eliminated by Mexico on January 1, 2003, one year ahead of schedule.

Before the accord was signed, many observers expressed reservations, believing that the lower wage rates in Mexico would result in the immediate and significant relocation of U.S. light vehicle manufacturing capacity to sites south of the border. Instead, data produced by Harbour and Associates indicates that light vehicle assembly capacity increased in all three countries between 1993 and 2005, rising from a total of 16.7 million units to 17.7 million vehicles. (Chart 11) Capacity grew the fastest in Mexico, and was 25.1 percent higher in 2005 than in 1993. However, the increase was from a relatively smaller base. U.S. capacity in 2005 was 5.5 percent greater than in 1993, but the absolute increase of 696,000 additional units, was roughly double Mexico's 361,000-unit increase. As the Detroit 3 implement their turnaround plans, they have shuttered U.S. production. Production in Mexico has been relatively unaffected. Also, some foreign manufacturers such as Nissan and Volkswagen have chosen to invest heavily in their Mexican operations pushing up capacity in that country⁸. In 2006, capacity in Mexico was up 5.5 percent from 2005, and up 32 percent since 1993 (since before NAFTA was enacted).

Largely as a result of Detroit 3 plant closures and capacity adjustments, overall capacity in North America was down 1.5 percent in 2006 compared to 2005. The United States and Canada each

⁸ Mexico has worked hard to increase its desirability as an FDI destination. Not only does it possess a skilled automotive workforce and supplier base, it has also signed 12 Free Trade Agreements covering trade with 41 countries, including such major markets as the United States, Canada, Japan and the EU member states (see listing at: <http://www.economia.gob.mx/?NLanguage=es&P=2113#>).

lost ground in 2006, with U.S. capacity down 2.6 percent and Canada down 0.9 percent. Mexican capacity was up 5.5 percent. (Chart 11) Plant capacity is not static, however, and its measure depends upon a combination of factors that can change from year to year, and even from day to day. Variables include the level of investment in physical plant, the efficiency of the processes employed, complexity of the vehicles being assembled, the number of employees on the assembly line, and the number of hours of operation. Measured capacity in all three countries actually declined in the first year of the NAFTA, dropping the most in Mexico – 1 percent. By the end of the second year, capacity had increased the most in Mexico – 15 percent – despite the economic crisis that the country was then experiencing.

Plant capacity utilization – dividing the number of units actually produced in a year by estimated annual production capability – is another useful tool for measuring changes in the industry. Harbour's data show that in 1993, Mexico produced one million vehicles in plants with a capacity to assemble 1.4 million, yielding a 72 percent utilization rate. During Mexico's 1995 'peso crash,' light vehicle production in the country's plants dropped 16 percent to 925,000 units, while capacity had risen that year by nearly 15 percent to 1.6 million units. The net result was a 27 percent decline in utilization for the year to a rate of 58 percent. By the end of 2000, Mexico's utilization rate had hit 100 percent, the highest of any of the three countries. It fell the next four years, dropping to 82 percent in 2004. The U.S. rate, 84 percent in 1993, was 84 percent in 2006 after reaching higher rates in the mid/late 1990's. Although capacity was down one percent in Canada in 2006, utilization rates remained high, falling slightly to 94 percent. Actual production in Canada was down 4.8 percent. Between 1993 and 2006, the overall utilization rate averaged 89 percent in U.S. plants, 89 percent in Canadian plants, and 84 percent in Mexican plants. In 2006, Mexican production was operating at 102 percent. It is likely that utilization rates for 2007 will show a decline as manufacturers brought more capacity on-line.

The Road Ahead

Many unknown factors continue to impact automakers' future and direction, such as the price of fuel and other commodities, low-cost production in emerging markets, state and federal regulations, international standards and trade policies, and, as always, consumers' tastes. Although the Detroit 3 will begin to see savings resulting from the labor contracts and their continued restructuring, an expected decline in U.S. auto sales in 2008 could stall their return to profitability. In addition, automakers will need to make hefty investments in powertrain technologies and their product lineups to comply with the new U.S. fuel economy standards. The recent influx of both outside capital and outside management also has the potential to change the industry.

Globalization and foreign competition continue to impact the U.S. economy, particularly the automotive industry. With a weak dollar, increased U.S. exports, and decreased U.S. imports, the U.S. automotive trade deficit decreased 11 percent last year to \$97.5 billion. Auto parts sourcing, engineering decisions, plant operations, and quality will be increasingly based on globalization and global benchmarks. In addition to the unknown factors mentioned above, international trade patterns and the industry will also inevitably be influenced by foreign

currency values, new investments in the United States and abroad, service and delivery costs, and the demand in individual markets and product segments.

With U.S. sales in decline, all of the Detroit 3 have acknowledged the importance of investing and selling overseas, especially in emerging markets, where most of the future growth will take place. Automotive research firm, CSM estimates the global automotive industry will increase from 62 million cars and light trucks in 2007 to over 80 million by 2013. Contrary to their situation in the North American auto market, the Detroit 3 are doing well in many of their overseas markets in terms of both sales growth and profitability.

In contrast to the Detroit 3, foreign-based automakers continue to increase their presence in the U.S. market. Many foreign automakers have been increasing sales and market share in the United States, and are seeking to expand on that growth through new investments. In addition, the weakening U.S. dollar has put increasing pressure on foreign-based auto companies to increase vehicle production in the United States to replace suddenly less price-competitive imported product. The declining exchange rate is also increasing pressure on all U.S. vehicle manufacturers to increase auto parts sourcing in the United States.

Automakers like Toyota (with the 2007 announcement of a new plant to be built in Mississippi) and Hyundai (with a new plant in Alabama) have added to new plants in the United States in the past few years. Kia currently has a plant under construction in Georgia, with plans to begin production in 2009. Other auto companies have been cited in the press as speculating about returning to the U.S. manufacturing (Volkswagen may open a plant in Virginia after its long absence since the closing of its Pennsylvania plant in 1989) or entirely new entrants (such as Indian automaker Mahindra and Mahindra, rumored to be considering investment in Ohio to assemble pickup trucks).

Two emerging markets will eventually impact U.S. industry's dynamics: China and India. Both countries are becoming low-cost sources for vehicle production, automotive parts, and engineering services. At the same time, both have growing domestic auto markets that have developed with the help of foreign direct investment by the global automakers, including the Detroit 3. China and India-based automakers have focused on their respective markets, but automakers in each market have expressed an interest in selling in the United States. It's just a matter of how soon these automakers will be able to comply with U.S. standards and safety requirements, meet U.S. consumers' quality expectations, and develop a distribution network. It will be interesting to see how the joint venture companies, in particular, determine which products and how many vehicles will be imported into the United States, and how U.S. consumers perceive these vehicles. Undoubtedly, these new players will only increase the relentless competition that already exists for the industry, both within the United States and worldwide.

Decreased U.S. production and the recent hardships of the Detroit 3 have trickled down to their suppliers. Many U.S.-based suppliers are already in financial distress, so the combination of decreased U.S. production, increased foreign competition, and increased material prices could push many into bankruptcy, potentially disrupting automotive supply chains. In addition, vehicle development is increasingly being coordinated globally, with common parts being used on a

number of different models. This trend will also impact suppliers without the resources to supply on a global basis and the ability to locate where their customers' design and development decisions are being made.

FACT SHEET

Domestic Market

- The U.S. market for cars and light trucks decreased to almost 16.1 million units in 2007 – down 2.4 percent.
- A downturn in the housing sector along with gas prices of approximately \$3 a gallon for much of 2007 contributed to light trucks sales declining 2.39 percent, with pickup truck sales falling 6.21 percent. Passenger car sales also decreased, falling 2.59 percent.
- Cross utility vehicles' (CUV) popularity continued to grow, with sales increasing from 1 million units in 2001 to 2.6 million units in 2007.
- Consumer expenditures for new vehicles increased slightly from \$241.2 billion in 2006 to \$243.6 billion in 2007.
- Most forecasters predict the 2008 market will be the lowest in a decade, with estimates ranging from 15.5 to 16.1 million vehicles sold.
- Market share for the Detroit 3 fell again in 2007 to a new low, 50.9 percent. Sales dropped 7.2 percent.
- Market share for Japanese brands in 2007 reached a new high, 37.2 percent. Sales increased 3.7 percent.
- German brands' sales volume in 2007 increased for the second straight year, up 2.9 percent. Market share also increased to 5.9 percent.
- Sales of Korean brands increased 3 percent, and market share climbed to 4.8 percent in 2007.

Production

- U.S. production of light vehicles decreased by 3 percent in 2007 to 10.5 million units. 1999 was the record high, with 12.6 million units.
- Detroit 3 production in 2007 decreased 6.5 percent to 6.4 million units.
- U.S. production by Japanese affiliates increased 1.8 percent to almost 3.5 million vehicles in 2007.
- U.S. production in 2007 by the German affiliates was up 16.4 percent to 324,000 units.
- 2007 was the second full production year for Korean manufacturer, Hyundai, in the United States. In 2007, the automaker produced almost 251,000 automobiles, up from 237,000 in 2006.

- Some analysts expect Detroit 3 production to contract further in 2007, their volume replaced by that of the local Japanese, Korean, and German affiliates, and by imports.

Employment

- Domestic employment in the auto industry (light vehicle manufacturing) was down in 2007 to 185,500, a decrease of 7 percent from 2006.
- Auto manufacturing remains one of the economy's best paying industries. Production workers' average hourly earnings were projected to reach \$30.33 (excluding benefits) in 2007. Wages were 74 percent greater than the national average for all manufacturing industries.

International Trade

- The light vehicle trade deficit decreased by 10.4 percent in 2007 to almost \$97 billion.
- Imports decreased slightly by 0.5 percent to a total of \$147.6 billion in 2007.
- Exports in 2007 grew for the sixth year in a row, climbing 26.1 percent to almost \$50.7 billion.
- Canada remains the largest source of imports, with imports increasing 2.5 percent to \$44.1 billion in 2007. Imports from Mexico fell 5.4 percent to \$20.5 billion for the same period. Japan's exports to the United States increased by 0.5 percent to reach \$43 billion in 2007.
- In 2007, most U.S. exports continued to go to Canada and those shipments increased by 18.6 percent to almost \$21.5 billion. Shipments to Mexico in 2007 increased by 7.6 percent to \$4.5 billion. Exports to Japan increased by 8.2 percent to \$510 million. Exports to Korea increased for the third year in a row to \$347 million, an increase of 131 percent.

– INDUSTRY TABLES –

Table 1

Consumers' Expenditures (PCE) (Billions of Current Dollars)							
	2001	2002	2003	2004	2005	2006	2007
Cars, New	103.2	101.7	97.2	97.7	104	107.1	103
Light Trucks, New	131.5	148	160.8	161.7	152.8	134.1	140.7
Total, New	234.8	249.7	258	259.3	256.8	241.2	243.6
Net, Used Autos	112.7	117	108.2	108.4	114.8	117.9	119.5
Total	347.5	366.7	366.2	367.8	371.6	359	363.2
Source: U.S. Bureau of Economic Analysis							

Table 2

U.S. Motor Vehicle Production (Millions)							
	2001	2002	2003	2004	2005	2006	2007
Cars	4.8	5.0	4.5	4.2	4.3	4.4	3.9
Light Trucks	6.3	7.0	7.3	7.3	7.2	6.4	6.5
Total LV	11.2	12.0	11.8	11.6	11.5	10.8	10.5
Med/Heavy Trucks	0.256	0.258	0.251	0.358	0.424	.462	.279
Total All	11.4	12.3	12.1	12.0	11.9	11.3	10.7
Source: Ward's Automotive Reports							

Table 3

U.S. Automotive Industry Average Annual Employment (1,000s)			
(NAICS Based)	2005	2006	2007
Automobiles (336111)	139.8	134.6	127.5
Light Trucks and utility vehicles (336112)	70.2	65.1	58
Total Light Vehicles	210	199.7	185.5
Heavy Duty Trucks (33612)	37.7	36.8	37.6
Total vehicles	247.7	236.5	223.1
Motor Vehicle Bodies and Trailers (3362)	171	178.8	164.9
Motor Vehicle Parts (3363)	678.1	654.7	608.9
Motor Vehicle Parts (3363) and Motor Vehicle Bodies and Trailers (3362)	849.1	833.5	773.8
TOTAL	1096.7	1070	996.8
Source: U.S. Department of Labor/Bureau of Labor Statistics			

Table 4

Total Payroll & Fringe Benefits (Billions of Dollars)					
	2002	2003	2004	2005	2006
Car Plants	7.2	7.3	7.5	7.6	7.4
Light Truck Plants	10.4	11.0	11.6	10.9	9.9
Total LV Plants	17.6	18.3	19.1	18.4	17.3
Heavy Truck Plants	1.8	1.6	1.9	2.1	2.2
Total All Plants	19.4	19.9	21.0	20.6	19.5
Source: U.S. Census Bureau 2006 and Earlier Annual Survey of Manufactures					

Table 5

U.S. Motor Vehicle Sales (Millions)							
	2001	2002	2003	2004	2005	2006	2007
Cars	8.4	8.2	7.6	7.5	7.7	7.8	7.6
Light Trucks	8.7	8.7	9.0	9.3	9.2	8.7	8.5
Total LV	17.1	16.9	16.6	16.8	16.9	16.5	16.1
Med/Heavy Trucks	0.4	0.3	0.3	0.4	0.5	.5	.4
Total All	17.5	17.2	16.9	17.3	17.4	17.0	16.5
Source: Ward's Automotive Reports							

Table 6

Total Passenger Vehicle Market					
	1986	2004	2005	2006	2007
TOTAL SALES	16,121,645	16,849,353	16,921,005	16,476,554	16,085,290
AMERICAN BRANDS					
Total Sales	11,813,719	9,864,680	9,609,279	8,816,458	8,181,158
Share of Market	73.3%	58.5%	56.8%	53.5%	50.9%
JAPANESE BRANDS					
Total Sales	3,386,912	5,154,463	5,472,051	5,768,782	5,979,708
Share of Market	21.0%	30.6%	32.3%	35.0%	37.2%
GERMAN BRANDS					
Total Sales	503,550	882,933	870,283	920,879	947,785
Share of Market	3.1%	5.2%	5.1%	5.6%	5.9%
KOREAN BRANDS					
Total Sales	168,882	688,670	730,863	749,822	772,482
Share of Market	1.0%	4.1%	4.3%	4.6%	4.8%
Source: Derived from Ward's Automotive Reports by U.S. Department of Commerce/Automotive Industries Team					

Table 7

Light Truck Sales					
	1986	2004	2005	2006	2007
TOTAL TRUCK SALES	4,642,687	9,343,421	9,253,939	8,655,700	8,466,878
Share of Total Pass. Vehicle Market	28.8%	55.5%	54.7%	52.5%	52.6%
AMERICAN BRANDS					
Total Sales	3,657,896	6,664,536	6,439,881	5,670,614	5,392,751
Share of Truck Market	78.8%	71.3%	69.6%	65.7%	63.7%
JAPANESE BRANDS					
Total Sales	972,503	2,207,810	2,313,429	2,453,642	2,479,738
Share of Truck Market	20.9%	23.6%	25.0%	28.2%	29.3%
GERMAN BRANDS					
Total Sales	12,288	147,659	143,705	157,990	179,771
Share of Truck Market	0.3%	1.6%	1.6%	1.8%	2.1%
KOREAN BRANDS					
Total Sales	0	232,668	258,510	273,559	315,847
Share of Truck Market	0.0%	2.5%	2.8%	3.1%	3.7%
Source: Derived from Ward's Automotive Reports by U.S. Department of Commerce/Automotive Industries Team					

Table 8

Passenger Car Sales					
	1986	2004	2005	2006	2007
TOTAL CAR SALES	11,478,958	7,505,932	7,667,066	7,820,854	7,618,412
Share of Total Pass. Vehicle Market	71.2%	44.5%	45.3%	47.5%	47.4%
AMERICAN BRANDS					
Total Sales	8,155,823	3,200,144	3,169,398	3,145,844	2,788,407
Share of Car Market	71.1%	42.6%	41.3%	39.9%	36.6%
JAPANESE BRANDS					
Total Sales	2,414,409	2,976,653	3,158,622	3,315,140	3,499,970
Share of Car Market	21.0%	39.3%	41.2%	42.6%	45.9%
GERMAN BRANDS					
Total Sales	491,262	735,274	726,578	762,889	768,014
Share of Car Market	4.3%	9.8%	9.5%	9.8%	10.1%
KOREAN BRANDS					
Total Sales	168,882	456,002	472,353	476,262	456,635
Share of Car Market	1.5%	6.1%	6.2%	6.1%	6.0%
Source: Derived from Ward's Automotive Reports by U.S. Department of Commerce/Automotive Industries Team					

Table 9

U.S. Exports of Passenger Vehicles & Light Trucks – Top 5 Markets Billions of Dollars, FAS						
	2002	2003	2004	2005	2006	2007
World	24.606	26.838	29.499	35.374	40.179	50.664
Canada	13.526	14.802	14.686	16.184	18.083	21.448
Mexico	3.799	3.178	3.987	4.438	4.160	4.475
Germany	2.786	3.928	3.980	3.661	5.177	7.145
S. Arabia	0.901	0.660	1.040	2.162	2.267	2.173
UK	0.624	0.863	0.852	0.821	1.006	1.365
Source: U.S. Census Bureau, using OAAI HTS Selections						

Table 10

U.S. Imports of Passenger Vehicles & Light Trucks – Top 5 Sources Billions of Dollars, Customs Value						
	2002	2003	2004	2005	2006	2007
World	127.562	127.906	135.148	136.450	148.364	147.643
Canada	39.056	38.332	43.255	44.009	43.058	44.115
Japan	34.344	31.596	31.625	34.413	42.898	43.133
Mexico	19.773	18.261	17.407	16.945	21.701	20.526
Germany	17.795	19.710	20.344	20.307	19.233	17.609
Korea	6.796	7.933	10.040	8.769	8.671	8.218
Source: U.S. Census Bureau, using OAAI HTS Selections						

Table 11

Value of Manufacturers' Product Shipments (Billions of Dollars)					
	2002	2003	2004	2005	2006
Total Light Vehicles	220.5	244.1	235.4	234.2	230.5
Med/Heavy Trucks	16.0	15.2	21.2	25.2	28.8
Total All	236.5	259.3	256.6	259.5	259.3
Source: U.S. Census Bureau 2006 Annual Survey of Manufactures					

Table 12

Capital Expenditures for Plant and Equipment (Billions of Dollars)					
	2002	2003	2004	2005	2006
Car Plants	2.1	2.1	2.4	2.4	1.6
Light Truck Plants	2.6	2.9	2.1	1.4	2.0
Total LV Plants	4.7	5.0	4.5	3.8	3.7
Med/Heavy Truck Plants	0.2	0.2	0.2	.2	.1
Total All Plants	4.9	5.2	4.7	4.0	3.8
Source: U.S. Census Bureau 2006 Annual Survey of Manufacturers					

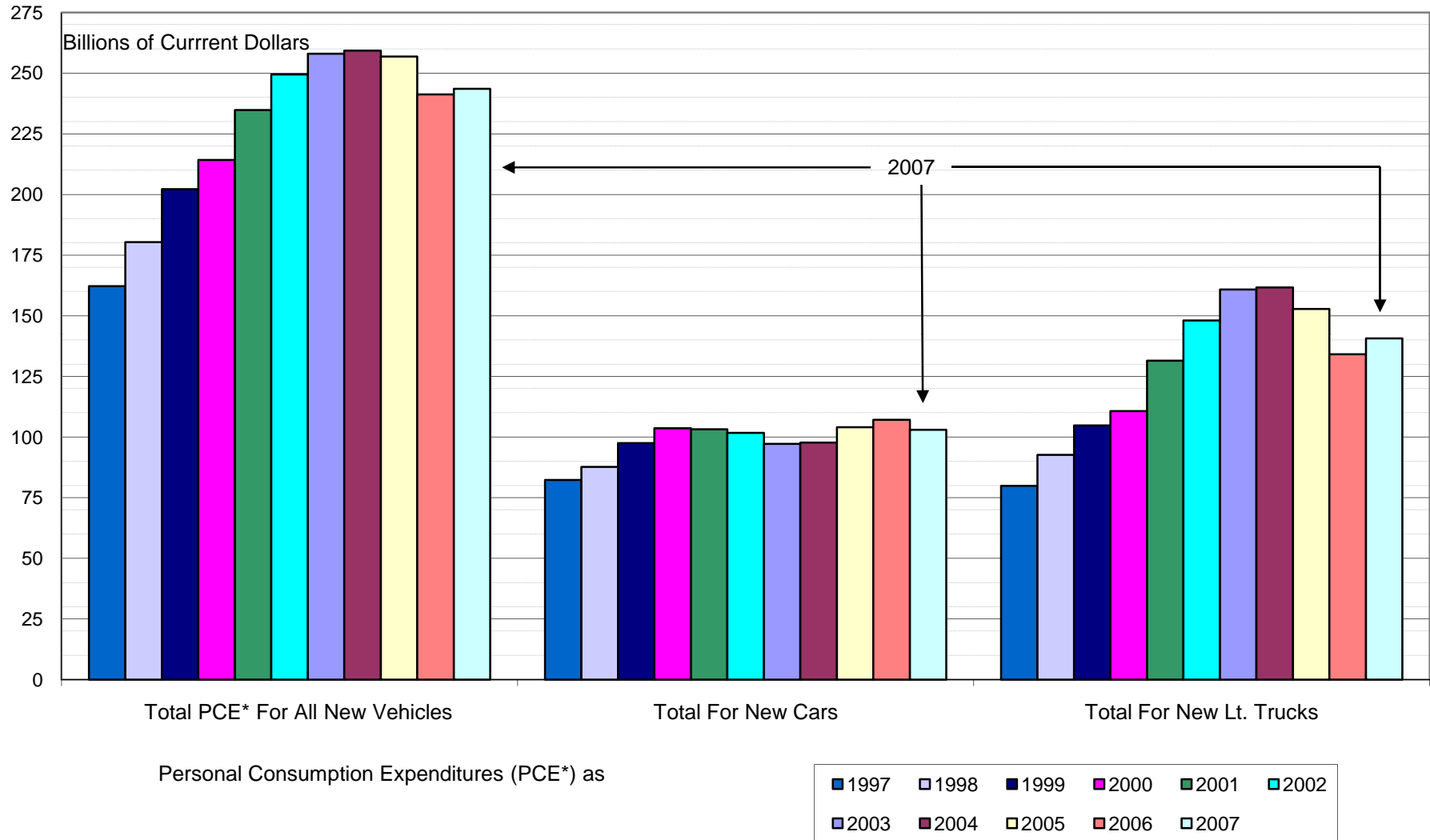
Table 13

Total U.S. Motor Vehicle Registrations (Millions)			
	Cars	Trucks	All Vehicles
2002	135.9	92.9	229.6
2003	135.7	94.9	231.4
2004	136.4	100.0	236.4
2005	136.6	103.8	241.2
2006	135.4	107.9	244.2
Source: U.S. Department of Transportation			

Table 14

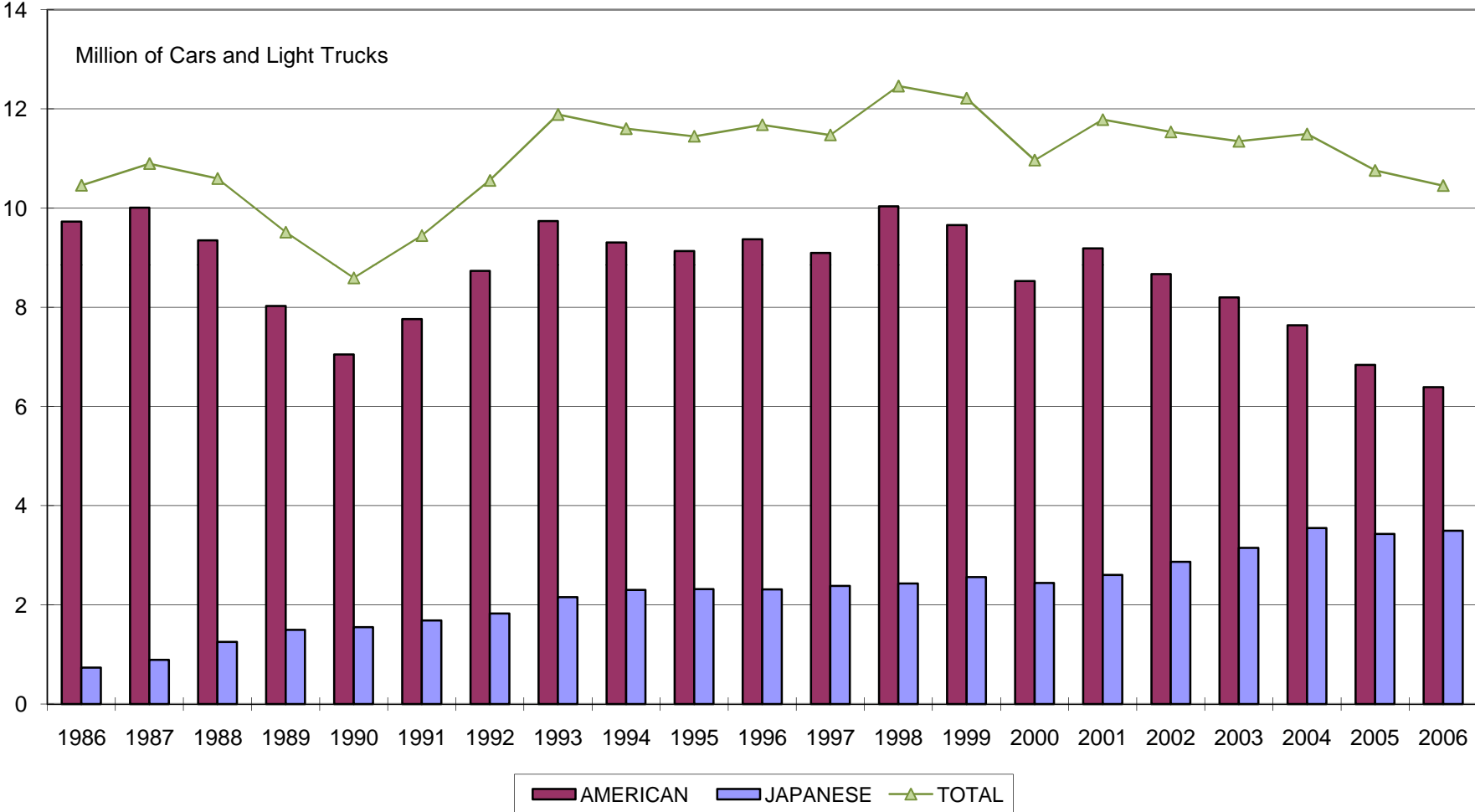
U.S. Cars and Trucks Registrations per:						
	2001	2002	2003	2004	2005	2006
1,000 Residents	819	796	793	804	838	801.9
1,000 Driving Age (16yrs & older)	1,071	1,027	1,021	1,034	1,074	1,038
1,000 Licensed Drivers	1,205	1,182	1,176	1,188	1,202	1,200
Derived from U.S. Department of Transportation/U.S. Census Bureau data by U.S. Department of Commerce/Automotive Industries Team						

Spending on new vehicles rose from \$241.3 billion in 2006 to \$243.6 billion in 2007. Surprisingly spending on light trucks increased from \$134.1 billion in 2006 to \$140.7 billion in 2007.

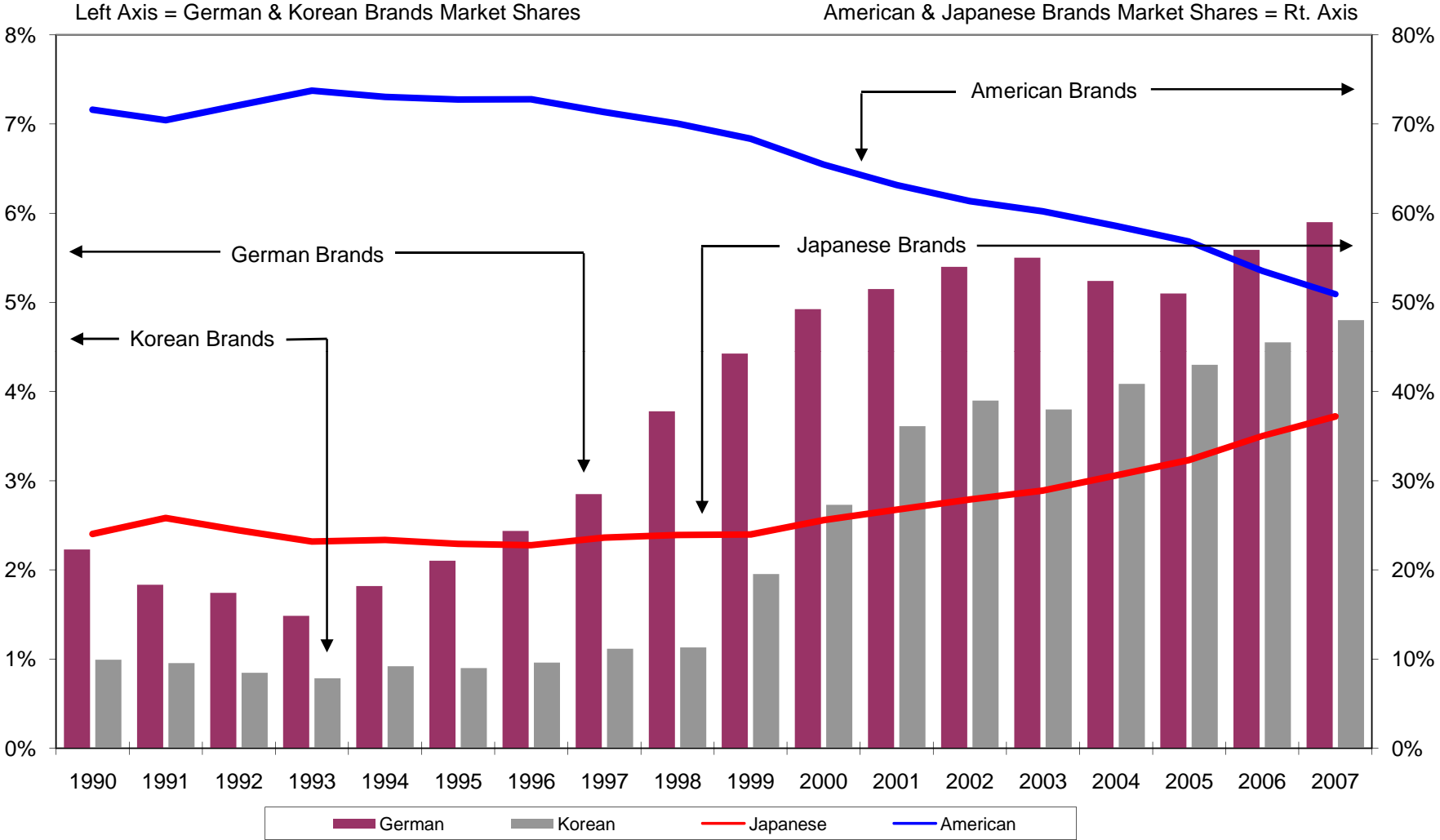


While Detroit 3 production has on average trended downward, Japanese-based automaker U.S. production has increased 52 percent since 1995.

Chart 2



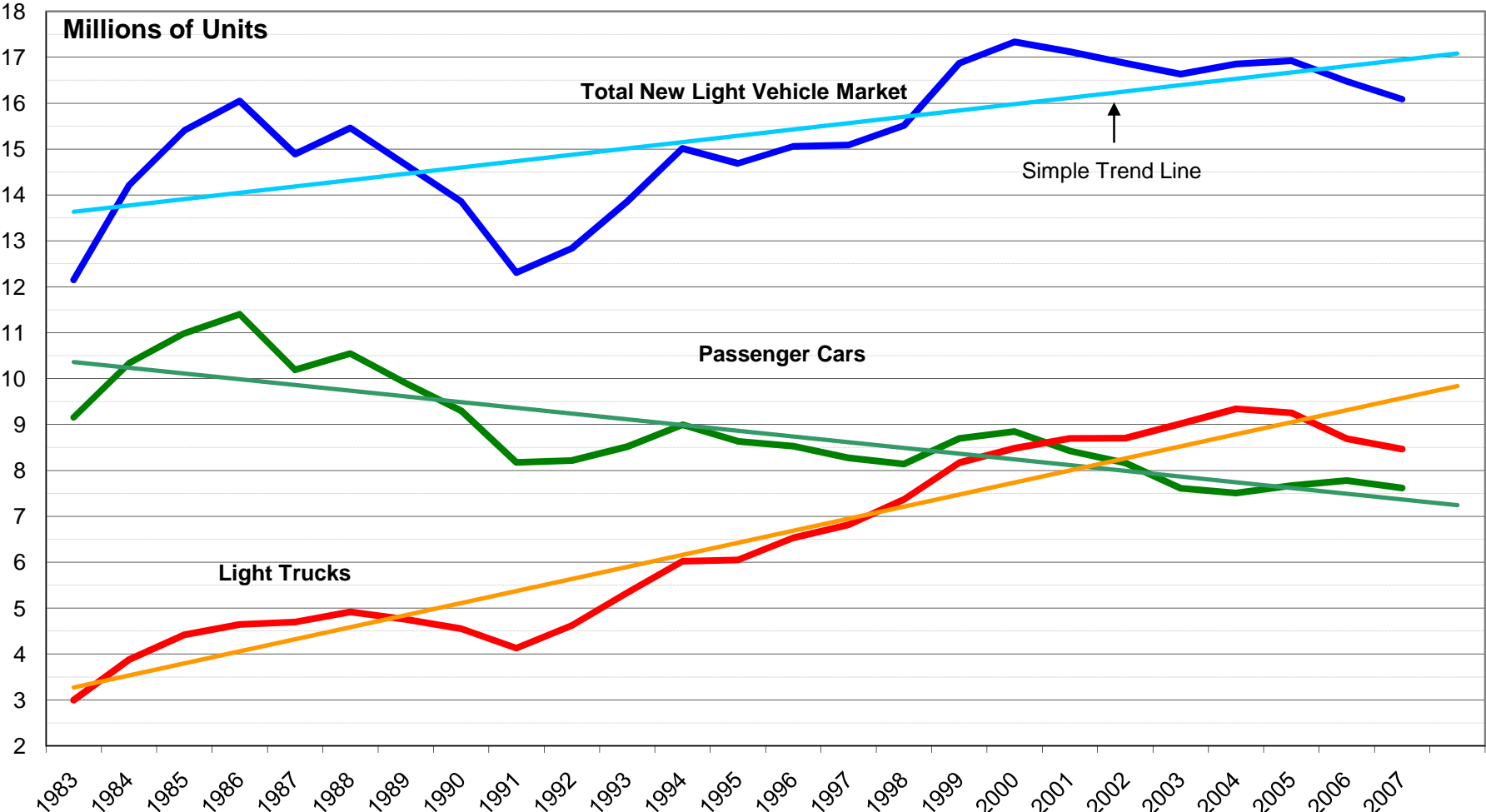
The American brands' share of the domestic market continues to slip, while Japanese, Korean and German brands continue to gain market share.



Source: Ward's AutoInfoBank, Adjusted by USDOC OAAI

U.S. sales of light trucks at 9.3 million units in 2004 (peak light truck sales) captured 55.5 percent of the total market. Light truck sales were 52.6 percent of the U.S. light vehicle market in 2007.

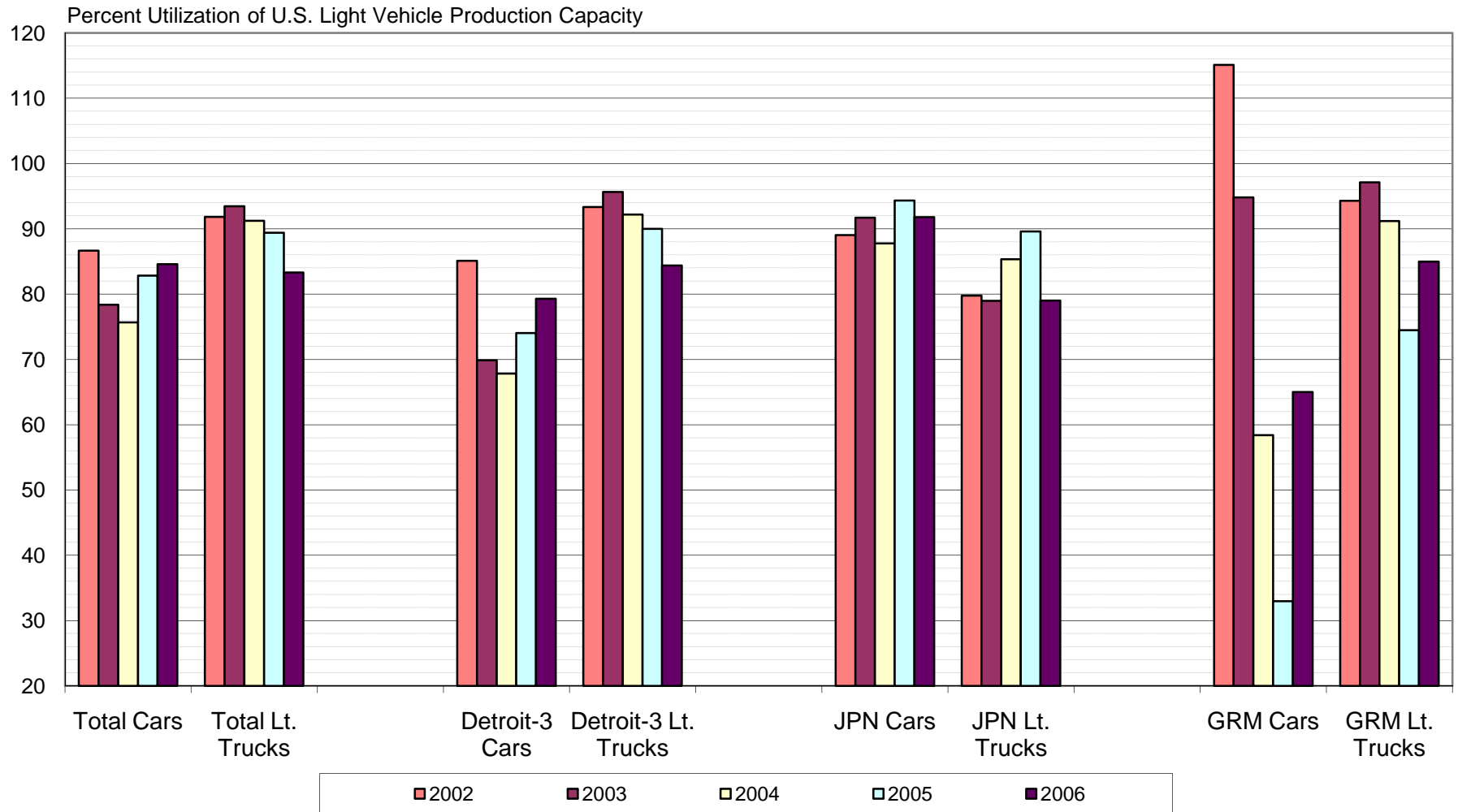
Chart 4



Source: Derived from the Automotive News 100-Year Almanac, 1996 ; and Ward's AutoInfoBank by USDOT/Office of Automotive Affairs

Capacity utilization at light truck plants has fallen behind utilization for passenger car production.

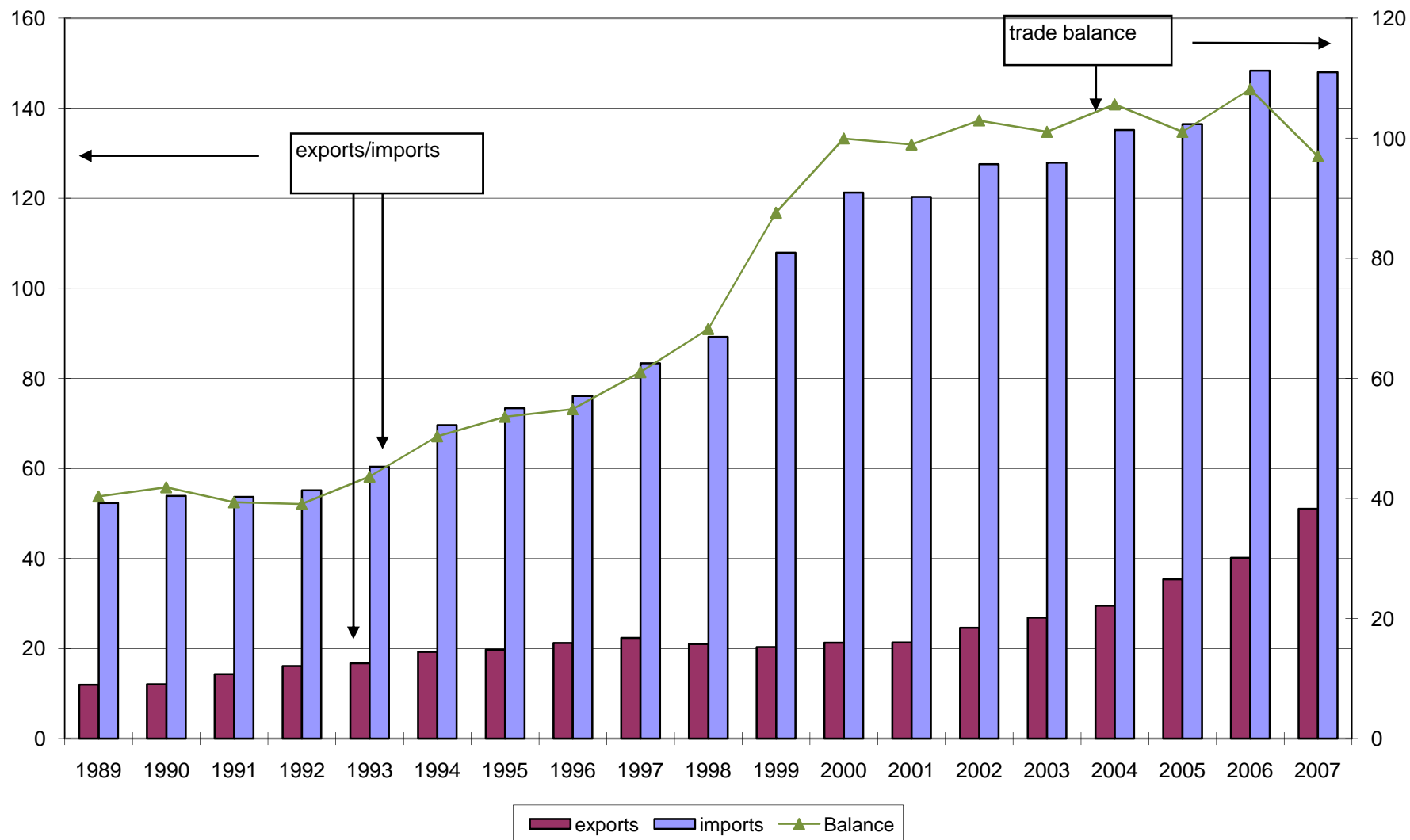
Chart 5



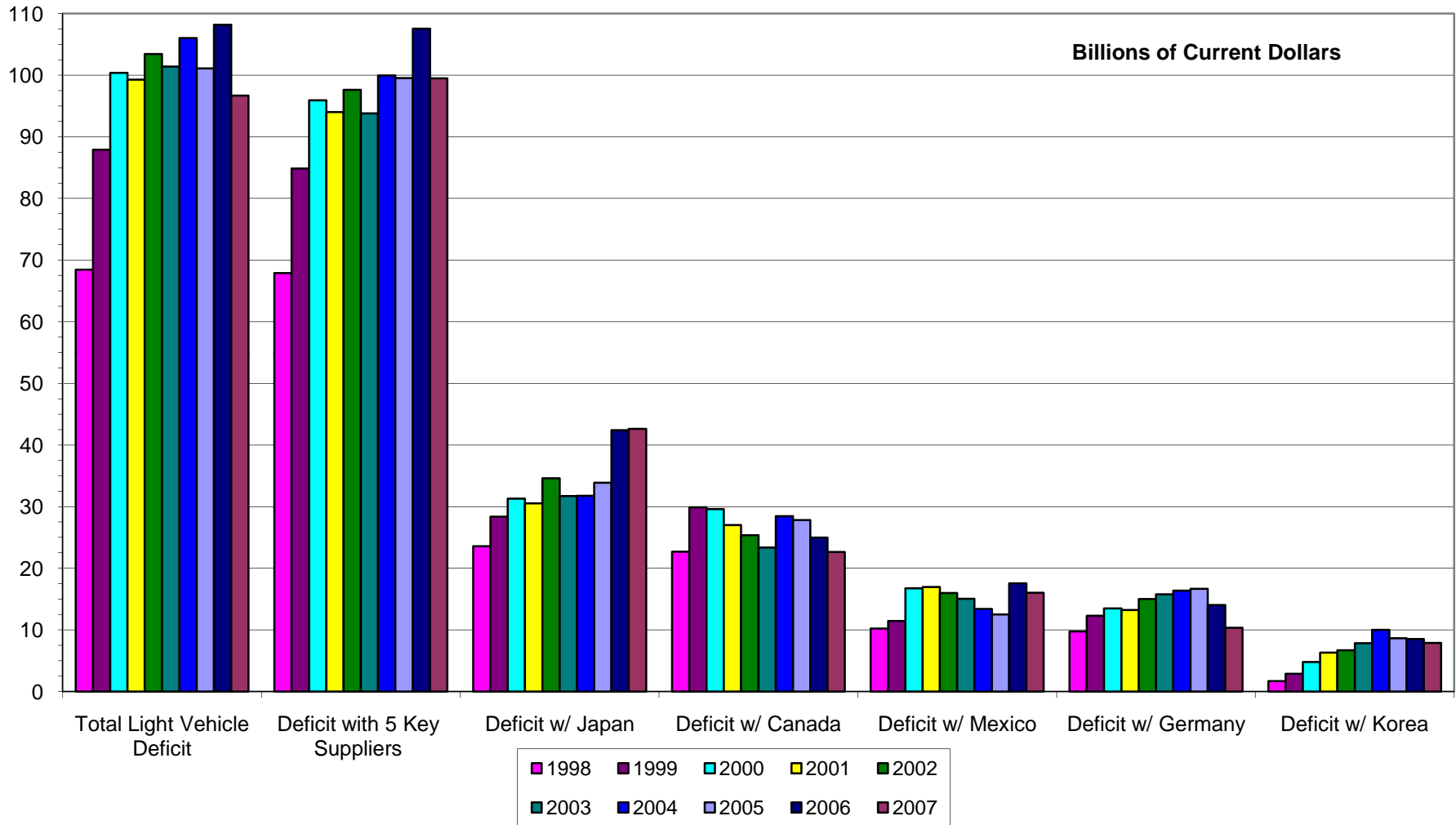
Source: Derived from The Harbour Report Annuals, 2003-2007 by USDOC Office of Aerospace & Automotive Industries

In 2007, U.S. imports declined slightly, while exports increase over 25%, resulting in the first vehicle trade deficit below \$100 billion since 2001.

Chart 6



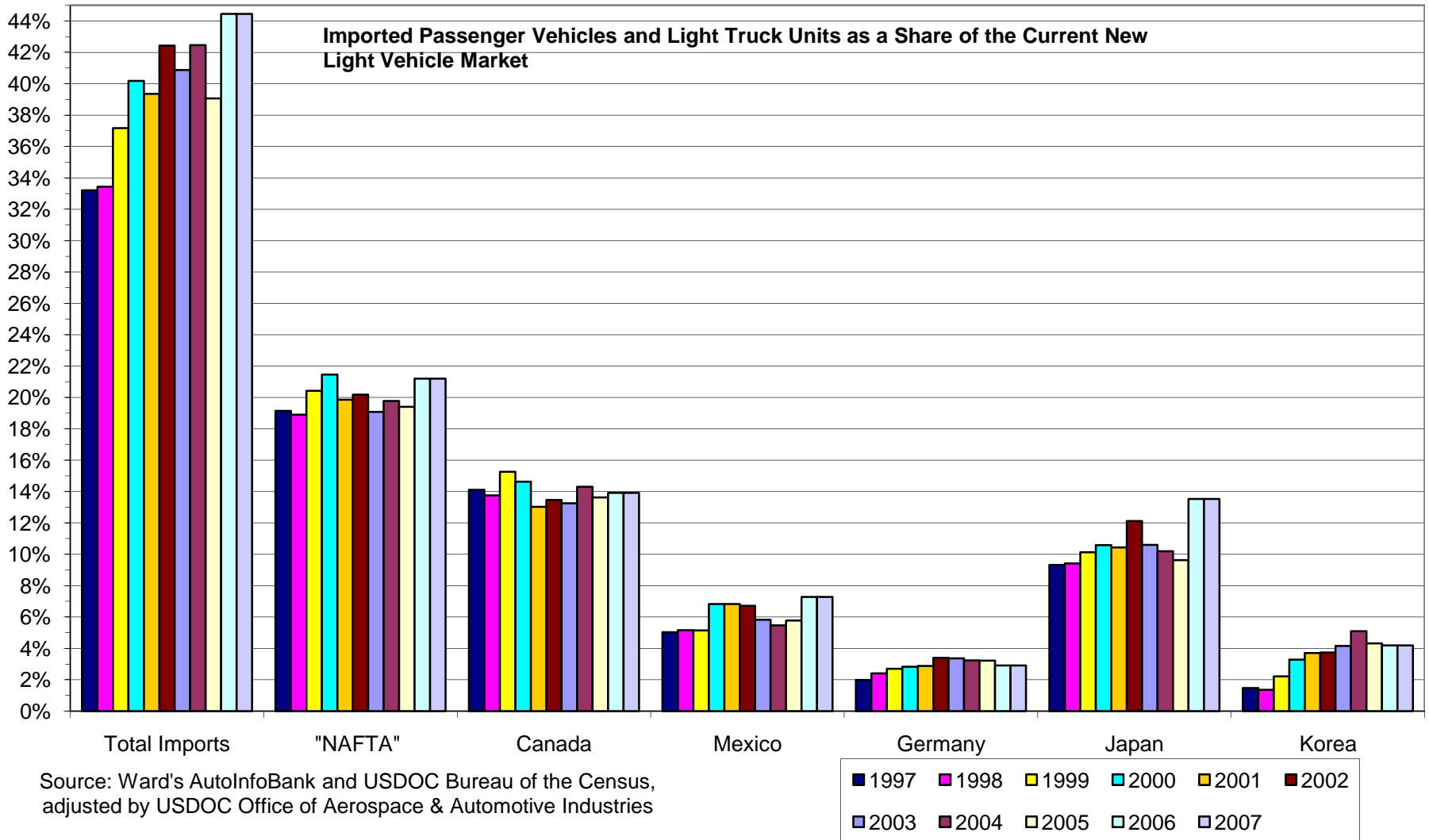
The overall U.S. light vehicle trade deficit decreased 10.6% in 2007. Contrary to the overall decrease, the deficit with Japan increased 0.2%.



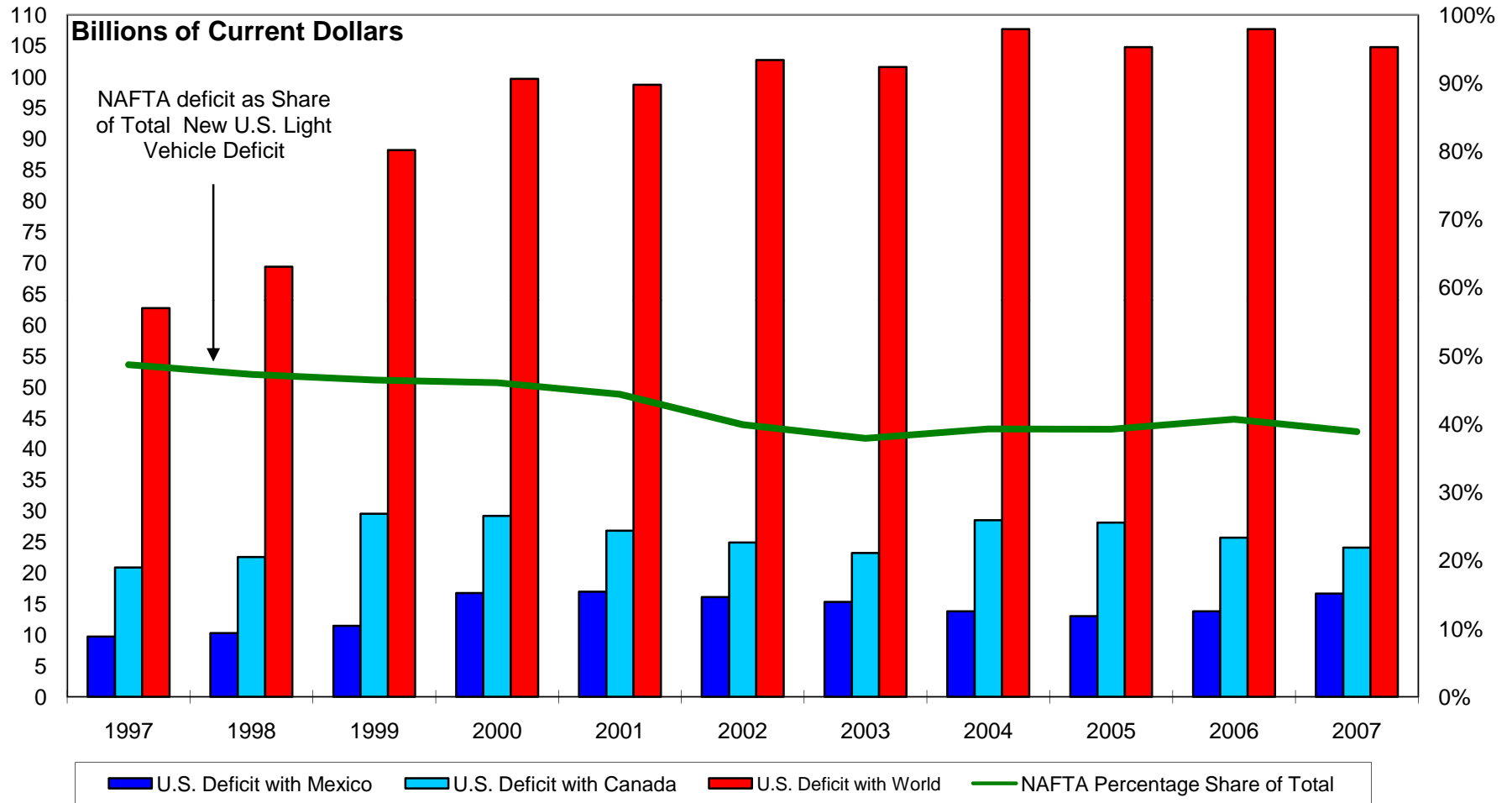
Source: US Census Bureau using USDOC OAAI Product Selections

Like 2006, total import sales (i.e., including those from Canada and Mexico) again equalled 44.5% of the U.S. light vehicle market in 2007.

Chart 8

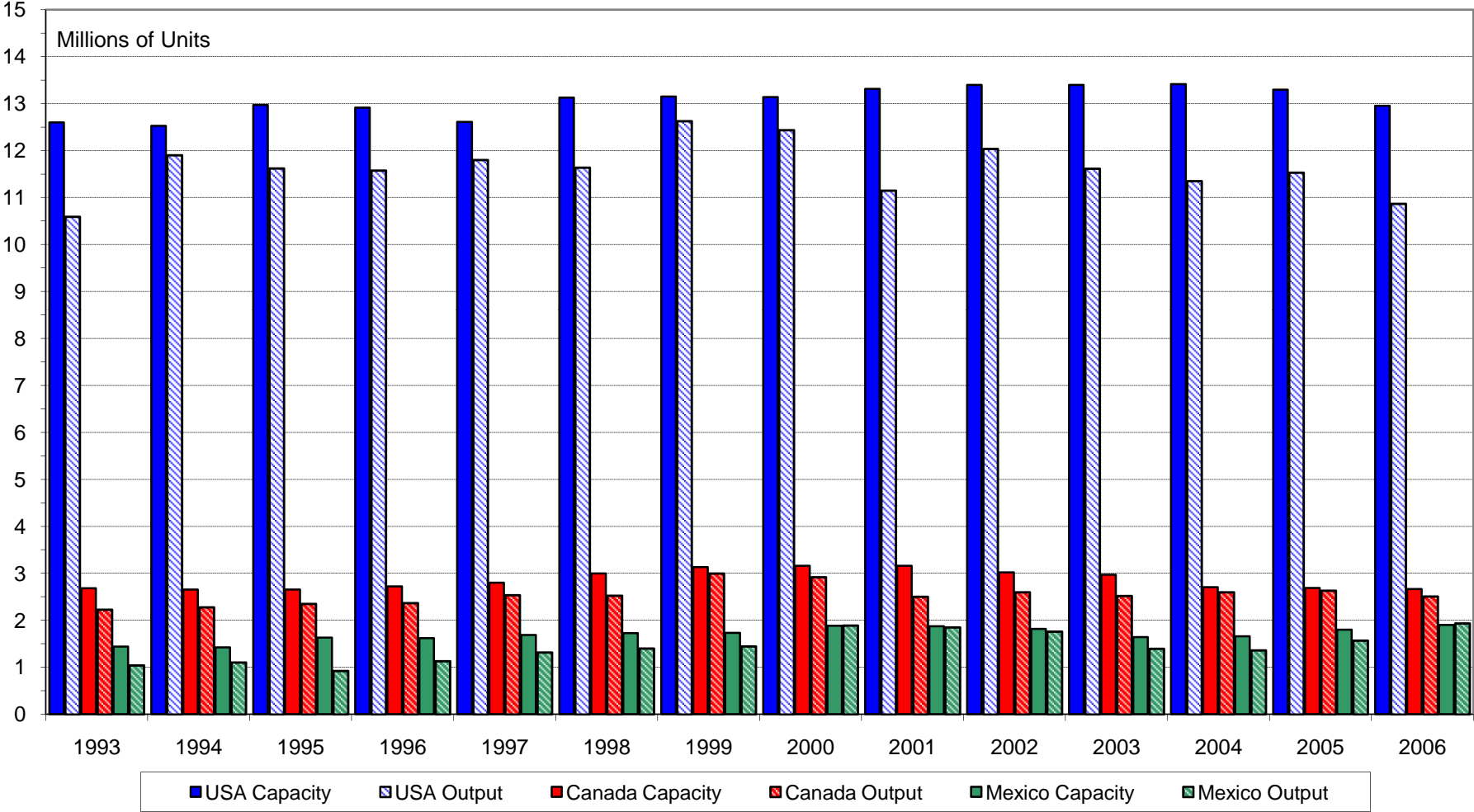


The U.S. auto trade deficit with both NAFTA and the world decreased in 2007. The decrease in the deficit with NAFTA was primarily due to U.S. exports to Canada which rose 13%.



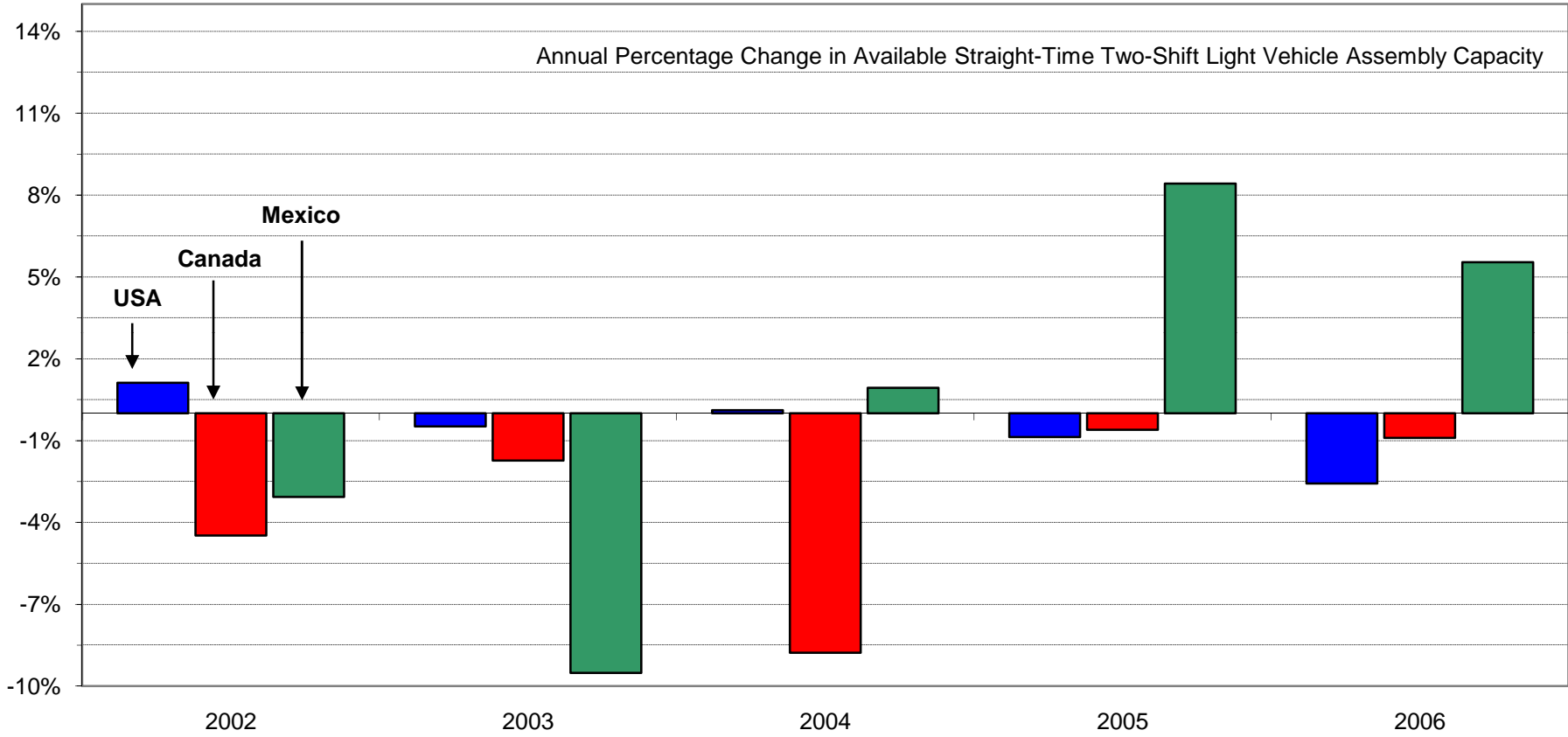
Source: US Census Bureau using USDOC Office of Aerospace & Automotive Industries'

Mexican light vehicle assembly capacity has increased 32% or 460,000 units since 1993 while U.S. capacity has increased 2.8% or 350,000 units. Canadian capacity has declined slightly (0.5% or 14,000 units).



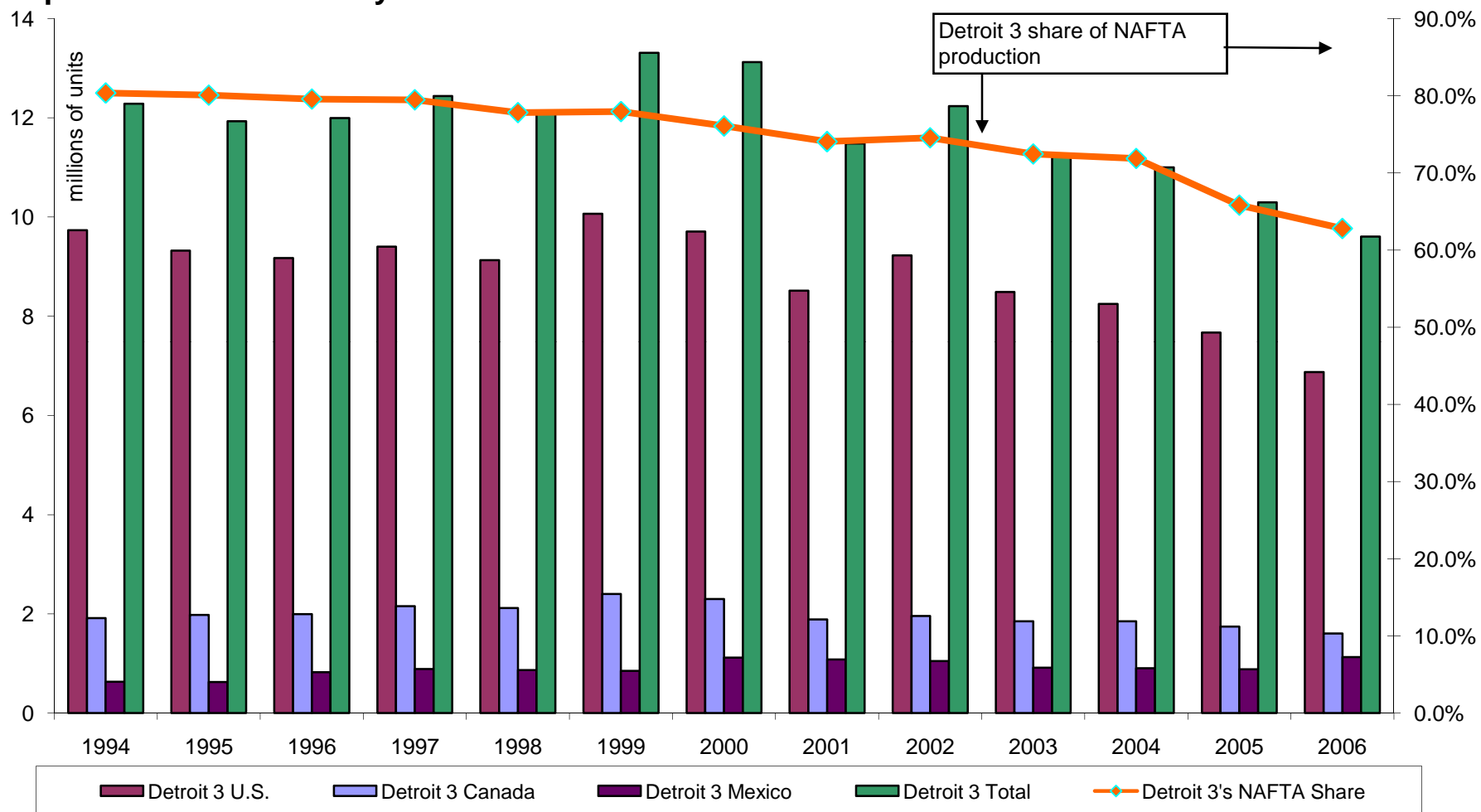
Source: Derived from 1995-2007 Annual Issues of "The Harbour Report" by USDOC Office of Aerospace & Automotive

Annual available vehicle assembly capacity is a factor of new plants added, old plants closed, crews added, crews eliminated, extra hours, reduced hours, vehicle complexity, plus increases and decreases in assembly line efficiency.



Source: Derived from 2003-2007 Annual Issues of "The Harbour Report" by USDOC Office of Aerospace & Automotive Industries

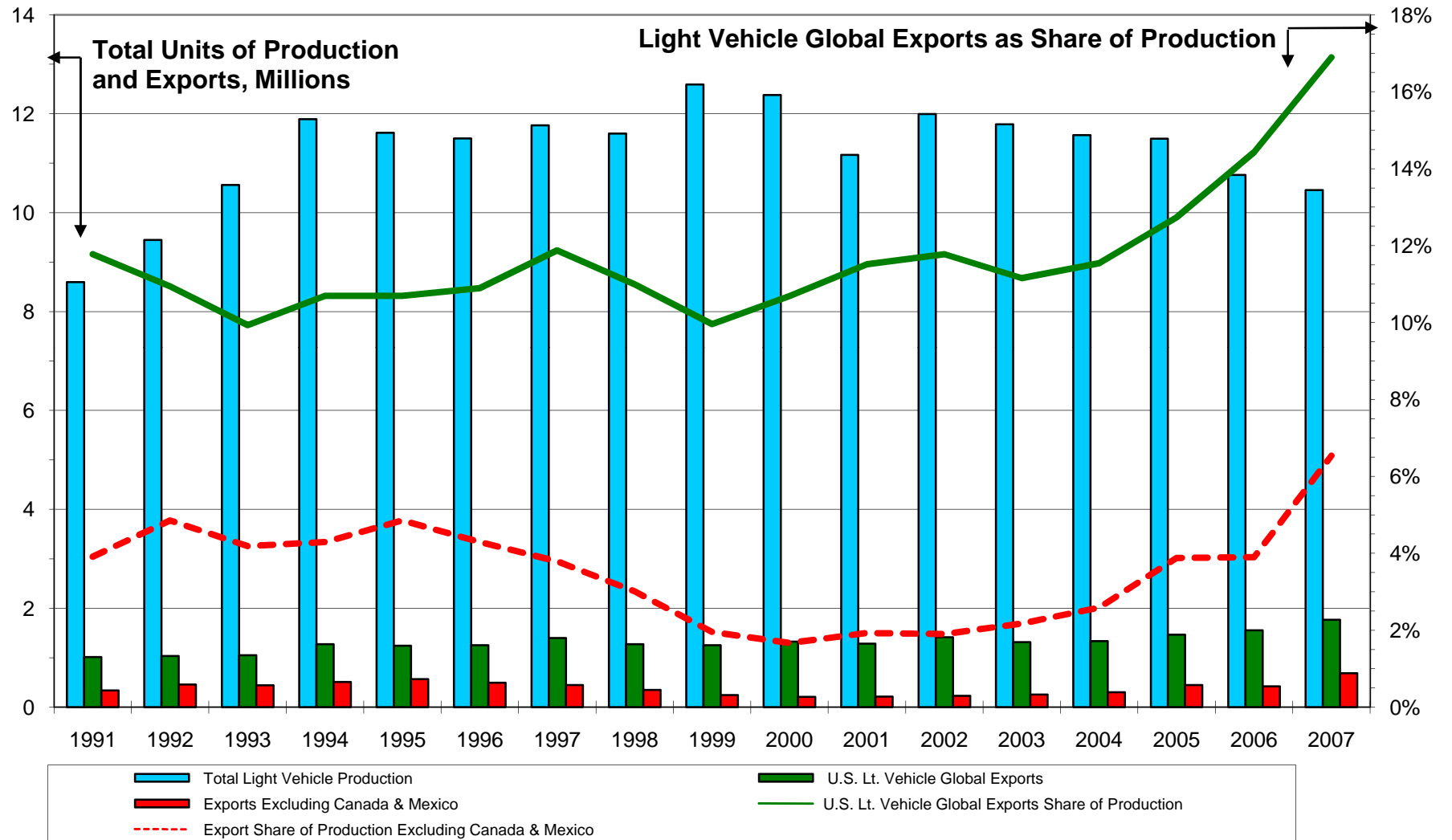
U.S. and Canadian production for the Detroit 3 is down since NAFTA was signed. While Mexico production is up for the group, their share of NAFTA production has steadily declined.



Source: Derived from 2001-2006 Annual Issues of "The Harbour Report" by USDOC Office of Aerospace & Automotive Industries

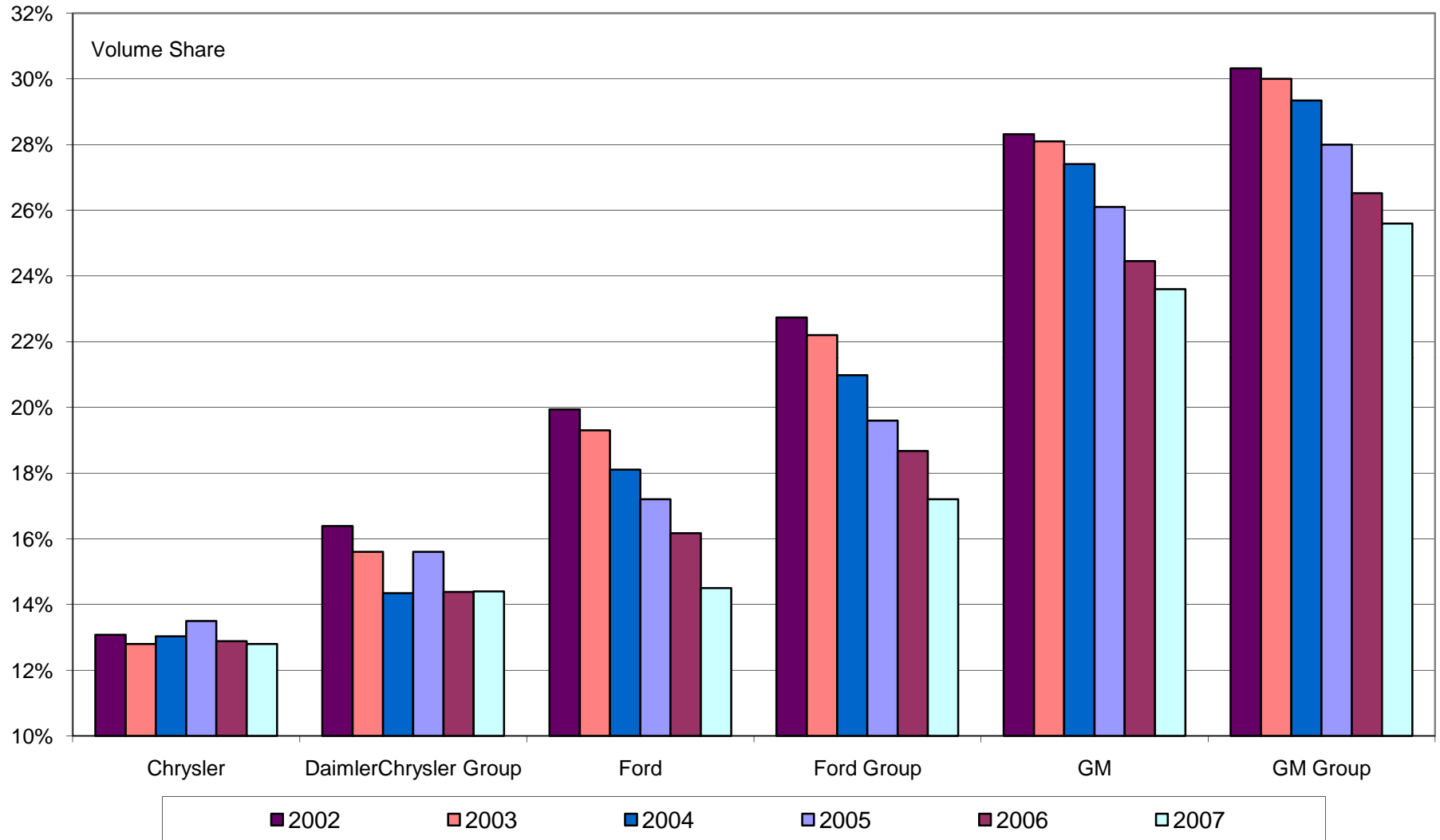
Total U.S. light vehicle exports are approaching a 17% share of domestic production. When shipments to Canada and Mexico are excluded, however, their share is 7%.

Chart 13



Source: Ward's AutoInfoBank & U.S. Census Bureau, both adjusted by USDOC Office of Aerospace & Automotive Industries

Corporate alliances have helped to prop up effective U.S. market shares.



Source: Derived from Ward's AutoInfoBank by USD OC/OAAI