

U.S. Automotive Parts Industry Annual Assessment



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Executive Summary

Domestic Trends

The big story of 2008 was the continued economic struggle of an automotive industry hit hard by deepening economic recession, like so many industries. Automotive parts suppliers continued to experience heavy debt and overcapacity caused by production cuts by automakers, especially the Detroit 3 (Ford Motor Company, General Motors, and Chrysler). Suppliers have also been pressed by higher energy and input materials' costs. Industry analysts reported automotive companies that collectively accounted for more than \$72 billion in sales have filed for Chapter 11 protection between 2001- early 2008.¹ Over 40 suppliers filed for Chapter 11 protection in 2008. The number of bankruptcies in the automotive parts industry will continue to grow in 2009. Dana Corporation managed to exit bankruptcy in 2008, but Delphi, although it had hoped to exit Chapter 11 in 2008, continues to work on restructuring. Since it would have serious negative impacts on the financial viability of GM, GM raised the prospects that Delphi may be unable to procure adequate exit funding in GM's restructuring submission to Treasury.²

The Detroit 3 lost U.S. market share to U.S.-affiliates of foreign-based manufacturers and imports in 2008 and dropped below 50 percent market share. Most U.S. parts suppliers are dependent on the Detroit 3 whose purchases traditionally account for nearly 3 of every 4 of U.S. original equipment sales.³ U.S. suppliers also find difficult to enter transplant automakers' supply chains, in part because transplants have long-established relationships with home-market (foreign) suppliers and have had foreign suppliers co-locate nearby their U.S. operations, or have already established long-term relationships with other U.S. suppliers.

International

U.S. automotive parts exports declined 7.2 percent to \$57 billion in 2008 compared to a record \$62 billion worth of automotive parts in 2007. Most of the exports (85 percent) went to Canada, Mexico, European Union 15⁴ (EU-15), and Japan in 2008. Automotive parts imports were \$90.6 billion in 2008, down 9.6 percent from a record high \$100 billion in 2007. Combined, Mexico, Canada, Japan, Germany, and China accounted for \$71.8 billion, or 79 percent of total U.S. imports of automotive parts. Imports from China grew to \$9 billion in 2008, up 4.8 percent from 2007. Nonetheless, the U.S. trade deficit in automotive parts decreased 13.4 percent from 2007 levels to \$33.1 billion in 2008.

Outlook

The entire automotive industry is suffering as a result of the global economic recession. As vehicle production and sales decrease, parts production and sales concurrently decrease because most parts are destined for new vehicle production. The value of

¹ KPMG, "Private Equity Tackles the Automotive Sector," April 2008.

² GM's Restructuring Plan, February 2009, p. 33.

³ GM's Restructuring Plan, February 2009, p. 43.

⁴ The selected European Union countries are Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, the United Kingdom, Austria, Finland, and Sweden.

automotive parts production will decline deeper than total vehicle sales because consumers also are shifting from high-content trucks and SUVs to lower-content passenger cars. Industry analysts suggest that suppliers need to run at least 80 percent capacity to make a profit but expect suppliers to be running at only 50-60 percent capacity in 2009. Therefore, further restructuring and downsizing of the North American auto parts industry will likely occur and the industry can expect more bankruptcies and job eliminations in the coming year.

Introduction

Automotive parts consumption is directly linked to the demand for new vehicles, since roughly 70 percent of U.S. automotive parts production is for Original Equipment (OE) products. The remaining 30 percent is for repair and specialty equipment (aftermarket). If vehicle production goes down, automotive parts production and sales follow. The year 2008 was another difficult year for the Detroit 3 (General Motors, Ford Motor Company and Chrysler), as the economy went into a recession and consumers reduced their spending on vehicles. On top of it, GM, Ford, and Chrysler continued to lose U.S. market share to other automakers, but even foreign transplant automakers had a difficult year due to the falling market. Suppliers caught between a rock and a hard place with high raw resource costs from their suppliers and price reduction demands from their customers faced added hardships of reduced orders as vehicle production was cut by automakers starting roughly in September 2008. Industry analysts suggest that suppliers need to run at least 80 percent capacity to make a profit but expect suppliers to be running at only 50-60 percent capacity in 2009.

The year 2009 will be another difficult year for the automotive industry. The impact of the recession and decreased automotive sales that began in late 2008 has vehicle makers making drastic cut-backs, job reductions, and restructuring. Chrysler and GM have requested billions from the Federal Government to stay afloat. The loss of one of these automakers could hurt the U.S. economy further and would be disastrous to automakers and the automotive supply chain. The supply chain is interwoven with many suppliers serving several automakers and OE suppliers. For example, over 51 percent of Ford's suppliers also supply GM. Automakers are further delaying payments to suppliers, while suppliers, struggling to meet their own financial obligations, are finding little help from the credit markets.

Industry analysts predict that the automotive market will not improve until 2010 or 2011. In the meantime, suppliers are going under with about 40 new automotive supplier bankruptcies reported in 2008.

Automotive Parts Sector Definitions

Automotive parts are defined as either Original Equipment (OE), or aftermarket parts. Original equipment parts that are used in the assembly of a new motor vehicle (automobile, light truck, or truck) or are purchased by the manufacturer for its service network are referred to as Original Equipment Service (OES) parts. Suppliers of OE parts are broken into three levels. The first level is "Tier 1" suppliers who sell finished components directly to the vehicle manufacturer. The next level is "Tier 2" suppliers who sell parts and materials for the finished components to the Tier 1 suppliers. The third level is "Tier 3" suppliers who supply raw materials to any of the above suppliers or directly to vehicle assemblers. There is often overlap between the tiers. Original equipment production accounts for an estimated two-thirds to three-fourths of the total automotive parts production.

Aftermarket parts are divided into two categories: replacement parts and accessories. Replacement parts are automotive parts built or remanufactured to replace OE parts as they become worn or damaged. Accessories are parts made for comfort, convenience, performance, safety, or customization, and are designed for add-on after the original sale of the motor vehicle.

Overview of Industry Market Conditions

The U.S. auto industry is a key component of the nation's manufacturing base. In a typical year, it accounts for about 5 percent of GDP and 16 percent of all durable goods shipments. The automotive industry, including the automakers and automotive parts sectors, accounted for about 877,000 domestic employees in 2008, a decline of 11.8 percent from the 994,000 employed in 2007⁵, and accounted for 6.5 percent of all manufacturing employees. The Center for Automotive Research found that in 2004 the automotive parts sector directly employed 783,100 U.S. workers and indirectly contributed to 4.5 million jobs nationwide.⁶

Many automakers employ a business model that combines collaboration with its parts suppliers in a lean, flexible, just-in-time (JIT) assembly process. JIT is predicated upon short supply lines that deliver small batches of components to the assembly line steadily and without interruption (often hourly and sometimes synchronized to match a particular vehicle). JIT cuts inventory costs and because there is no built up inventory, JIT allows the firms to correct quality problems as they are discovered, and to make changes in product specifications or volume requirements when needed. Under this framework, buyers and sellers collaborate over time to drive costs down and share in the savings generated. This business model appears to successfully lower the automakers' input and assembly costs, improve product quality, and stimulate the development of new content.

While the Detroit 3 is working toward this more collaborative approach they continue to seek price concessions while asking their suppliers to take on more research, design and manufacturing responsibilities and to absorb the higher costs for their inputs. This situation puts pressure on the U.S. parts industry.

Pressure is further exacerbated by global competition in the parts industry. As Japanese, German, and Korean-based vehicle manufacturers gain increasingly larger shares of the U.S. market, they maintain relationships with their traditional supplier base. Many of those home market suppliers have been creating or expanding "transplant" capacity in the United States to meet their traditional automaker's production needs. At the same time those transplant suppliers are aggressively seeking business from the Detroit 3. In addition, suppliers in many lower cost markets are improving their quality and becoming capable of supplying even greater shares of U.S. demand from abroad. The Detroit 3

⁵ Bureau of Labor Statistics data using NAICS 3361, 3362, and 3363.
<http://data.bls.gov/PDQ/outside.jsp?survey=ce>

⁶ *Contribution of the Motor Vehicle Supplier Sector to the Economies of the United States and its 50 States*, by Economics and Business Group, Center for Automotive Research, January 2007.
http://www.cargroup.org/documents/MEMA-Final2-08-07_000.pdf

have also advocated that U.S.-based suppliers move production to lower cost countries or risk losing future contracts.

To survive, many domestic parts manufacturers are adapting to these numerous challenges. Some suppliers are willingly taking on the new responsibilities offered to them by the automakers. Some are transforming themselves into “Tier One-Half systems integrators,” that engineer and build complete modules (for example, an entire interior, 4-corner suspension sets, or an entire rolling chassis) and assume both product design and development responsibilities and down stream supply chain management functions previously undertaken by the automakers. Other suppliers are scrambling to add to their capabilities and product lines; building additional plants to satisfy JIT requirements and minimize inventory exposure, adopting global best manufacturing practices, investing in their own development of new technologies, or buying or merging with firms that can contribute new skills, complementary products, and new technologies.

Some firms, however, are choosing not to pursue this new role, consciously deciding to maintain their current business models. Many of these firms could eventually find themselves in an exceedingly competitive environment of highly cost sensitive, commodity products – particularly if they are unable to differentiate their offerings.

Due to shifting and then declining demand for vehicles, automakers have been dramatically cutting production. The impact upon suppliers when an automaker sharply curtails operations can be severe. It takes many months and significant resources to win business from vehicle assemblers or from the major “Tier 1” suppliers. Most U.S. suppliers are ill-situated to withstand major disruptions to their sales.

Dramatic growth in China and other Asian economies (i.e. India), has also led to increased costs for critical raw materials. Examples of some of the raw material price increases by July 2008 include plastic resins which increased 45 percent since January 2007, tires increased 20 percent since May 2008, oil for petrochemical feedstock increased 43 percent since early January 2008, and steel for frames and bumpers rose nearly 100 percent since December 2007.

As automakers and other manufacturing industries cut back worldwide, the demand for many raw materials has decreased leading to moderate price declines. Steel prices were high due to strained capacity and dramatic industrial growth in the developing world, but around June 2008 the bidding war eased and the prices started going down. The price of hot-dipped galvanized steel used in vehicle bodies, peaked at \$1,303 per ton in June 2008 and dropped 11.7 percent by October 2008, but still cost nearly twice as much as it did in January 2008.

The same dramatic growth was experienced in petroleum prices. The rise in petroleum prices led to increased energy costs and higher raw material costs for those companies producing petroleum based products (e.g., plastics). Higher raw material costs have pushed several companies into bankruptcy in the past few years. For example, Internet

Corp. filed for Chapter 11 protection in August 2008, citing declining sales and high commodity prices.

Financial pressures from raw material prices have been affecting ties between suppliers and automakers and between higher tier suppliers and their lower tier suppliers. Automakers are increasingly allowing material cost pass-throughs from suppliers, usually on a case-by-case basis if the supplier can prove extraordinary pressures because of raw material costs and demonstrate efforts to keep costs down. Nonetheless, sometimes automakers and suppliers rely on the courts to enforce their price agreements. Dana Holding Corp., who recently emerged from Chapter 11, asked the courts to enforce an agreement with Chrysler to establish a “mutually rewarding supply agreement.” Johnson Controls Inc. filed suit against three of its suppliers that threatened to withhold shipments if they were unable to raise prices to compensate for the cost of steel.

Economic Indicators

Total U.S. production of light vehicles was 8.4 million units in 2008, a decline of 19.2 percent from 2007. The record high production of light vehicles was in 1999 with 12.6 million units. It is expected that production will continue to decrease through 2009 because of the economic recession. The Detroit 3 are downsizing and attempting to manage product mix while keeping inventories in balance as part of their restructuring efforts. As production decreases in the United States and other developed countries, production in developing markets is still expected to grow, but not as much as previously predicted.

Historically, the automotive sector closely tracks general economic indicators, in part because the automotive sector is a major component of these indicators (Charts 1 and 2). The United States is officially in a recession. With the economy depressed, consumers and businesses are not purchasing vehicles. Likewise, suppliers and automakers are finding it difficult to secure the capital needed to purchase materials and finance sales.

Sales of vehicles have exceeded 16 million units for the last several years. Early 2008 industry forecasts predicted sales would fall below 16 million units to about 15.7 million units. The final number was 13.2 million units in 2008, much worse than forecasted. Ford reported \$14.6 billion in losses for 2008 and GM’s losses were reported to be \$30.9 billion. Early forecasts for 2009 were that there will be no reprieve for the automakers with some forecasting as low as 10.5 million units in 2009. Based on poor January 2009 sales, Ward’s Automotive Research lowered its forecast to below 10.5 million units for the year. Johnson Controls based its 2009 earnings guidance on vehicle production estimates of 9.3 million units in North America and 16.2 million units in Europe for 2009. Some automakers are hoping for a rebound in the second half of the year to reach 12 million units, but most industry analysts do not expect it to rebound until 2010 or even 2011.

In 2007, the dollar began declining against foreign currencies. The weakened dollar should result in more U.S. exports of automotive parts and could encourage foreign

suppliers to produce in the United States for domestic and international production. However, the weakened U.S. dollar, which dropped to parity with the Canadian dollar, especially hurts Canadian suppliers and will likely disrupt the network of Canadian suppliers to U.S. plants. The Detroit 3 buy nearly 90 percent of Canada's parts, with GM alone purchasing \$10 billion of Canadian auto parts a year. But with production cuts and the weakened U.S. dollar, the costs of Canadian auto parts exports to U.S. plants are increasing, potentially resulting in increased sales for U.S.-based parts suppliers and additional Canadian supplier bankruptcies.

Because the automotive industry is impacted by other economic sectors, economic conditions in other sectors will affect the automotive industry. Trends in the automotive parts industry follow the motor vehicle industry. However, there is a perception that in periods of downturn in the motor vehicle sector, lost OE automotive parts production and sales will be offset somewhat by aftermarket sales as demand for replacement parts for vehicles increases. This relationship is not always correct, as consumers will also tend to delay all but essential repairs during a recession. Additionally, the durability of parts has increased over time, resulting in less need to replace many normal wear parts. Therefore, declines in OE parts production and sales may no longer be substantially offset by increases in the demand for aftermarket parts.

According to the most recent Annual Survey of Manufacturers (with data through 2006), auto parts industry shipments of \$214 billion accounted for 4.3 percent of total U.S. manufacturing shipments (Tables 1 and 2). This is one of the highest shares of any single U.S. industrial sector. Industry employment in 2006 accounted for 4.8 percent of total manufacturing employment. The U.S. automotive parts industry was also one of the largest U.S. exporters, accounting for 4.4 percent of total U.S. goods exports in 2008 (Table 3).

The Original Equipment Suppliers Association (OESA) reported that the worldwide market for OE automotive parts decreased 7 percent from \$782 billion in 2005 to \$727 billion in 2006 (Table 4). The Asia Pacific region, Europe, and North America combined to account for roughly 95 percent of the global market for OE parts.

The Automotive Aftermarket Suppliers Association (AASA) data for 2007 had the global parts market at \$1.3 trillion with \$960.2 billion in OE parts and \$380.2 billion in aftermarket parts. The United States accounted for 27.5 percent of the global parts market with \$368.6 billion.

The global average value of parts per vehicle declined from \$12,304 in 2005 to \$10,991 in 2006 according to the Original Equipment Suppliers Association (OESA) (Table 4)⁷. OESA reported that this reflects a number of factors including greater global competition among parts suppliers, increased economies of scale, and cost cuts demanded by vehicle manufacturers.

⁷ "2007-2008 OESA Industry Review," J. D. Power and Associates and OESA, November 2007.

Production

U.S. parts production capacity greatly exceeds current utilization. Much of this is due to continued share losses of the Detroit 3 and the economic recession, but in part this is also because automakers encourage suppliers to be close to auto producing plants to improve “just-in-time” delivery of parts, quality control, and flexibility.

The Detroit 3 have been examining supplier park systems. The appeal of supplier parks is that they put parts suppliers in or next to assembly plants, significantly shortening the response time of suppliers, shortening lead time, saving money on shipping parts, and lessening the chance of disruptions. In August 2004, Ford established the first North American automotive supplier park in the Chicago area with 12 suppliers within half a mile of the assembly plant.

For suppliers that produce complex modules and those who are required to make ‘just-in-time’ delivery, there are potential benefits to being located in a supplier park. For other suppliers, however, it makes little sense to spend money on building a plant for just one customer to turn out parts that are easy to ship. Suppliers need to consider the costs and benefits of being part of a supplier park to service just one customer. There may be other disadvantages. In tight labor markets, suppliers would be competing for employees with the automaker, which pay higher wages. Moreover, if the plant fails to reach planned production levels, the venture results in over-capacity for suppliers at a time when many are struggling to keep existing capacity running.

Domestic Market

DesRosiers, an automotive consulting firm, reported that the U.S. market for OE and aftermarket automotive parts dropped 3.3 percent in 2007 to \$228.6 billion from \$236.4 billion in 2006 (Table 5, Charts 3 and 4).⁸ The amount of OE and aftermarket parts supplied from U.S. based suppliers dropped 8 percent to \$129.8 billion in 2007 from \$141.2 billion in 2006. U.S. based suppliers accounted for 56.8 percent of the U.S. parts market. Market share of U.S. based suppliers has been steadily declining annually since 1990 when they accounted for 77.3 percent of the market.

Original Equipment (OE) Sector

The U.S. demand for OE parts, including heavy duty truck parts, was estimated to be \$139.4 billion in 2008⁹ (Table 5 and Charts 5, 6, 7). This is a decrease of 20.5 percent from the \$175.3 billion in 2007. The OE parts market also decreased 19.2 percent in Canada in 2008 to \$36.7 billion, but increased slightly (3.4 percent) in Mexico to \$35.9 billion. The North American OE parts market was down 17 percent from \$255.4 billion in 2007 to \$212 billion in 2008. Forecasts predict that U.S. OE parts demand will be around \$109 billion, down another 21.5 percent in 2009, but might see a slight increase in

⁸ “The U.S. Market for Automotive Parts,” Dennis DesRosiers email report, 2/21/2008.

⁹ “NA Outlook for Sales and Production and OE Parts Demand,” DesRosiers analysis email, 1/23/09.

2010. The total North American OE parts demand is predicted to be around \$164 billion in 2009, down 22.6 percent.

Globally, the top 100 OE suppliers recorded \$611.9 billion in sales in 2007, an increase of 19.9 percent from \$510.2 billion in sales they had in 2006 (Table 7, Charts 8 and 9). The top 10 global OE suppliers saw a 16.1 percent increase in sales to \$233.4 billion in 2007 up from their sales of \$200.8 billion in 2006. Robert Bosch GmbH had worldwide OE sales of \$36.2 billion. Delphi with \$22.3 billion, down 2 percent from 2006, fell further down the list to the fifth largest global OE supplier in 2007, overtaken by Bosch GmbH, Denso Corp., Magna International Inc., and Continental AG. Bosch passed Delphi in 2004 to become the world's largest supplier, measured by global sales. The number of U.S. suppliers in the top 10 fell from four in 2006 to three in 2007 (Delphi, Johnson Controls, and Lear) and all three have descended down the list. North American suppliers lost global market share, accounting for 24.3 percent of cumulative global revenue in 2007, down from 32.7 percent in 2006.

Profitable growth for the majority of suppliers dependent upon mature markets has stalled according to an analysis by PriceWaterhouseCoopers.¹⁰ The analysis also observed that suppliers "strategically entering emerging markets to improve both their cost position and diversify away from traditional customers have tended to generate above average operating income growth despite strong home market headwinds."

U.S. suppliers reliant on the Detroit 3 are falling behind Asian and European rivals. For example in *Automotive News'* annual Top 100 Global OE Suppliers, it was noted that the largest losers in global sales in 2007 compared to 2006 were U.S. suppliers, including Lear Corp., Johnson Controls Inc., Delphi Corp., and Eaton Corp.

Industry analysts reported that North American vehicle sales were down 16.2 percent and North American vehicle production was down 16.1 percent in 2008¹¹. Since production and sales were down essentially the same percentage, the production to sales ratio remained about 80.1 percent. OE parts should see comparable decreases. However analysts noted that OE sales were down even more because of a shift from higher-content value SUVs to lower-content value small passenger cars. North American OE parts demand in 2008 was down to lows not seen since 1993 (\$164 billion) in current dollars, or if the market demand is adjusted for inflation in constant dollars not seen since the 1950's.¹²

Industry analysts also reported that there were over 40 bankruptcies in the automotive parts industry in 2008. In addition to the challenges of high raw material costs and shifting or declining market demand, competition was also growing as foreign suppliers opened shop in North America. An estimated 800-1,000 suppliers from overseas built plants in North America in the past 20 years creating a mass global "localization" of the

¹⁰ PWC Automotive Institute's Analyst Note, PriceWaterhouseCoopers, 8/1/07.

¹¹ "NA Outlook for Sales and Production and OE Parts Demand," DesRosiers analysis email, 1/23/09.

¹² "NA Outlook for Sales and Production and OE Parts Demand," DesRosiers analysis email, 1/23/09..

supplier sector.¹³ Some foreign suppliers, especially European companies, that expanded businesses in North America, to supply their Detroit 3 customers, are also trying to move away from Detroit 3 business to Asian automakers. But Japanese suppliers are not immune either. Suppliers in North America all face competition, declining market share, higher material costs, and demanding customers, although the foreign suppliers face fewer legacy costs and so tend to operate more efficiently than their U.S. counterparts.

North American parts supplied by transplant suppliers in North America had increased from about 10 percent to over 30 percent between 1997-2007.¹⁴ According to Automotive News, in 2004, foreign-affiliated suppliers produced 33.1 percent of OE parts sold in North America, up from 27.5 percent in 2001 (Table 5, Charts 3 and 4).¹⁵ Foreign-affiliated suppliers made significant inroads into the U.S. market through acquisitions, sales to transplant automakers, and sales to the Detroit 3. Moreover, transplant vehicle production in the United States has grown significantly, from only 2.6 million light vehicles in 1999 to over 3.9 million light vehicles in 2006. During 2007, transplant vehicle production surpassed 4 million units. However, the economic recession and decline in vehicle production also hit the transplant automakers who produced only 3.6 million vehicles in 2008.

Volkswagen AG's plans to open a plant in Chattanooga, TN were bolstered by the number of German transplant parts suppliers in the area that already supply the MercedesBenz's assembly plant in Alabama and BMW's factory in South Carolina. These are also traditional VW suppliers, including Bosch GmbH, Continental AG, Benteler AG, ZF Friedrichshafen AG and Brose Group.

As noted, even the Detroit 3 are purchasing more foreign-based supplier components. For example, Siemens, a German supplier, which had no share of audio systems in North America in 2003, had grown to 25 percent share by 2005. Also, Denso Corp., the third largest supplier in the world, reported that its sales to the Detroit 3 were rising and that it represents about 40 percent of its total sales, while Toyota accounts for about another 40 percent of Denso's business in North America.¹⁶ In August 2008, Chrysler named Denso Corp. as its first "Supplier of Choice." This means Denso is the default supplier with whom other suppliers must compete to win contracts and Denso will not have to compete to keep current orders.

The effect of the foreign-based suppliers' increased production within the North American market is also affecting the North American content of vehicles. In fact, some Japanese vehicles, such as the Toyota Sienna had a 90 percent U.S. and Canadian component content, while traditional American vehicles, such as the Chevrolet Suburban,

¹³ "Size of the parts market in North America," DesRosiers analysis email, 1/19/2007.

¹⁴ "Size of the parts market in North America," DesRosiers analysis email, 1/19/2007.

¹⁵ Chappell, Lindsay. "Transplant Suppliers Surge in N.A.," Automotive News, November 28, 2005, pp. 1 and 35.

¹⁶ Denso is a member of the Toyota group with Toyota owning 22.9 percent of Denso. Denso expected double-digit growth between 2007-2012 in North America.

Ford Mustang and Jeep Grand Cherokee have only between 61-72 percent U.S. and Canadian content.

Aftermarket

There are two primary models used in determining the size of the aftermarket. The “Survey Cost Method” involves using the number of vehicles on the road for each model year and multiplying by a survey-derived estimate of service and repair dollars spent on vehicles by model year. This method is used by many industry analysts and consultants. Another model is the “Joint Industry Channel Forecasting Model” which uses an econometric model that incorporates census data, vehicles in operation by model year and vehicle type, survey derived estimates of maintenance and repair activity and current economic conditions. This method was developed in 2002 by DRI-WEFA as a joint project of Motor Equipment and Manufacturers Association (MEMA) and the Automotive Aftermarket Industry Association (AAIA). In 2007, AAIA, Automotive Aftermarket Suppliers Association (AASA)¹⁷, and the Specialty Equipment Market Association (SEMA) had Global Insight (formerly DRI-WEFA) update the model.¹⁸

Using the Survey Cost Method (Table 6), the size of the U.S. automotive aftermarket was \$188.6 billion in 2007. It was forecasted in August 2008 to reach \$193.8 billion in 2008, up 2.7 percent from 2007. Using the Joint Industry Channel Forecasting Model, the size of the U.S. automotive aftermarket in 2008 was forecasted to be \$190 billion, up 1.8 percent from \$186.7 billion in the previous year.¹⁹ However, these forecasts were made in August 2008 and may have been optimistic given the impact of the economic recession in last few months of 2008.

The automotive aftermarket sector does not encounter the same price and cost cut pressures from automakers that the OE supply chain faces, but the sector is still affected by the overall state of the economy. Factors influencing the health of the aftermarket sector industry include: the number of vehicles reaching prime aftermarket age (about 8 years); the cost of fuel; the amount of unperformed maintenance; and the ability to get or keep used cars in circulation. In 1996 there were a total of 198 million vehicles in operation in the United States. By 2007, that number had grown to over 241 and more vehicles “came of age” needing more repairs. The aftermarket is also experiencing a shift from Do-It-Yourself (DIY) to Do-It-For-Me (DIFM) consumers as vehicles become more complex and baby boomers age. The larger and older fleet reflects improved overall durability, and indicates a growing market for replacement aftermarket parts such as struts, exhaust systems, water pumps and alternators, as well as performance and styling products.

¹⁷ A part of MEMA.

¹⁸ AASA. “2008-2009 Automotive Aftermarket Status Report,” pp. 39-41.

¹⁹ AASA. “2008-2009 Automotive Aftermarket Status Report,” pp. 39-41.

The average vehicle age increased to 10.1 years for all cars and light trucks and 11.3 years for domestic cars in 2007.²⁰ In 2007, the percentage of cars 11 years old or older was 41.3 percent compared with 40.9 percent in 2006. For trucks the percentage was 29.5 percent in 2007, and 29.2 percent in 2006. This increased fleet age offers increased aftermarket sales which offsets to some degree the lower parts replacement rate due to increasing new vehicle quality and reliability. Other factors tend to counteract this effect.

Sustained periods of gas costing more than \$3 per gallon could result in uncertainty for the consumer, reduced miles driven, and prolonged periods of deferrals of automotive services. The fewer miles driven also reduces wear leading to less maintenance. The annual miles driven by motorists, 11,604 miles for cars in 2007, was down slightly from previous years. The U.S. Department of Transportation found Americans drove 53 billion miles less in 2008 than in 2007, in large part because of the gas prices. Although gas prices have dropped from the \$4 per gallon levels experienced in the summer of 2008, Americans continued to drive less miles on average.

Also, according to *Aftermarket Business*, many consumers no longer judge replacement/aftermarket parts on anything other than form, fit, and function, since quality parts can and do come from everywhere. No longer is the “made in America” mark considered an indication of better quality over parts from other countries. Moreover, other countries are producing quality parts at lower prices. This shift in acceptance of foreign parts has been fueled by China and India’s successes in entering the American aftermarket.²¹

Aftermarket suppliers also need to be able to keep up with new technology. A challenge to the aftermarket is getting repair information so that independent dealers and shops can compete with OE dealers and shops. Some industry consultants speculated that rising gas prices could be an opportunity for aftermarket suppliers by preparing for fuel-efficient technologies, including hybrids and keeping vehicles maintained for better fuel efficiency.

A traditional bright spot in the automotive parts industry is the specialty equipment segment of the aftermarket (products that are not purchased out of necessity, but rather out of choice). This segment saw growth rates averaging nearly 8 percent annually for the 10 years leading up to 2008, while the total automotive aftermarket grew at an average rate of 4.1 percent, according to the Specialty Equipment Market Association.²² In 2007, retail sales for the segment were \$38.11 billion, an increase of 3.8 percent from 2006, and up 79.8 percent since 1998.²³ The specialty equipment market includes products used to modify the performance, appearance, and/or handling of vehicles. However, as consumers feel economic pinch they are likely to focus on necessary replacements over specialty equipment.

²⁰ Carley, Larry, “Aftermarket Hits \$295 Billion per Year,” Automotive Aftermarket Products Expo, 10/31/07.

²¹ Ross, Sativa, “Staring Down Commoditization,” *Aftermarket Business*, 12/05.

²² *SEMA NEWS*, June 2007, p. 47 and *SEMA News*, June 2008, p. 31.

²³ *SEMA NEWS*, June 2008, p. 32.

As hybrids become more popular, industry analysts predict growth in styling and accessory products (specialty equipment) that will make hybrids look, function and perform better. Analysts believe consumers will also want more environmentally friendly equipment. The key will be to provide a benefit without compromising fuel economy.

Remanufacturing

The remanufactured automotive parts industry is roughly an \$85-100 billion industry worldwide. Based on estimates by the U.S. Automotive Parts Remanufacturers Association (APRA), the value of remanufactured parts was about \$40 billion in the United States in 2008. Around 2,000-3,000 remanufactured automotive parts companies operate in the United States, including approximately 150 production engine remanufacturers, ranging from assembly line operations to very small companies with two or three employees.

The remanufacturing industry produces goods that are entirely or partially comprised of components recovered from end-of-life products. The process transforms these recovered components into “like-new” goods. This reuse of inputs yields important economic and environmental benefits. Remanufactured goods generally have the appearance, performance, and life expectancy of new goods. They often meet the same performance requirements as, and enjoy warranties similar or identical to, equivalent new goods. In short, remanufactured products are usually intended to be identical to and indistinguishable from those products manufactured entirely from raw materials, new parts or components.

Remanufacturing reduces the volume of material entering the waste stream by re-directing retired products to the remanufacturing process. Remanufacturing thereby reduces the amount of raw materials consumed, uses less energy and reduces harmful emissions when compared to manufacturing a new part. Remanufacturing saves on new raw material inputs and on energy use because recovered goods retain the energy and inputs from their original manufacture. For instance, remanufacturing of automotive alternators requires only 12 to 14 percent of the energy that it would normally take to manufacture a new alternator. These savings can result in lower product prices for consumers and higher margins for producers and retailers.

During most of 2000-2007, domestic demand for remanufactured automotive parts in the United States began to slow due to original equipment parts lasting longer and competition of low cost new parts imported primarily from China. However, the APRA believes (total data is not available) the U.S. remanufacturing industry grew somewhat in 2008 due to the drop in new vehicle sales and will continue to grow in 2009 because of even lower new vehicle sales in the United States. As the average age of the vehicle fleet in the United States increases, the demand for replacement parts, including remanufactured parts, should help the aftermarket industry.

U.S. parts remanufacturers are also increasing their presence overseas. Several have completed purchases of foreign remanufacturers, especially in the European Union. Cardone, based in Philadelphia and the largest privately owned parts remanufacturer in the world, recently acquired three Remy Automotive Europe plants in the United Kingdom. ArvinMeritor, headquartered in Troy, Michigan, purchased Belgian-based Trucktechnic, a remanufacturer of brakes and brake parts, in July, 2008. TRW Automotive, Livonia, Michigan, bought UK's Brake Engineering in 2008. Other U.S. companies are expanding their remanufacturing operations in not only the United Kingdom, but most regions of the world.

However, many countries limit trade in remanufactured products. Such barriers include outright trade bans, higher tariffs and fees, or stringent regulation, certification, and inspection requirements. Many of these barriers exist because countries associate remanufactured goods with used goods and waste. These barriers can also be an excuse to protect inefficient domestic firms. The U.S. government has been working with industry to address the barriers to trade in remanufacturing through our free trade agreement negotiations, the WTO Doha Round, and the 3Rs (Reduce, Reuse, Recycle) Initiative.

Employment Trends

In its January 2007 report, *Contribution of the Motor Vehicle Supplier Sector to the Economies of the United States and Its 50 States*, the Center for Automotive Research (CAR), found that automotive suppliers contribute to 4.5 million jobs nationwide and provide more jobs than any other sector in seven states- Michigan, Indiana, Kentucky, Missouri, Ohio, South Carolina and Tennessee. It was reported that automotive suppliers account for more jobs and provide more economic well-being to more Americans than any other manufacturing sector.

The Original Equipment Suppliers Association (OESA) estimates that there were 30,000 firms in the North American automotive supply chain in 1990, but just 10,000 in 2000 and 8,000 in 2004. In a few years their numbers may dwindle to no more than 5,000, each enjoying significantly higher sales volumes, but likely to require significantly fewer total employees.²⁴ OESA/RolandBerger forecasted an 11 percent decline in auto parts production worker employment between 2003 and 2010, caused primarily by increased productivity paired with slowing growth in U.S. output. The global economic slump is expected to hasten and expand these declines.

The Bureau of Labor Statistics (BLS), U.S. Department of Labor, reported that employment in the automotive parts industry was an estimated 604,700 jobs in 2008 (Table 10 and Chart 10). This is a decline of 10.1 percent from the 672,700 jobs in 2007. The last time the number of jobs increased in the automotive parts industry occurred in

²⁴ *An Odyssey of the Auto Industry*, presented before the SAE World Congress on March 8, 2004 and McCracken, Jeffery, "Battered Auto-Parts Makers Could Face More Pain," *Wall Street Journal*, 8/13/07, p. A3.

2000, when employment grew 0.3 percent to 920,300. However, employment fell sharply the following year to just 850,200 jobs.

USAToday.com released an interactive graphic demonstrating how the automotive industry impacts every state. The graphic reported 604,967 automotive parts jobs as of October 2008 with wages of \$32.5 billion. The number of automaker jobs was reported to be 190,038 with \$15.9 billion in wages.²⁵ Michigan, Indiana, and Ohio had the most automotive parts and automaker jobs.

CAR reported that auto parts employment could shrink to 500,000 by 2011 as roughly 40,000 auto supplier jobs are trimmed each year.²⁶ U.S. auto parts makers have cut more than four times as many manufacturing jobs as the automakers during the past six years and that trend is expected to continue. Many Japanese, German, and Korean suppliers have established manufacturing facilities in the United States that employ a large number of production workers. Still, for each employee added to these foreign transplants over the past 14 years, U.S. automotive companies have let go 6.1 employees.²⁷

The shift from U.S. suppliers to transplant suppliers was demonstrated in the decline of jobs in the automotive sector in Michigan, Indiana, and Ohio, while Alabama and Tennessee experienced an increase in automotive sector employment. Michigan experienced the loss of tens of thousands of jobs as a result of restructuring at GM, Ford, Delphi, Visteon, and other automotive companies and suppliers. Meanwhile, Alabama experienced gains in automotive production. Alabama produced 674,851 vehicles and accounted for 4.3 percent of the North American total in 2006, up from 479,465 units and 2.9 percent in 2005. Alabama is home to three transplant automakers.

Automotive parts suppliers often cut jobs to cut costs. In 2008 the job cuts were severe as automakers cut production and suppliers were forced to follow suit. Deeper cuts and plant closures are expected. According to the U.S. Department of Labor, in September 2008 the automotive industry cut 18,200 jobs, or about 11 percent of the 159,000 jobs lost countrywide in September.²⁸

Among the job cuts announced and enacted in 2008 were: Visteon cutting 2,800 jobs globally; Tenneco - 1,000 jobs globally and closing three plants; Federal Mogul Corp. - 4,000 jobs (8 percent of its workforce) globally; Dana Corp. - 3,000 jobs, including 600 salaried jobs, and selling its Toledo headquarters; Delphi Corp. - 2,500 jobs (25 percent) of its salaried workforce along with 5,000 (50 percent) of its hourly jobs; Lear - 200 jobs and closing several plants; Navistar - 250 salaried positions; BorgWarner - 220 salaried workers; Lapeer Metal Stamping - 400 jobs and closing four plants; Panasonic Automotive Systems shutting down its 500 employee car stereo plant; and American

²⁵ Thomassie, Juan, and Schmalz, Julie. "Auto Industry Touches Every State," sources: Bloomberg. The Center for Automotive Research. http://www.usatoday.com/money/autos/2008-12-04-auto-workers-by-state_N.htm

²⁶ McCracken, Jeffrey, "Battered Auto-Parts Makers Could Face More Pain," *Wall Street Journal*, 8/13/07, A3.

²⁷ "Import Brands Add As Detroit 3 Subtract," *Automotive News*, 11/26/07, p. 34.

²⁸ Shepardson, David. "Auto Suppliers Fight to Survive," *Detroit News*, 10/6/08.

Axle & Manufacturing Holdings Inc. is cutting 350 salaried positions and 2,100 hourly workers agreed to early retirements and buyouts.²⁹

Less than 8 percent of the nation's private work force was unionized at the end of 2007. When public employees are added to the figure, 12.5 percent of all workers belong to unions, about half the amount there were 25 years ago. The United Auto Workers (UAW) had fewer than 500,000 members at the end of 2007, down from 1.5 million in 1979.³⁰ Part of this decline was due to greater productivity that allowed auto companies to build more cars with fewer people, but it also reflects reluctance on the part of blue-collar workers to join unions, especially in the new Southern auto transplants. Industry experts expect that union membership will decrease another 100,000 to less than 400,000 members in 2008-2009 because of early retirements, layoffs, buyouts and possible bankruptcies. Recent actions by the UAW agreeing to let some parts companies, such as Delphi and Visteon, hire new workers at a lower pay scale than current UAW members, may also have a negative impact on membership.

Suppliers are negotiating and re-negotiating contracts with unions (primarily the UAW) in efforts to cut back on health care, pension, and labor costs. UAW leaders realize that prospects of even maintaining current pay and benefit levels are dim because so many large suppliers are in Chapter 11. Thus, suppliers are able to lower wages and cut back or eliminate these costs. For example, Delphi and Visteon negotiated changes with the UAW in 2006 that would lower retirees' health care benefits and increase health care costs for current working UAW members. In early March 2009, Delphi eliminated health care for salaried retired workers, and the action has been upheld in court.

Late in 2007, GM, Ford, and Chrysler negotiated new contracts with the UAW, decreasing benefits for current and future employees and also lowering retiree benefits. Undoubtedly, when a union contract expires with a parts company in the future, each company will want a contract with similar concessions. On March 9, 2009, Ford UAW members approved additional changes to the 2007 contract. Similar changes were expected to be approved by GM and Chrysler UAW workers by March 31, but neither had concluded negotiations by March 31. The changes include fewer holidays, eliminating the jobs bank, and most importantly, changes to the Voluntary Employees Beneficiary Association (VEBA). Many of the U.S. parts companies are also expected to ask to change their UAW contracts to include many of these provisions.

Leading Industry Stories of 2008

Financial Situation of Suppliers

The big story of 2008 was the economic recession and the significant contraction of the automotive industry, resulting in only 8.4 million vehicles produced in the United States and 13.2 million vehicles sold. The reduction in production along with the weakened

²⁹ Barkholz, David, and Sherefkin, Robert. "Salaried Workers Face the Ax," *Automotive News*, 9/1/08, p. 3. Shepardson, David. "Auto Suppliers Fight to Survive," *Detroit News*, 10/6/08.

³⁰ The UAW has not released membership data for 2008.

economic position of parts suppliers hit with higher energy and steel costs, heavy debt, and overcapacity are putting suppliers in severe financial distress.

It was reported that there were over 40 bankruptcies among major automotive suppliers in 2008.³¹ Many of these were liquidations indicating the extremely high level of industry distress. The first major bankruptcy filing of 2008 was Plastech, the largest minority-owned auto supplier, which after attempts to prop it up by the automakers was sold largely to Johnson Controls. Other major bankruptcies in 2008 included Blue Water Automotive Systems (Feb.), BHM Technologies (May), Progressive Moulded Products (June), Internet (Aug.), Cadence Innovation (Aug.), Getrag Transmission Manufacturing (Nov.), and Key Plastics (Dec.). In February 2009, Contech LLC filed for Chapter 11 bankruptcy protection.

Delphi entered its third year trying to exit from Chapter 11 protection. Since it would have serious negative financial impacts on GM, GM noted in its February 2009 viability submission to Treasury that Delphi may be unable to procure adequate exit funding due to the credit crunch.³² Whatever the case, Delphi's emergence from Chapter 11 has been pushed back to mid-2009. Meanwhile, Dana Corp, which filed Chapter 11 in 2006, was able to emerge from bankruptcy in February 2008 and Dura Automotive Systems Inc. also was able to emerge from Chapter 11 in June 2008 after 20 months. In October, Dura announced that it was restructuring into four business units after winning about \$1 billion in new contracts since its emergence.

The credit crunch has forestalled recovery for many suppliers. FTI Consulting, a New York-based firm involved in the bankruptcy proceedings at Delphi and Tower Automotive Inc., reported that the slowing of the debt market would hasten the pace of automotive supplier liquidations, bankruptcies, and consolidations. "The caution that's currently being experienced in the credit markets increases the likelihood that some suppliers will be unable to restructure due to their inability to raise some additional financing or refinance their existing debt," said Randall Eisenberg, senior managing director with FTI.³³ Before suppliers can exit bankruptcy they have to have sufficient cash to operate. The high costs of exit financing could force bankrupt companies to remain under Chapter 11 protection longer than anticipated, while racking up legal fees and reorganization expenses, which can be as much as \$10 million per month. As stated, the price will likely be increased liquidations.

One source for the exit financing is private equity ownership. A.T. Kearney forecasted that private equity ownership of North America's top suppliers would grow to 36 percent by 2010, up from 25 percent in 2007.³⁴ However, even these private equity firms face increased difficulty obtaining capital in the current credit environment.

³¹ Shepardson, David. "Auto Suppliers Ask for U.S. Help," *Detroit News*, 2/6/09, citing a report to U.S. Department of Treasury by Ducker Worldwide LLC.

³² GM's February viability submission to Treasury, p. 33.

³³ McCracken, Jefferey. "Battered Auto-Parts Makers could face more pain," *Wall Street Journal*, 8/13/07.

³⁴ Amend, James M., "Private Equity to Ride Shotgun for Foreseeable Future," *Ward's Automotive Reports*, 8/13/07, p. 1.

The industry has seen private equity investors giving up on suppliers in 2008 because of the ongoing production cuts. Carl Icahn who once attempted to take control of Lear, offering \$37.25 a share, sold 8.5 million shares at \$1.90 each to realize a capital loss before the year end. Industry consultants suggested that private equity owners ‘would give up the ghost’ faster than a strategic owner because they don’t have the connection to a company that a traditional entrepreneur does to keep it going.³⁵

One private equity venture, International Automotive Components Group, appears to be headed away from the restructuring phase and into the growth phase. It bought a supplier from another firm that had completed reorganization and acquired a group of suppliers to form a nucleus to grow its supplier business. The consolidation of several suppliers provides the new business with scale, and can provide complementary technologies giving the new supplier an edge.³⁶ Private equity investor, Wilbur Ross, a leader in automotive acquisitions purchased Lear Corp.’s interiors business and some of Collins & Aikman assets which he combined into the International Automotive Group. International Automotive Group had an estimated \$4 billion in North American sales in 2007, ranking it among the top 20 largest suppliers of original equipment parts in North America.

Nonetheless, the industry is generally facing challenging times. A number of North American suppliers had their credit ratings placed on CreditWatch by Standard & Poor’s (S&P) Ratings Services. Because of their significant exposure to the Detroit 3, S&P singled out ArvinMeritor Inc., BorgWarner Inc., Cooper-Standard Automotive Inc., Federal-Mogul Corp., Goodyear Tire & Rubber Co., Hayes Lemmerz International Inc., Johnson Controls Inc., Lear Corp., Metokote Corp., Shiloh Industries Inc., Stoneridge Inc., Tenneco Inc., and Visteon Corp. S&P also cut its ratings to junk status on Visteon Corp., American Axle Manufacturing & Holdings Inc., and ArvinMeritor because of declining auto demand and production.

Likewise, at the end of the first quarter of its 2009 financial year ending in December 2008, Johnson Controls posted its first quarterly loss in 16 years and withdrew its profit outlook for 2009 because of the “rapid decline in global automotive production and uncertain industry conditions.” Johnson Controls had to defend itself against lower tier suppliers wanting to raise prices to compensate for high input costs earlier in 2008. In June, Johnson Controls sued three suppliers who threatened to withhold shipments if they were unable to get price relief.

Delphi Saga Continues

Delphi’s Chapter 11 bankruptcy protection entered its third year in 2008. Delphi was the 13th largest company to file for bankruptcy protection in U.S. history. Delphi

³⁵ Sherefkin, Robert. “Private Equity, Falling Volume Put Small Suppliers at Risk,” *Automotive News*, 12/29/08, p. 12D.

³⁶ Amend, James M. “Private Equity to Ride Shotgun for Foreseeable Future,” *Ward’s Automotive Reports*, 8/13/07.

Corporation lost \$3.1 billion in 2007, compared to \$5.5 billion in 2006. About \$3 billion of the 2006 loss was related to the buyouts of about 20,000 workers. Delphi's global OE sales were \$22.3 billion in 2007, down from \$22.7 billion in 2006. Delphi expected the losses to continue until it can address its high U.S. cost structure and complete its restructuring. Delphi talked with GM, the UAW union and investors about cuts and plant closures needed to emerge from bankruptcy. A plan for a group of investors, including Appaloosa Management LP, Cerberus Capital Management LP, and their partners, to invest up to \$3.4 billion in Delphi for a 70 percent ownership stake, fell apart when Cerberus turned its attention to and bought Chrysler from DaimlerChrysler. An investment group led by Appaloosa Management LP picked up the reins to back a \$2.55 billion equity plan to support the reorganization and Delphi hoped to close a deal for \$6.1 billion in financing to exit from Chapter 11 in April 2008.

Days before Delphi was to exit, Appaloosa Management LP raised concerns about the terms GM got for increasing its support and whether GM would have too much influence over Delphi. Then Appaloosa Management announced that it had terminated its planned equity investment, causing Delphi to flounder longer in Chapter 11 protection. Delphi took Appaloosa to court for breach of contract and fraud in an attempt to force the \$2.55 billion investment plan.

GM has booked \$11 billion in expenses connected to Delphi and could take on more financial responsibility at a time when GM is facing its own financial troubles. GM continued to lend Delphi money to help the supplier emerge from bankruptcy, lending Delphi nearly \$1 billion over the years, taking back employees, and taking over portions of pension funds. A plan in October 2008 rested largely on GM's agreement to provide a total of \$10.6 billion in support of Delphi's reorganization. In early 2009, there were talks of GM taking back about 6 plants, leaving Delphi with no more than 8 U.S. plants by the end of 2009. Wall Street analysts also suggested the possibility that Delphi may end up being liquidated. GM's concern about Delphi's ability to secure exit financing underlines those liquidation concerns. Delphi was granted approval of its Debtor-In-Possession (DIP) Accommodation Agreement that gives Delphi the authority to continue to use proceeds of its DIP Credit Facility through June 30, 2009. Delphi sought permission to cancel retiree health benefits and end post-retirement basic life insurance benefits, a move that would allow Delphi to reduce its liabilities by \$1.1 billion.

Delphi had 166 plants worldwide in 2002, including 45 in the United States and Canada, and employed 185,200 people worldwide, including 147,900 hourly workers. Seventy-five percent of the hourly workers were union represented, including 25,200 by the UAW in the United States. About half of Delphi's business was with GM, which purchased \$14 billion worth of parts from Delphi in 2004. In Europe, however, GM only accounted for 18 percent of Delphi European revenues. In 2007, GM accounted for 37 percent of Delphi's \$22.3 billion in sales. Delphi still produced about \$1,562 in parts per GM vehicle in 2007, down from \$1,695, and has been hurt by GM's production cuts.

Strike at American Axle and Manufacturing Holdings Inc.

The UAW completed successful contracts with struggling suppliers, including Delphi and Dana during their bankruptcy reorganizations, conceding to cuts to help the suppliers. But when American Axle and Manufacturing Holdings Inc. demanded similar cuts, the UAW balked. The UAW had already given American Axle buyouts and buy-downs to save American Axle's annual earnings in 2007 and the UAW felt it had been pushed far enough. The UAW argued that American Axle was not a distressed supplier that needed cuts. American Axle had been profitable nearly every quarter since Dauch bought the operation from GM in 1994 and it generated considerable cash.

On the other side, American Axle saw competitors like Dana getting concessions from the UAW. American Axle was paying "all-in" wage rates (including wages, health care, and retirement benefits) of \$73.48, while competitors paid about \$30. American Axle wanted to lower it to roughly \$27 an hour, which is similar to what its competitor Dana received. American Axle declared that it would not be forced into bankruptcy to reach a market-competitive cost structure in the United States.

There has been increased competition in axle production recently. Chrysler LLC will spend \$700 million on an axle plant in Marysville, Michigan; Ford is holding onto its axle plant in Detroit; Dana Holding Corp. invested in a new research and development center even while it struggled in Chapter 11; and Magna International Inc. and Linamar Corp. are using acquisitions to expand their driveline offerings. With all of these new competitors entering the field, American Axle will struggle to compete against them.

American Axle and the UAW were at an impasse and the UAW decided to go on strike in February 2008. About 3,600 UAW workers went on strike at four American Axle plants, forcing closures and cutbacks at GM, shutting down all or part of 29 plants and affecting more than 37,000 hourly workers. However, the strike had little impact on GM sales because inventories were high and at this time the truck market was weak and weakening. Had the truck demand remained high, there might have been more concern.

The strike lasted for months with both sides giving little. GM was weathering the storm, Tier 1 suppliers were beginning to feel a pinch and small suppliers were at risk because of GM production cutbacks due to the strike. There was pressure to draw GM into the negotiations or apply pressure on one side or the other. In May 2008, GM offered American Axle \$215 million to help its buyout and buydown offers for its workers, mitigating cuts in pay and benefits that American Axle sought and helping gain approval of UAW for a new contract.

American Axle could cut its hourly labor costs by \$32 per worker, bringing the all-in labor cost to the low \$40 range and it will result in up to \$185 million in annual cost savings. American Axle expected to cut 2,000 UAW workers through buyouts, buydowns and early retirement packages.

The 81-day strike cost American Axle \$370 million in 2008 sales. Despite the contract, because American Axle is so dependent on GM, S&P downgraded American Axle to B+ because of the deteriorating truck market, which accounted for most of American Axle's sales.

American Axle announced that it planned to slash its U.S. investment and pursue growth overseas. It planned to spend \$73 million on its U.S. operations to support new products and contracts in 2008, but only \$30.3 million in 2009. In contrast, it would invest internationally about \$162.3 million in 2008 and \$189.7 million in 2009 in an effort to catch up with rivals overseas.

Mergers and Acquisitions

The market forces driving bankruptcies are the same ones driving mergers and acquisitions. After a surge of mergers and acquisitions (M&A) in the automotive industry in 2007 with 604 automotive deals and a disclosed value of \$57.1 billion, M&A activity in 2008 was greatly reduced both in terms of number and dollar value. In the first half 2008 there were 289 deals worth \$13.2 billion, compared with 333 deals worth \$19 billion in the first half of 2007.³⁷ The decline is largely because of the credit market crunch. The inexpensive and widely available credit of 2007 was no longer available in 2008. This led to a slowdown of private equity activity pursuing automotive opportunities.

It has been over a decade since the Detroit 3 shed most of their "captive" parts suppliers as part of their continuing struggle to reduce costs. A collection of firms spun off by GM became Delphi in 1999. Ford formed Visteon in the same way and for the same reasons in 2000. Ever increasing competition, changing business models, and industry productivity gains progressively added to pressure for consolidation. Some industry analysts estimated that up to 90 percent of U.S. parts suppliers were acquired, merged, or left the business during the 1990s.

The extreme competition likely led to price deflation in the OE supplier market as vehicle manufacturers used the increased leverage to demand further cuts. Yet, despite the price pressure -- in a sign of the continued industry consolidation -- the top 150 North American suppliers increased their total sales by roughly 17 percent from 2001 to 2006. This pressure from vehicle manufacturers will continue in the near future. Both GM and Chrysler noted significant ongoing expected cost contributions from their suppliers in their February 2009 viability plans submitted to Treasury. Chrysler highlights \$75 million of expected supplier concessions each year through 2012.³⁸

Eventually every automaker may deal with no more than 300 to 350 Tier 1 firms, a considerable reduction from the 1970's, when automakers' direct supplier lists numbered several thousand. The Detroit 3 have pushed this type of consolidation. GM, Ford, and Chrysler looked to reduce the complexity of their supply systems. This activity spawned

³⁷ PriceWaterhouseCoopers Automotive Institute. "Automotive M&A Insights," *Analyst Note*, 6/18/08.

³⁸ Chrysler submission to Treasury, p.149.

an active business in mergers and acquisitions. Between 1995 and 2001, the industry's 23 largest publicly traded suppliers' consolidated industry sales rose from \$62 billion to \$112 billion.

The Detroit 3 claim they have been trying to improve their relations with their suppliers somewhat along the lines of their Japanese-based competitors. Honda and Toyota are known for working closely with their suppliers to maintain their financial health. Bo Andersson, purchasing chief of GM said that GM spent less money dealing with distressed suppliers in 2007 than in 2006. "We are much more proactive, and we are getting better and dealing with it. We try to assist suppliers before it's too late," he said.³⁹ Despite falling Detroit 3 market share in the U.S. market and continued price pressure on U.S. suppliers, 14 U.S. suppliers ranked among the world's top 50 global suppliers in 2007 with \$130 billion in global sales.

Continued price pressure from both Tier 1s and automakers is driving ongoing consolidation at the Tier 2 and Tier 3 levels. Indeed, smaller suppliers continue to face the largest shakeout. This is primarily because they are much more likely to be relying on single contracts or multiple contracts from only one of the Tier 1s or automakers. Thus, they are much more exposed to cancellation of product lines or reduced sales. They are also more prone to bankruptcy than the larger Tier 1s because they have less leverage with their bankers. While smaller companies will often be turned down by their bankers when they exceed their credit lines, larger companies can potentially "owe too much to fail."

A 2008 survey of 200 senior level executives in the automotive sector by KPMG LLC revealed that most felt volatility and unpredictability would remain high as competitive pressures continue to intensify worldwide.⁴⁰ Twenty-three percent expected profits to decrease while nearly half felt the market was too volatile to predict. The executives expect suppliers to remain the least profitable segment of the automotive industry, in particular, Tier 2 and 3 suppliers. Seventy-seven percent of the executives predicted an increase in bankruptcies as well as much higher merger and acquisition activity particularly among Tier 1 suppliers. Many analysts and industry members expect the North American industry restructuring to continue into 2011, so the pressures driving industry consolidation will remain for some time.

Other Industry Developments

Counterfeiting

Counterfeiting continued to be a major issue in the automotive parts industry. The U.S. Federal Trade Commission estimated that counterfeit automobile parts cost the American automotive supplier industry \$12 billion annually worldwide, including \$3 billion in the

³⁹ Gopwani, Jewel, "Carmakers Oil Supply Chain: Toyota, Honda Keep Parts Makers Going; Now GM, Ford Act," by *Detroit Free Press*, January 28, 2008.

⁴⁰ "KPMG's 2009 Global Auto Executive Survey,"

http://www.us.kpmg.com/RutUS_prod/Documents/8/AutoSurveyRelease2009.pdf

United States alone. In a 2007 study issued by the U.S. Chamber of Commerce, Ford concluded that counterfeit auto parts cost it roughly \$1 billion annually. The parts that tended to be counterfeited the most were frequently replaced parts, such as brake pads, spark plugs, and various types of filters. Both the Motor and Equipment Manufacturers Association (MEMA) and the Organization for Economic Cooperation and Development (OECD) claimed the majority of counterfeit parts were made in China. Other nations with a significant numbers producing and exporting fake auto parts include Taiwan, Hong Kong, Russia, India, Pakistan, and Uruguay. The Middle Eastern market experienced major problems with counterfeit auto parts, mainly being shipped through Dubai. Trademark infringement cases increased from 400,000 in 2000 to 1.3 million in 2003. Counterfeit parts now comprise an estimated 30 percent of the Middle East's \$11 billion components sector. Counterfeiters take jobs and money away from legitimate companies, jeopardized public safety, destroyed brand names, increased warranty claims, and legal fees and require costly investigations.

In March 2006, President Bush approved the "Stop Counterfeiting in Manufactured Goods Act," which was supported by the U.S. auto parts industry. The Act strengthens previous U.S. trademark laws by prohibiting the trafficking of counterfeit trademarks such as labels, patches and medallions, and requiring the destruction of equipment used to make counterfeit goods.

The automotive industry called upon leading countries to work on details of a global Anti-Counterfeiting Trade Agreement (ACTA). ACTA is a proposed plurilateral agreement that would impose strict enforcement of intellectual property rights. The countries working on ACTA include the United States, Australia, Canada, European Union, Japan, Jordan, Korea, Mexico, Morocco, New Zealand, Singapore, Switzerland and the UAE. Countries have been criticized for lack of effective and deterrent enforcement and an agreement would create common and effective enforcement practices.

Alternative Fuels, Hybrid, and Diesel Technology

The Energy Independence and Security Act (EISA) of 2007 requires increased fuel economy standards, increased production of biofuels for transportation, and provided incentives for electric vehicles. It also provides loan guarantee programs for fuel-efficient automobile parts manufacturers, and construction of facilities for the manufacture of lithium ion batteries, hybrid vehicle electrical system and component manufacturers, and related software designers. Under Section 136 of EISA, the Federal Government offers grants and loans as an incentive to automakers and suppliers to develop advanced technology vehicles and associated components. The program, also known as the Advanced Technology Vehicles Manufacturing Loan Program (ATVM) is administered by the U.S. Department of Energy. ATVM is designed to encourage plant retooling for advanced vehicle and components production and seeks to develop domestic engineering capacity. To qualify, vehicles will have to get at least 25 percent better fuel economy than the average of similar vehicles. Ford requested \$11 billion under the program, Chrysler \$8 billion, and GM \$7.7 billion.

These incentive programs were followed by the Energy Improvement and Extension Act of 2008 that was part of the economic stabilization package signed into law in October of 2008. The Act increases and extends tax credits for biodiesel and renewable diesel fuel through 2009 and it provides a tax credit for plug-in vehicles until 2014. The American Recovery and Reinvestment Act enacted in February of 2009 added further incentives to shift away from petroleum fuels including extending the tax credit for plug-in vehicles, more loan guarantees for advanced vehicle technology production capabilities, and Federal fleet purchasing requirements for alternative fuelled vehicles. Congress is considering the creation of greenhouse gas cap and trade rules.

Suppliers can expect to benefit from the incentives Congress has provided if they can develop technologies to make cars more fuel efficient or enable the switch to alternative fuels. Some of the technologies that vehicle producers are exploring include direct fuel-injection systems, exhaust after-treatment systems, start-stop technology, low friction tires, light weight materials and electrically driven accessories. Most of these technologies are applicable to vehicles running on both conventional petroleum fuels and biofuels.

Former GM Vice Chairman, Bob Lutz said that 80 percent of vehicles will be hybrids by 2020 in order to meet pending fuel economy requirements.⁴¹ The electrical components for EVs fall into three basic categories: electric motors, batteries (or fuel cells and tanks), and invertors. Other potential sources of supplier business for these systems would be electrically driven auxiliary systems, software controls, instrument panels and cooling systems. Suppliers that provide related components for conventional powertrains should have an advantage in adapting their parts to these new systems.

Battery research is a top priority for all of the EV options. Batteries are important for electric, hybrid and fuel cell vehicles. GM's Lutz also said that building so many hybrids will add \$6,000-\$7,000 to the cost of an average vehicle. The primary reason for this added cost in his estimation is the price of batteries. The challenge is to create a battery that can recharge quickly, last long and not overheat, while still being small, light and cost-effective. If the cost of lithium-ion batteries doesn't decrease as projected, it could jeopardize the development of many hybrid-electric vehicles. Battery manufacturers, including A123 Systems, Cobasys LLC, and a partnership between Johnson Controls Inc. and Saft Advanced Power Solutions, are leading research to overcome Li-ion battery shortcomings. Many of their current offerings have little chance of overheating and can take many charges and recharge cycles but are limited in the amount of energy they can store. They are also expensive so prices will have to decline significantly to increase sales.

Unfortunately, much of the new demand for parts made possible by U.S. Government incentives could be captured by foreign suppliers. One reason for this is that many foreign suppliers already provide fuel efficient technologies to automakers elsewhere in

⁴¹ Shepardson, David. "Lutz: Most Vehicles Will Be Hybrid by 2020," *Detroit News*, 3/19/08.

the world. Another is that the supply-base for some of the newer products is currently concentrated in other markets.

Virtually every manufacturer is working to market a plug-in vehicle by 2012. To supply these vehicles, automakers are generally turning to foreign suppliers for battery cells. Current production of battery cells is centered in Asia. A similar situation exists for electric motors and power inverters. Japanese suppliers are the source for most of the world's current hybrid parts. While interested in U.S.-based A123's battery cells for their Volt, GM decided to purchase its initial battery cells for the Volt program from Korean-based supplier LG. Ironically, the production of the battery cells would have occurred in Asia whichever choice GM made since A123 currently produces its battery cells primarily in China and Korea. Some U.S. suppliers, like Johnson Controls, are trying to enter the market, but uncertainty has kept many U.S. suppliers from committing capital. The new incentives have helped alleviate that problem. Now they are constrained primarily by the dire financial situation and resultant lack of available credit.

Automakers and parts suppliers are trying to determine where the key intellectual properties will lie if automobiles become primarily EVs in the future. GM reported that it plans to manufacture in-house the lithium ion battery packs for the Chevrolet Volt. The battery packs include the battery cells, cooling/heating systems and electronic controls needed for the batteries' operation. GM is suggesting that packaging lithium batteries is the most important aspect from an automotive perspective. Several battery cell manufacturers believe however that cell production capabilities will be the biggest differentiator. The answer to this question is extremely important for the future of the firms involved. In a similar situation IBM guessed wrong on the key technology to control in the burgeoning personal computer market, allowing Microsoft to seize the operating system market and eventually eclipse IBM in sales.

In-Vehicle Electronics, Engineering, Safety, and New Technologies

According to a study by Roland Berger, a strategy consultant firm, the value added to vehicles by suppliers will grow from 40 percent in 2002 to 55 percent by 2015.⁴² Among some of the new technologies being added or becoming standard on vehicles are safety features like blind-spot detection, and side/head airbags. Other innovations being added are navigation systems, MP3 player connections, Bluetooth wireless connections, and mobile video.

Some analysts predict that electronic components could account for 35 percent of the cost of making a car by 2010, up from 22 percent in 2005, and that the amount of software in cars would double every three years. However, these electronics add to the vehicles' complexities and accounted for about 70 percent of breakdowns in 2005.

Communication, navigation, and other entertainment systems in vehicles are complex computerized electronic equipment that are becoming more prevalent. Analysts expected

⁴² Roland Berger Strategy Consultants and OESA, "The Odyssey of the Auto Industry: Suppliers Changing Manufacturing Footprint," 04/2004.

in-vehicle electronic sales would grow 13 percent in 2008 to \$12.2 billion.⁴³ The proliferation of electronic content in vehicles has also increased the number of electronic control units in vehicles. Automotive microcontroller units were expected to reach \$5.3 billion in sales in 2008. Because the technology in “green” vehicles, such as hybrids, is controlled by microcontrollers, the market could reach \$6.3 billion by 2012.

The market has shifted from a concentration on sound systems to one that is about navigation and entertainment systems. AM radios were first installed in vehicles in 1930, FM radios in 1952, tape decks were introduced in 1964, and CD players in 1982. In the last 10 years, DVD players, satellite radios, high-definition radios, navigation devices, and MP3 adaptors have been introduced into vehicles. Analysts expect many more devices and interfaces in the years to come. In 1999, navigation and entertainment systems accounted for under 12 percent of total mobile electronics retail sales. In 2006, the market share was 23.5 percent.

A survey by TechnoMetrica found that one in ten owners have navigation or safety/security services installed in their vehicles; about one out of five consumers were planning to install navigation systems within the next 12 months, while 13 percent were planning to install safety/security services.⁴⁴ DVD players were moderately important to consumers. More than 58 percent of 2009 models will offer portable media player interfaces, especially for MP3 players such as the iPod, up from 39 percent in 2008. In addition, 82 percent of the 2009 models will offer Bluetooth wireless connection, up from 70 percent in 2008. The increasing size and demand of data for infotainment systems, digital maps, 3D images, and information about the surrounding area are requiring large data storage devices such as embedded hard disks, which will be found on 90 models in 2009. Embedded computer hard drives are expected in about a third of 2009 models and USB interface will also be on a third of the models, up from 16 percent in 2008.⁴⁵

Subscription telematic services are also becoming more prevalent. The industry leader, OnStar will be available on 90 percent of GM vehicles in 2009. OnStar has been providing service for 13 years and has over 5 million subscribers. Ford’s Sync system is serviced by Continental and ATX provides service to MercedesBenz. Hughes Telematics will provide service to the Chrysler and Daimler 2010 models. Toyota has also announced a proprietary Safety Connect that it will offer in its brands in 2009. In addition to these services providing navigation, collision notification, traffic alerts, automatic toll pay, wireless bluetooth connection, and remote door unlock, these services will include informing drivers of weather conditions, allowing drivers to access entertainment, allow manufacturers to remotely update software, allow remote emissions and safety testing, allow “teen” tracking, give re-routing suggestions to avoid congestion, provide in-vehicle satellite television, automatically slow down a stolen vehicle, and enable mileage-based insurance.

⁴³ Study by Consumer Electronic Association in Pope, Byron. “Demand Grows for In-Vehicle Techonology,” *Ward’s Automotive Reports*, 11/24/08, p. 7.

⁴⁴ Spoonhower, Jim, “Mobile Electronics,” *SEMA NEWS*, 12/07, pp. 94-98.

⁴⁵ Scott, Patricia, “iSupply Report: 2009 Vehicles will have more iPod, Bluetooth Connections,” *Automotive News*, 10/9/08.

All this in-vehicle electronic equipment has many experts concerned about safety. Nearly 25 percent of car accidents or near accidents involved non-driving distractions. Automakers and parts suppliers are trying to use the in-vehicle electronics to improve safety. By improving center stack configurations, tactile controls on the steering wheel and better versions of head-up LED windshield displays they hope to reduce distractions. Automakers and suppliers are also using the technology to develop lane departure notification systems, collision avoidance systems, and inattentive driver alert systems/driver drowsiness detection.

Advanced adaptive cruise control began entering the market on European luxury cars in 2006. Adaptive cruise control (ACC) maintains a certain distance from the car in front, down to a crawl. Advanced ACC would bring the car to a stop and could resume its cruise control functions from a stop. Such technology raises legal and liability questions involving equipment that functions independently of the driver. The technology is also expensive, with costs about \$1,500 to \$2,500, mostly because of the radar or infrared emitters and sensors used to track other cars. Suppliers are working on ways to reduce the price, including using camera-based systems and less expensive radar equipment.

Some suppliers, like TRW Automotive, with products such as air bags, antilock brakes and electronic stability control systems, have benefited from automakers' emphasis on safety and new safety regulations. In 2007, the National Highway Traffic Safety Administration (NHTSA) passed its final rule on electronic stability control (ESC), which automatically applies pressure to brakes to correct for skidding and swerves. The law means that ESC will become standard on all vehicles except the largest trucks by 2012. Currently, only 30 percent of new vehicles have electronic stability control. Suppliers of electronic stability control systems expect to get a sales boost of more than \$1 billion from the new regulation. The North American market for electronic stability control systems is expected to expand from about \$555 million in 2006 to \$1.8 billion in 2012.

The success of airbags, which NHTSA estimates saved 18,193 lives since their inception, has led to an increase in side-curtain airbag business. Like the ESC rules, new federal side-impact regulations will increase installation of side-curtain airbags as automakers and suppliers devise different ways to meet the standard. CSM Worldwide, automotive market analysts, predicts that North American sales of side-curtain airbags will grow to 17 million units in 2010, up from 9.2 million in 2006. The value is projected to reach \$4.3 billion by 2010, from \$2.8 billion in 2006.

International Developments and Trade

The depressed global automotive industry at the end of 2008 is expected to continue well into 2009 and beyond. Despite weakening in the United States in previous years, suppliers globally were generally profitable. Globally, suppliers in developed country markets faced more difficulty, while those in developing markets generally experienced robust growth. In its 2006 Global Automotive Supplier Study, Roland Berger Strategy Consultants found that suppliers based in Western Europe, South Korea and other parts of

the world maintained steady profitability between 2000 and 2005, while Japanese suppliers posted 3.2 percent gains. During the same period, North American suppliers declined 3.6 percent. Those most successful had a narrowly focused product portfolio, broad customer base globally, low reliance on business with the Detroit 3, and aggressively used component sourcing from low-cost regions of the world.

Going forward, the BRIC (Brazil, Russia, India, and China) countries are expected to experience some near-term growth in the automotive sector while developed countries are likely to see declines. Some U.S. suppliers found that while they are having difficulties at home, their foreign operations were profitable. Large suppliers, such as Johnson Controls Inc., Lear Corp., TRW Automotive Inc., ArvinMeritor Inc., and Dupont Automotive Systems, got at least 35 percent of their total revenue from Europe in 2007. Some suppliers tried to reduce their dependence on the high-cost, low-margin American market and shift manufacturing to lower cost countries. Suppliers, often with the encouragement of automakers, are exploring growth opportunities in the BRIC developing countries. These countries are seeing more growth in the automotive industry than North America, Japan, and Western Europe. Still the growth in the developing countries was also down in 2008 and expected to be down in 2009 as the automotive slump affected them as well.

The U.S. trade deficit in automotive parts dropped 13.4 percent in 2008 to \$33.1 billion, down from a record level of \$38.3 billion in 2007 (Table 13, Charts 11 and 12). The parts deficit increased the past few years because U.S.-made automotive parts lost market share to increasingly competitive foreign production. However, the weak dollar has made U.S. exports more competitive while restraining U.S. imports. Still in 2008 both automotive parts exports and imports declined because of the global automotive slump. However, imports declined at a greater rate than exports hence the improvement in the U.S. parts trade deficit.

According to U.S. Census data, the United States exported \$57.5 billion worth of automotive parts in 2008. This is a decrease of 7.2 percent from the record \$62 billion exported in 2007 (Table 14, Charts 11 and 13). Automotive parts exports to Canada (\$28 billion) and Mexico (\$13.9 billion) accounted for 73 percent of the total U.S. parts exports in 2008, down from the 75 percent they accounted for in 2007 (Chart 14). U.S. automotive parts exports to Japan and the EU-15 accounted for \$6.9 billion, or 12 percent, of the total U.S. automotive parts exports. Combined, the NAFTA, European Union 15, and Japanese markets accounted for 85 percent of total U.S. automotive parts exports in 2007.

Automotive parts exports rose 16.6 percent to \$842 million to Brazil, 95.1 percent to \$245 million to Russia, and 50 percent to \$196 million to India in 2008. However, exports declined 21 percent from \$1.1 billion to \$893 million to China in 2008.

U.S. automotive parts imports declined 9.6 percent to \$90.6 billion in 2008 from a record high of \$100.2 billion in 2007 (Table 15, Charts 11 and 15). In 2008, Canada accounted for \$16.5 billion worth of U.S. automotive parts imports and Mexico accounted for \$25.3

billion. Together, automotive parts from these two countries accounted for 46 percent of the total U.S. automotive parts imports (Chart 16). Rounding out the top five supplier countries of automotive parts to the United States in 2008 were Japan (\$13.5 billion), China (\$9 billion), and Germany (\$7.4 billion).

Japanese auto parts shipments to the United States were down 8.6 percent in 2008 from 2007 levels. A large portion of these imports are components for assembly at the Japanese transplant facilities. The Japanese produced roughly 3 million vehicles in the United States in 2008, compared to about 1.5 million vehicles in 1990. The Japanese-based firms U.S. auto plants are sourcing more of their components in the United States, Canada, and Mexico due to the rising Yen.

China continued to grow as a source of automotive parts for the United States (Charts 17 and 18). Imports from China increased 4.8 percent in 2008 to \$9 billion, from \$8.6 billion in 2007, passing Germany as the fourth largest source of auto parts after Mexico, Canada, and Japan. Parts imports from China had been increasing steadily over the past few years, increasing 24.5 percent between 2007 and 2006 alone. In comparison, 2008 parts imports from Brazil dropped 1.8 percent to \$1.7 billion, while shipments from India grew 11.2 percent to \$738 million.

China

In 2008, China remained the second largest automotive market in the world after the United States, with vehicle sales increasing almost 22 percent to hit 9.38 million units. Production in China was 9.34 million units, an increase of 5.21 percent. More than 70 of the top 100 global auto suppliers now have operations in China, and foreign auto parts suppliers continue to open and/or expand their Chinese operations. Global vehicle manufacturers with operations in China encouraged suppliers to set up manufacturing facilities in China, since most of China's traditional domestic suppliers were not competitive. The vehicle manufacturers also expected China to become a low-cost source for their worldwide operations. GM reported it had 198 suppliers in China that supplied its global operations in 2007.⁴⁶ Goldman Sachs estimated that Chinese net exports of auto parts would increase from \$5.4 billion in 2005 to \$21 billion in 2010. With the increase in foreign investment over the past few years, China's automotive manufacturing has become increasingly competitive.

Following the labor strike in the United States that lasted months, American Axle announced that it would source more parts in China because of the low cost production. It was reported that American Axle was able to reduce pay for its unionized workers to \$35-\$40 per hour including benefits. In Mexico, workers get \$4-\$5 per hour including benefits, but in China the same job pays \$1.50-\$1.75 per hour including benefits.⁴⁷ In

⁴⁶ GM global purchasing chief, Bo Andersson, cited in "GM's on the Hunt for China Suppliers," *Automotive News*, 12/17/07, p. 45.

⁴⁷ Ribet, Steven. "American Axle: Low-cost China a very good fit," *Automotive News*, 12/22/08, p. 9.

China, labor represents about 1-1.5 percent of the total cost of components; in Europe it is 15-20 percent; while in the United States it is 18-20 percent.⁴⁸

However, rising labor rates, raw material prices, currency exchange rates, and the slow development of qualified Chinese suppliers have cut China's cost advantage and could hinder the growth of Chinese auto parts exports in the future. Some of the factors cutting into China's advantage included rising oil prices that drove up transportation costs of Chinese parts exports. The strengthening of the Yuan has acted to reduce the labor cost disparity. Also, China slashed sales-tax rebates on many exported goods, and new labor laws in 2008 guaranteed workers employment contracts, social security contributions, and overtime pay. This action boosted labor costs about 30 percent. At the same time Chinese wages have increased about 10-15 percent. Companies also have to make large investments to bring Chinese production up to international standards. Nonetheless, improvements in productivity have offset some of the increases in wages. Automakers and suppliers still seek cost-cutting opportunities in China, but they tend to be more selective.

China has become a strong player in manufacturing global automotive electronics. While China lacks automotive-electronic design experience and local suppliers lack manufacturing and technical expertise, China already has a strong consumer electronics supply base as a major producer of CD players, computers and other mass-market items. These skills are being adapted to automotive electronics and foreign companies are assisting these businesses. Another subsector where China excels is cast metal parts, which require environmentally hazardous casting and a large amount of manual labor.

As Chinese auto producers prepare to enter Western markets in the next few years, top global suppliers are assisting them with engineering and technical expertise. Chinese automakers are also buying factory equipment from leading international suppliers. Competitive Chinese suppliers are looking to begin manufacturing and selling in overseas markets. For example, Wanxiang Group, a Chinese driveline parts supplier that generated \$6.5 billion in global revenues in 2007 and whose customers include GM and Ford, is planning to build a full-scale development and tech center in Detroit. Many are acquiring or investing in small and medium-sized suppliers located in these markets, including the United States, to help them begin manufacturing and/or assist with distribution as well as transfer technology back to China.

The Chinese government's auto policies, including automotive-related R&D activities, strongly encourage the development of the local supplier industry. In Spring 2006, the United States, along with the EU and Canada, requested World Trade Organization (WTO) dispute settlement consultations with China regarding regulations on imported auto parts. They argued that China's auto parts tariff classification regulations result in increased tariffs that are higher than China agreed to in its WTO accession agreement, and it discourages auto manufacturers in China from using imported auto parts. China's regulations impose the same tariff rates for a vehicle on imported auto parts if the imported parts exceed a fixed percentage of the final vehicle content or vehicle price, or

⁴⁸ Webb, Alysha. "Costs Up in China, but Bargains still abound," *Automotive News*, 5/5/08, p. 16.

when specific combinations of imported auto parts are used in the final vehicle. The tariff on automobiles is typically 25 percent, and the tariff on imported parts is typically 10 percent. In mid-September 2008, China appealed the WTO's July 2008 ruling that China must bring its import tariffs for foreign auto parts into compliance with international trade rules. However, in December 2008, China's appeal was rejected.

Supplier associations are also concerned about the proliferation of "quality standards" in countries such as China. These quality standards are ostensibly aimed at consumer protection, but end up being a form of non-tariff protection since countries imposing the standards require local bodies to do the quality assessments and many suppliers are unable to afford certifying compliance. In some cases countries use a "positive list" style regulatory approach which specifically identifies products that are allowed and any not on the list are excluded. This greatly restricts the access of novel and new to market goods. The United States takes a "negative list" style approach presuming products are allowed unless specifically excluded.

When deciding whether to set up an operation near a specific customer in China, U.S. suppliers need to determine if economies of scale can be achieved, if energy sources are reliable, and if they will be able to source from reliable, lower-tier suppliers or be able to import subcomponents at a competitive price. In addition, suppliers need to be aware that increased competition for both parts and vehicles in China has led to a decrease in prices and profit margins. In entering into a joint-venture arrangement, any potential partner should be carefully evaluated. As mentioned earlier, automotive-related counterfeiting in China also remains a concern for the industry. Suppliers should keep this in mind especially when sharing intellectual property with partners or suppliers. Because the transfer of knowledge would allow the Chinese to compete against the proprietors and may invite counterfeiting, many companies are reluctant to send advanced technology to China.

When considering sourcing from China, U.S. companies are cautioned to not be lured by price and/or low wage rates alone, but to consider their potential suppliers' quality levels, a supplier's technical and engineering expertise to cope with design changes, as well as all of the various logistical factors, such as necessary lead time, and delivery schedules and costs. The safety and compliance of Chinese-manufactured goods is also a sourcing concern, as evidenced by the recall during the summer of 2007 of 450,000 defective tires imported from China.

The Chinese automotive aftermarket is expected to continue to grow at an annual rate of 40 percent, as the market increases for both new and used autos, the number of outlets offering aftermarket parts and services expands, new emissions control technologies are introduced, and the Chinese economy continues to grow. In 2008, the Chinese government approved an amendment to the National Road Traffic Safety Law, allowing the sale and installation of more than 500 accessory and performance product categories for consumers to legally accessorize their vehicles.

Conclusion

The U.S. automotive parts industry can expect another difficult year in 2009. Economic strains will continue to derive from the global automotive decline, Ford, GM, and Chrysler's production cuts, steel and raw materials price increases, the credit crunch, price cut demands from U.S. automakers, and increased competition from foreign suppliers. The industry can expect more departures and consolidations of suppliers as profit margins are squeezed.

Industry experts expect that domestic vehicle manufacturers will continue to lose market share to U.S.-affiliates of foreign-based manufacturers and imports. Many U.S. parts suppliers are trying to become suppliers to the foreign-affiliated (transplant) automakers to offset those losses. However, some are finding it difficult to enter transplant automakers' supply chains, in part because transplants have previously established relationships with home-market (foreign) suppliers, whether through imports or through home-market suppliers' U.S.-affiliates, or have already established long term relationships with other U.S. suppliers. In this market, those suppliers with limited exposure to the Detroit 3 are also being pinched as transplant automakers are also affected by decreased automotive demand.

Automotive parts imports from China continue to grow and account for an increasing share of U.S. automotive parts imports, but the growth has slowed to less than half the rate experienced in previous years. The U.S. automotive parts trade deficit with China will likely continue to grow over the next few years as exports to China will not keep up with imports from China. Many automotive parts companies will continue to move production to China and other low-wage countries like India and Eastern Europe, in an effort to reduce costs and remain competitive.

FACT SHEET

Production

- U.S. automotive parts industry production declined further in 2008 compared with 2007, in large part because of the collapse of the global vehicle market and production cutbacks especially at the Detroit 3. Industry analysts predict that 2009 will be a very difficult year for U.S. automotive parts suppliers and vehicle makers as the market remains depressed and competition remains fierce. This is especially true for the Detroit 3 and the suppliers that rely heavily on them.
- The Bureau of Labor Statistics (BLS), U.S. Department of Labor, reported that automotive parts industry employment was an estimated 604,700 jobs in 2008. This is a decline of 10.1 percent from the 672,700 jobs in 2007. The last time the number of jobs increased in the automotive parts industry occurred in 2000, when employment grew 0.3 percent to 920,300.
- Regardless of production and employment declines, automotive manufacturers and suppliers directly and indirectly account for more jobs than any other manufacturing sector.

Sales

- The 150 largest North American OE suppliers had sales of \$199 billion in 2007, up 3.1 percent from 2006. The top 10 North American suppliers accounted for 35.5 percent of the total in 2007, down slightly from 36.2 percent of the total in 2006. For the first time a company based outside the United States, Canadian supplier Magna International, is the largest supplier of parts in North America.
- In 2007, foreign-based suppliers occupied 5 of the top 10 North American supplier rankings. In 1997 only 2 of the top 10 spots were held by foreign-based companies.
- Original Equipment (OE) parts demand in the United States decreased 20.5 percent to \$139.4 billion in 2008 from \$175.3 billion in 2007.
- The U.S. automotive aftermarket (repair and add-on market) was forecasted to increase to \$190 billion in 2008, up only 1.8 percent from \$186.7 billion in 2007.

International Trade

- The 2008 U.S. trade deficit in automotive parts decreased 13.4 percent, to \$33.1 billion, from \$38.3 billion in 2007.
- U.S. exports of automotive parts in 2008 were \$57.5 billion, a decrease of 7.2 percent from 2007 levels.
- Exports to Canada and Mexico accounted for 73 percent of the total U.S. automotive parts exports in 2008.
- U.S. exports to China declined 21 percent in 2008, from \$1.1 billion in 2007 to \$893 million in 2008.
- U.S. imports of automotive parts were \$90.6 billion in 2008, a decrease of 9.6 percent from 2007 levels.
- The United States imported \$41.8 billion worth of automotive parts from Mexico and Canada in 2008. These imports accounted for 46 percent of total U.S. automotive parts imports.
- Automotive parts imports from China have grown significantly in recent years. In 2000, the United States imported \$1.6 billion worth of automotive parts. In 2007, automotive parts imports from China grew to \$8.6 billion, passing Germany as the fourth largest supplier of auto parts to the United States. Imports from China continued to increase to \$9 billion in 2008.
- The U.S.-China auto parts trade deficit has grown six-fold from only \$1.5 billion in 2001 to almost \$8.2 billion in 2008. While these exponential increases may plateau, given the current global recession, it is likely that the U.S. trade deficit with China will remain an upward climb over the coming years.

Industry Issues

- In 2008, a reduction in global automotive sales and decreased automotive production impacted many U.S. parts suppliers. This was especially true among those with extensive ties to the Detroit 3. Over the last several years, suppliers have been hit with higher energy, plastic, and steel costs, heavy debt, cash flow problems, tight credit, and overcapacity.
- Suppliers are trying to reduce high legacy costs, employee wages, and benefits to be competitive globally. Tough negotiations are taking place between suppliers, automakers, and labor unions.

Appendix 1

Office of Aerospace and Automotive Industries Automotive Parts Product Listings Revised 12.05.2007

To facilitate the analysis of trade data for automotive parts on a market-based model, the Office of Aerospace and Automotive Industries (OAAI) has created six product groupings from the available, individual 10-digit product codes. The core of the codes are contained in Chapter 87, AVehicles Other Than Railway or Tramway Rolling-Stock, and Parts and Accessories Thereof of the internationally-agreed Harmonized Tariff System (HTS). We list these groups and their codes below. Some codes are not valid for current years, but are included to assure that data for products so coded for previous years are retrieved from the database and assigned to the appropriate OAAI group.

The OAAI groups are not “official” product subcategories, and are not listed in the Harmonized Tariff System nomenclature published by the U.S. International Trade Commission (USITC) for coding imports (Internet address: <http://www.usitc.gov/taffairs.htm>), nor in the parallel “Schedule B” published by the U.S. Census Bureau for coding exports (<http://www.census.gov/foreign-trade/schedules/b/2001/sb87.htm>). The OAAI attempts to closely approximate the core automotive industry by excluding certain items for example, parts explicitly listed for motorcycles, golf-carts, snowmobiles, agricultural equipment, etc.

Readers should realize that OAAI is not the only, nor the “official,” U.S. government source for trade data on the auto industry, nor are we able to produce custom data runs for the public. Persons seeking data for individual or different product codes are welcome to utilize at no charge the data retrieval system operated by the USITC to access the federal government=s official trade data base. Please note, some of the data on the trade database may be restricted from the public. The ITC=s retrieval system, *Trade DataWeb*, can be accessed at http://dataweb.usitc.gov/scripts/user_set.asp.

HTS Codes by Product Group

HTS Codes for U.S. Imports of:

Bodies and Parts

7007110000	Safety Glass
7007110010	Safety Glass
7007211000	Windshields
7007211010	Windshields
7007215000	Safety Glass
7009100000	Rear-View Mirrors
8301200000	Locks
8301200060	Other Locks
8302103000	Hinges
8302303000	Other Mountings
8302303010	Pneumatic Cylinders

HTS Codes for U.S. Exports of:

Bodies and Parts

7007110000	Safety Glass
7007211000	Windshields
7007215000	Safety Glass
7009100000	Rear-View Mirrors
8301200000	Locks
8302103000	Hinges
8302300000	Other Mountings
8707100020	Bodies
8707100040	Bodies
8707905020	Bodies
8707905040	Bodies

8302303060	Other Mountings	8707905060	Bodies
8302306000	Other Mountings	8707905080	Bodies
8707100020	Bodies	8708100010	Stampings of Bumpers
8707100040	Bodies	8708100050	Bumpers and Parts
8707905020	Bodies	8708210000	Seat Belts
8707905040	Bodies	8708290010	Stampings of Bodies
8707905060	Bodies	8708290025	Truck Caps
8707905080	Bodies	8708290050	Parts & Access. of Bodies
8708100010	Stampings of Bumpers	8708290060	Parts & Access. of Bodies
8708100050	Bumpers and Parts	8708295025	Truck Caps
8708103010	Stampings of Bumpers	8708295070	Other Pts. & Access. Bodies
8708103050	Bumpers	8708295170	Parts & Access of Bodies
8708106010	Stampings Parts of Bumpers	8708990045	Slide-in Campers
8708106050	Parts of Bumpers	8708998030	Slide-in Campers
8708210000	Seat Belts	8708998130	Slide-in Campers
8708290010	Stampings of Bodies	9401200000	Seats
8708290025	Truck Caps	9401901000	Seat Parts
8708290050	Parts & Access. of Bodies	9401901010	Seat Parts of Leather
8708290060	Parts & Access. of Bodies	9401901080	Seat Parts
8708291000	Inflators & Modules Airbags	9403901000	Parts of Furnitures
8708291500	Door Assemblies		
8708292000	Body Stampings		
8708295010	Stampings		
8708295025	Truck Caps		
8708295060	Other Parts		
8708950500	Inflators & Modules Airbags		
8708952000	Airbag Parts		
8708995045	Slide in Campers		
8708996100	Airbags		
9401200000	Seats		
9401200010	Child Safety Seats		
9401200090	Seats		
9401901000	Seat Parts		
9401901010	Seat Parts of Leather		
9401901020	Seat Parts of Textile		
9401901080	Seat Parts		
9401901085	Seat Parts		
9403406000	Wooden Furniture for M.V.		
9403506000	Wooden Furniture for M.V.		
9403901000	Furniture?		
9403901040	Parts of Furniture for M.V.		
9403901050	Parts of Furniture for M.V.		
9403901080	Parts of Furniture for M.V.		
9403901085	Parts of Furniture for M.V.		

Chassis and Drivetrain Parts

4009120020 Brake Hoses
4009220020 Brake Hoses
4009320020 Brake Hoses
4009420020 Brake Hoses
4009500020 Brake Hoses
6813100050 Brake Linings & Pads
6813200015 Brake Linings & Pads
6813200025 Asbestos Friction
6813810050 Brk Lngs & Pads, not asbestos
6813890050 Min Sub Friction
6813900050 Friction Materials
7318160010 Lugnuts
7318160015 Lugnuts
7318160030 Lugnuts
7318160045 Other Lugnuts
7320100015 Leaf Springs
7320103000 Leaf Springs
7320106015 Leaf Springs
7320106060 Leaf Springs
7320201000 Helical Springs
8421394000 Catalytic Converters
8482101000 Ball Bearings
8482101040 Ball Bearings
8482101080 Ball Bearings
8482105044 Radial Bearings
8482105048 Radial Bearings
8482200010 Tapered Roller Bearings
8482200020 Tapered Roller Bearings
8482200030 Tapered Roller Bearings
8482200040 Tapered Roller Bearings
8482200050 Tapered Roller Bearings
8482200060 Tapered Roller Bearings
8482200070 Tapered Roller Bearings
8482200080 Tapered Roller Bearings
8482400000 Needle Roller Bearings
8482500000 Other Cylindrical Bearings
8708301090 Brakes and Parts
8708305020 Brake Drums
8708305030 Brake Rotors (Discs)
8708305040 Mounted Brake Linings
8708305090 Brake Parts
8708315000 Mounted Brake Linings
8708395010 Brake Drums & Rotors
8708395020 Brake Drums
8708395030 Brake Rotors
8708395050 Brakes & Servo-Brakes

Chassis and Drivetrain Parts

4009120020 Brake Hoses
4009220020 Brake Hoses
4009320020 Brake Hoses
4009420020 Brake Hoses
4009500020 Brake Hoses
6813100000 Brake Linings & Pads
6813200000 Friction Material
6813810000 Brake Linings
6813890000 Other Brake Materials
6813900000 Other Friction Materials
7320100000 Leaf Springs
7320201000 Helical Springs
8421394000 Catalytic Converters
8482101000 Ball Bearings
8482105044 Radial Bearings
8482105048 Radial Bearings
8482200020 Tapered Roller Bearings
8482200030 Tapered Roller Bearings
8482200040 Tapered Roller Bearings
8482200060 Tapered Roller Bearings
8482200070 Tapered Roller Bearings
8482200080 Tapered Roller Bearings
8482400000 Needle Roller Bearings
8482500000 Other Cylindrical Bearings
8708300010 Mounted Brake Linings
8708300050 Brakes & Servo-Brakes
8708310000 Mounted Brake Linings
8708390000 Other Brakes
8708401000 Gear Boxes
8708401110 Gear Boxes
8708401150 Gear Boxes
8708402000 Gear Boxes
8708403500 Gear Boxes
8708406000 Gear Boxes
8708408000 Gear Box Parts & Access.
8708500050 Drive Axles
8708504110 Drive Axles
8708504150 Non-Driving Axles
8708507200 Drive Axle Parts & Access
8708600050 Non-Driving Axles
8708700050 Road Wheels & Pts.
8708800050 Suspension Shock Absorbers
8708805000 Suspension Shock Absorbers
8708807000 Suspension Systems Parts
8708918000 Radiator Parts & Access.
8708925000 Radiators

8708401000	Gear Boxes	8708928000	Muffler Parts & Access.
8708401110	Gear Boxes	8708935000	Clutches and Parts
8708401150	Gear Boxes	8708945000	Steering Wheel, Column
8708402000	Gear Boxes	8708948000	Steering Wheel Parts & Acces
8708405000	Gear Boxes	8708990070	Wheel Hub Units
8708407000	Cast Iron Parts, Gear Box	8708995800	Wheel Hub Units
8708503000	Drive Axles for Tractors	8708996100	Airbags
8708505110	Drive Axles for Tractors	8708998015	Wheel Hub Units
8708505000	Drive Axles	8708998115	Wheel Hub Units
8708505110	Drive Axles		
8708506100	Drive Axles		
8708505150	Non-Driving Axles		
8708506500	Non-Driving Axles		
8708507900	Parts of Non-Driving Axles		
8708508000	Drive Axles		
8708508100	Cast Iron Parts, Drive Axles		
8708508500	Drive Shaft Parts		
8708508900	Drive Axles Parts		
8708509110	Spindles for Non-Drive Axles		
8708509150	Parts of Non-Driving Axles		
8708509300	Cast Iron Parts, Drive Axles		
8708509500	Drive Shaft Parts		
8708509900	Parts, Drive Axles		
8708605000	Non-Driving Axles		
8708608010	Spindles		
8708608050	Non-Driving Axles		
8708704530	Road Wheels		
8708704545	Road Wheels		
8708704560	Wheel Rims		
8708706030	Wheel Covers		
8708706045	Wheel Covers & Hubcaps		
8708708010	Wheels		
8708708015	Wheels		
8708708025	Wheels		
8708708030	Wheels		
8708708035	Wheels		
8708708045	Wheel Rims		
8708708050	Parts & Access. for Wheels		
8708708060	Wheel Covers & Hubcaps		
8708708075	Parts & Access. for Wheels		
8708801300	Suspension Shock Absorbers		
8708801600	Suspension Shock Absorbers		
8708803000	Suspension Shock Absorbers		
8708804500	Suspension Shock Absorbers		
8708805000	Suspension Shock Absorbers		
8708806000	Cast Iron Parts, SS		
8708806510	Beam Hanger Brackets		

8708806590 Suspension System Parts
 8708925000 Mufflers
 8708935000 Clutches & Parts
 8708936000 Clutches
 8708937500 Parts of Clutches
 8708945000 Steering Wheels, Columns
 8708947510 Steering Shaft Assembly
 8708947550 Parts
 8708995010 Steering Shaft Assemblies
 8708995020 Wheel Hub Units
 8718995025 Wheel Hub Units
 8708995030 Beam Hanger Brackets
 8708995800 Wheel Hub Units
 8708996400 Half Shafts & Drive Shafts
 8708996700 Parts (joints?)
 8708996710 Universal Joints->01
 8708996720 Universal Joints- >01
 8708996790 Other Joints->01
 8708996810 Pwr Trns Univ Jnts
 8708996820 Pwr Trns Univ Jnts
 8708996890 Power Trans Parts
 8708997030 Beam Hanger Brackets
 8708997060 Suspension System Parts
 8708997330 Steering Shaft Assemblies
 8708997360 Parts for Steering Systems
 8708998015 Wheel Hub Units
 8708998115 Wheel Hub Units
 8716905010 Axles & Parts for Trailers
 8716905030 Wheels for Trailers

Electrical and Electric Components

8414308030 Compressors
 8414596040 Fans
 8414598040 Fans & Blowers
 8415200000 Air Conditioners
 8415830040 Air Conditioners
 8415900040 Parts of Air Conditioners
 8415908040 Parts of Air Conditioners
 8415908045 Parts of Air Conditioners
 8501324500 Electric Motors
 8507100060 Storage Batteries
 8507304000 Nickel-Cadmium Batteries
 8507904000 Parts for Lead Acid Batteries
 8511100000 Spark Plugs
 8511200000 Magnetos, Dynamos
 8511300040 Distributors

Electrical and Electric Components

8414308030 Compressors
 8414596040 Fans
 8414598040 Fans & Blowers
 8415200000 Air Conditioners
 8415830040 Air Conditioners
 8507100050? Storage Batteries
 8507100060 Storage Batteries
 8507904000 Parts for Lead Acid Batteries
 8507904050? Parts for Batteries?
 8511100000 Spark Plugs
 8511200000 Magnetos, Dynamos
 8511300040 Distributors
 8511300080 Ignition Coils
 8511400000 Starter Motors
 8511500000 Generators

8511300080	Ignition Coils	8511802000	Voltage Regulators
8511400000	Starter Motors	8511806000	Other Engine Ignition Equip.
8511500000	Generators	8511906020	Parts for Distributor Sets
8511802000	Voltage Regulators	8511908000	Other Elec Ignition Equip
8511806000	Other Engine Ignition Equip.	8512202000	Lighting Equipment
8511902000	Parts for Voltage Regulators	8512204000	Signaling Equipment
8511906020	Parts for Distributer Sets	8512300000	Sound Signaling Equip
8511906040	Other Parts Engine Ignition	8512300030	Radar Dectectors
8512202000	Lighting Equipment	8512300050	Sound Signaling Equip
8512202040	Lighting Equipment	8512402000	Defrosters
8512204000	Signaling Equipment	8512404000	Windshield Wipers
8512204040	Signaling Equipment	8512902000	Parts of Signaling Equip.
8512300020	Horns	8512905000	Parts of Lighting Equip.
8512300030	Radar Dectectors	8512908000	Other Pts of Elec. Equip.
8512300040	Sound Signaling Equipment	8517120020	Radio Telephones
8512402000	Defrosters	8519934000	Cassette Tape Players
8512404000	Windshield Wipers	8525201000	CB Transmission Apparatus
8512902000	Parts of Signaling Equipment	8525206000	Other Transmission Apparat.
8512906000	Lighting Equipment Parts	8525209020	Radio Telephones
8512907000	Parts of Defrosters	8525209050?	Radio Telephones?
8512909000	Parts of Windshield Wipers	8525601010	Radio Receivers (CB)
8517120020	Radio Telephones	8527210000	Radiobroadcast Receivers
8519812000	Cassette Tape Players	8527290000	Other Radiobroadcast Receiv
8519910020	Cassette Tape Players	8531800038	Radar Detectors
8519911000	Cassette Tape Players	8531809038	Radar Detectors
8519934000	Cassette Tape Players	8536410005	Signaling Flashers
8525201500	Radio Transceivers	8539100020	Beam Lamp Units
8525206020	Radio Telephones	8539100040	Beam Lamp Units
8525209020	Radio Telephones	8544300000	Ignition Wiring Sets
8525601010	Radio Transceivers, CBs	8708950000	Airbags for MV
8527211005	Radio-Tape Players (CDs)	9029100000	Revolution Counters
8527211010	Radio-Tape Players	9029205000	Other Speedometers/Tacho
8527211015	Radio-Tape Players	9029900000	Pts & Access of Rev Counter
8527211020	Radio-Tape Players	9104000000	Inst Panel Clocks
8527211025	Radio-Tape Players		
8527211030	Radio-Tape Players		
8527214000	Radio-Combinations		
8527214040	Radio-Combinations		
8527214800	Radio-Combinations		
8527290020	Radio-Receivers AM		
8527290040	Radio-Receivers FM/AM		
8527290060	Radio-Receivers		
8527294000	Radio-Receivers FM/AM		
8527298000	Radio- Recievers		
8527298020	Radio-Receivers AM		
8527298060	Radio-Receivers		
8531800038	Radar Detectors		

8531808038	Radar Detectors
8531809038	Radar Detectors
8536410005	Signaling Flashers
8539100010	Beam Lamp Units
8539100020	Beam Lamps
8539100040	Beam Lamps
8539100050	Beam Lamp Units
8539212040	Halogen Lamps
8544300000	Ignition Wiring Sets
9029104000	Taximeters
9029108000	Revolution Counters, Odom.
9029204080	Other Speedometers, Tach.
9029902000	Parts & Access of Taximeters
9029908040	Parts & Access of Speed/Tac
9029908080	Parts & Access of Odometers
9104002510	MVT & Cases Panel Clock
9104004000	Instrument Panel Clocks
9104004510	Movements of Inst. Clock

Engines and Parts

4010101020	Belts
4016931010	O-Rings
4016931020	Oil Seals
4016931050	Gaskets
4016931090	Gaskets
8407341400	Engines
8407341540	Engines
8407341580	Engines
8407341800	Engines
8407342040	Engines
8407342080	Engines
8407344400	Engines
8407344540	Engines
8407344580	Engines
8407344800	Engines
8408202000	Compression Ignition Engine
8409911040	Cast Iron Parts
8409913000	Aluminum Cylinder Heads
8409915010	Connecting Rods
8409915080	Parts
8409919110	Connecting Rods
8409919190	Parts
8409919910	Connecting Rods
8409991040	Cast-Iron parts
8409999110	Connecting Rods
8409999190	Parts
8413301000	Fuel Injection Pumps

Engines and Parts

8407342000	SP-IG Piston Engine
8407342030	SP-IG Engine
8407342090	Other Engine
8408202000	Compression Ignition Engine
8409914000	Pts for Engines
8409994000	Other Pts for Engines
8413301000	Fuel Injection Pumps
8413309000	Fuel, Lub., Cooling Pumps
8413911000	Parts of Fuel Injection Pumps
8414308030	Compressor/Air Conditioners
8414593000	Turbochargers
8421230000	Oil or Fuel Filters
8421310000	Intake Air Filters
8483101020	Transmission Shafts
8483103010	Camshafts & Crankshafts

8413309000	Fuel, Lub., or Cooling Pumps
8413309030	Fuel Pumps
8413309060	Lubricating Pumps
8413309090	Cooling Medium Pumps
8413911000	Parts of Fuel Injection Pumps
8414593000	Turbochargers
8421230000	Oil or Fuel Filters
8421310000	Intake Air Filters
8483101030	Camshafts and Crankshafts
8483103010	Camshafts and Crankshafts
9802004020	Combust. Engine Repair
9802005030	Value of Repairs on Engines

Miscellaneous Parts

3819000000	Brake Fluid
3819000010	Brake Fluid
3819000090	Other Liquids
3820000000	Anti-Freeze
4016993000	Vibration Control
4016995010	Mechanical Articles
4016995500	Vibration Control
4016996010	Mechanical Articles
8301200030	Steering Wheel Immobilizers
8425490000	Jacks
8426910000	Lifting Machinery
8431100090	Parts of Winches, Jacks
8708407550	Parts, Radiators
8708706060	Parts & Access. for Wheels
8708915000	Radiators
8708917000	Cast Iron Parts, Radiators
8708917510	Radiator Cores
8708917550	Parts, Radiators
8708927000	Cast Iron Parts, Mufflers
8708927500	Parts, Mufflers
8708993000	Cast Iron Parts
8708947000	Cast Iron Parts
8708995005	Brake Hoses
8708995060	Radiator Cores
8708995070	Cable Traction Devices
8708995080	Parts
8708995085	Parts
8708995090	Parts
8708995200	Cast Iron Parts
8708995500	Vibration Control Goods
8708998005	Brake Hoses of Plastics
8708998045	Radiator Cores
8708998060	Cable Traction Devices

Miscellaneous Parts

3819000000	Brake Fluid
3820000000	Anti-Freeze
4016995010	Mechanical Articles
8425490000	Jacks
8426910000	Lifting Machinery
8431100090	Parts of Winches, Jacks
8708915000	Radiators
8708990050	Pts & Access
8708990090	Other Pts & Access
8708990095	Pts & Access
8708998075	Other Pts & Access
8708998175	Parts & Access NESOI
8716900000	Parts of Trailers
8716905000	Parts

8708998080 Parts
 8708998105 Brake Hoses-Plastic
 8708998160 Cable Traction Devices
 8708998180 Parts
 8716905050 Parts for Trailers
 8716905060 Parts for Trailers

Automotive Tires and Tubes

4011100010 Radial Tires for M.V.
 4011100050 Pneumatic Tires for M.V.
 4011101000 Radial Tires for M.V.
 4011101010 Radial Tires->01
 4011101020 Radial Tires->01
 4011101030 Radial Tires->01
 4011101040 Radial Tires->01
 4011101050 Radial Tires->01
 4011101060 Radial Tires->01
 4011101070 Radial Tires->01
 4011105000 Pneumatic Tires for M.V.
 4011200005 Radial Tires for Lt. Trucks
 4011200010 Pneumatic Tires for Lt. Truck
 4011200015 Radial Tires for Buses/Truck
 4011200020 Pneumatic Tires for Buses/Tr
 4011200025 Radial Tires for Buses off
 4011200030 Pneumatic Tires for Buses off
 4011200035 Radial Tires for Buses off
 4011200050 Pneumatic Tires for Buses off
 4011201005 Radial Tires for Lt. Trucks
 4011201015 Pneumatic Tires for Buses/Tr
 4011201025 Radial Tires for Buses off
 4011201035 Pneumatic Tires for Buses off
 4011205010 Tires, ex. Radial for Lt. Truc
 4011205020 Pneumatic Tires for Buses
 4011205030 Tires, ex. Radial, for Bus
 4011205050 Pneumatic Tires for Bus
 4012104005 Retreaded Tires for M.V.
 4012104015 Retreaded Tires for Light on
 4012104025 Retreaded Tires for Bus/Truc
 4012104035 Retreaded Tires for Bus/Truc
 4012105005 Retreaded Radial Tires M.V.
 4012105009 Retreaded Tires for M.V.
 4012105015 Retreaded Radial Tires Bus
 4012105019 Retreaded Tires for Lt. Truck
 4012105025 Retreaded Radial Tires Bus
 4012105029 Retreaded Tires for Bus/Truc
 4012105035 Retreaded Radial Tires Bus
 4012105050 Retreaded Tires for Bus/Truc

Automotive Tires and Tubes

4011100010 Radial Tires for M.V.
 4011100050 Pneumatic Tires for M.V.
 4011101000 Radial Tires for M.V.
 4011105000 Pneumatic Tires for M.V.
 4011200005 Radial Tires for Lt. Trucks
 4011200010 Pneumatic Tires for Lt. Truck
 4011200015 Radial Tires for Buses/Truck
 4011200020 Pneumatic Tires for Buses/Tr
 4011200025 Radial Tires for Buses off
 4011200030 Pneumatic Tires for Buses off
 4011200035 Radial Tires for Buses off
 4011200050 Pneumatic Tires for Buses off
 4011201005 Radial Tires for Lt. Trucks
 4011201015 Pneumatic Tires for Buses/Tr
 4011201025 Radial Tires for Buses off
 4011201035 Pneumatic Tires for Buses off
 4011205010 Tires, ex Radial, for Lt. Truc
 4011205020 Pneumatic Tires for Buses
 4011205030 Tires, ex Radial for Bus/Tr
 4011205050 Pneumatic Tire for Bus/Tr
 4012105020 Retreaded Tires Bus/Truck
 4012106000 Other Retreaded Tires
 4012110000 Retreaded Tires
 4012120000 Retreaded Tires
 4012190000 Retread Tires
 4012200000 Used Pneumatic Tires
 4013100010 Inner Tubes
 4013100020 Inner Tubes
 4013900000 Other Inner Tubes

4012108009	Retreaded Tires for M.V.
4012108019	Retreaded Tires for Lt. Truck
4012108029	Retreaded Tires for Bus/Truc
4012108050	Retreaded Tires for Bus, ex.
4012114000	Retreaded Tires for Cars
4012118000	Retreaded Tires for Cars
4012124015	Retreaded Tires for Lt. Truck
4012124025	Retreaded Tires for Bus/Truc
4012124035	Retreaded Tires for Bus/Truc
4012128019	Retread Tire for Lt. Truck
4012128029	Retread Tire for Bus/Truck
4012128050	Retread Tire for Bus
4012194000	Retreaded Tires for Bus, ex.
4012198000	Retread Tire for Bus
4012205000	Used Pneumatic Tires
4012206000	Used Pneumatic Tires
4013100010	Inner Tubes
4013100020	Inner Tubes

HTS Codes Numerically Ordered

HTS Codes for Import		Schedule B Codes for Export	
3819000000	Brake Fluid	3819000000	Brake Fluid
3819000010	Brake Fluid	3820000000	Anti-Freeze
3819000090	Other Liquids	4009120020	Brake Hoses
3820000000	Anti-Freeze	4009220020	Brake Hoses
4009120020	Brake Hoses	4009320020	Brake Hoses
4009220020	Brake Hoses	4009420020	Brake Hoses
4009320020	Brake Hoses	4009500020	Brake Hoses
4009420020	Brake Hoses	4011100010	Radial Tires for M.V.
4009500020	Brake Hoses	4011100050	Pneumatic Tires for M.V.
4010101020	Belts	4011101000	Radial Tires for M.V.
4011100010	Radial Tires for M.V.	4011105000	Pneumatic Tires for M.V.
4011100050	Pneumatic Tires for M.V.	4011200005	Radial Tires for Lt. Trucks
4011101000	Radial Tires for M.V.	4011200010	Pneumatic Tires for Lt. Truck
4011101010	Radial Tires->01	4011200015	Radial Tires for Buses/Truck
4011101020	Radial Tires->01	4011200020	Pneumatic Tires for Buses/Tr
4011101030	Radial Tires->01	4011200025	Radial Tires for Buses off
4011101040	Radial Tires->01	4011200030	Pneumatic Tires for Buses off
4011101050	Radial Tires->01	4011200035	Radial Tires for Buses off
4011101060	Radial Tires->01	4011200050	Pneumatic Tires for Buses off

4011101070	Radial Tires->01	4011201005	Radial Tires for Lt. Trucks
4011105000	Pneumatic Tires for M.V.	4011201015	Pneumatic Tires for Buses/Tr
4011200005	Radial Tires for Lt. Trucks	4011201025	Radial Tires for Buses off
4011200010	Pneumatic Tires for Lt. Truck	4011201035	Pneumatic Tires for Buses off
4011200015	Radial Tires for Buses/Truck	4011205010	Tires, ex Radial, for Lt. Truc
4011200020	Pneumatic Tires for Buses/Tr	4011205020	Pneumatic Tires for Buses
4011200025	Radial Tires for Buses off	4011205030	Tires, ex Radial for Bus/Tr
4011200030	Pneumatic Tires for Buses off	4011205050	Pneumatic Tire for Bus/Tr
4011200035	Radial Tires for Buses off	4012105020	Retreaded Tires Bus/Trucks
4011200050	Pneumatic Tires for Buses off	4012106000	Other Retreaded Tires
4011201005	Radial Tires for Lt. Trucks	4012110000	Retreaded Tires
4011201015	Pneumatic Tires for Buses/Tr	4012120000	Retreaded Tires
4011201025	Radial Tires for Buses off	4012190000	Retread Tires
4011201035	Pneumatic Tires for Buses off	4012200000	Used Pneumatic Tires
4011205010	Tires, ex. Radial for Lt. Truc	4013100010	Inner Tubes
4011205020	Pneumatic Tires for Buses	4013100020	Inner Tubes
4011205030	Tires, ex. Radial, for Bus	4013900000	Other Inner Tubes
4011205050	Pneumatic Tires for Bus	4016995010	Mechanical Articles
4012104005	Retreaded Tires for M.V.	6813100000	Brake Linings & Pads
4012104015	Retreaded Tires for Light on	6813200000	Friction Materials
4012104025	Retreaded Tires for Bus/Truc	6813810000	Brake Linings
4012104035	Retreaded Tires for Bus/Truc	6813890000	Other Brake Materials
4012105005	Retreaded Radial Tires M.V.	6813900000	Other Friction Materials
4012105009	Retreaded Tires for M.V.	7007110000	Safety Glass
4012105015	Retreaded Radial Tires Bus	7007211000	Windshields
4012105019	Retreaded Tires for Lt. Truck	7007215000	Safety Glass
4012105025	Retreaded Radial Tires Bus	7009100000	Rear-View Mirrors
4012105029	Retreaded Tires for Bus/Truc	7320100000	Leaf Springs
4012105035	Retreaded Radial Tires Bus	7320201000	Helical Springs
4012105050	Retreaded Tires for Bus/Truc	8301200000	Locks
4012108009	Retreaded Tires for M.V.	8302103000	Hinges
4012108019	Retreaded Tires for Lt. Truck	8302300000	Other Mountings
4012108029	Retreaded Tires for Bus/Truc	8407342000	Spark Ig Piston Engines
4012108050	Retreaded Tires for Bus, ex.	8407342030	Spark Ig Engine
4012114000	Retreaded Tires for Cars	8407342090	Other Engine
4012118000	Retreaded Tires for Cars	8408202000	Compression Ignition Engine
4012124015	Retreaded Tires for Lt. Truck	8409914000	Pts for Engines
4012124025	Retreaded Tires for Bus/Truc	8409994000	Other Pts for Engines
4012124035	Retreaded Tires for Bus/Truc	8413301000	Fuel Injection Pumps
4012128019	Retread Tire for Lt. Truck	8413309000	Fuel, Lub., Cooling Pumps
4012128029	Retread Tire for Bus/Truck	8413911000	Parts of Fuel Injection Pumps
4012128050	Retread Tire for Bus	8414308030	Compressors/Air Condition
4012194000	Retreaded Tires for Bus, ex.	8414593000	Turbochargers
4012198000	Retread Tire for Bus	8414596040	Fans
4012205000	Used Pneumatic Tires	8414598040	Fans & Blowers
4012206000	Used Pneumatic Tires	8415200000	Air Conditioners
4013100010	Inner Tubes	8415830040	Air Conditioners
4013100020	Inner Tubes	8421230000	Oil or Fuel Filters
4016931010	O-Rings	8421310000	Intake Air Filters

4016931020	Oil Seals	8421394000	Catalytic Converters
4016931050	Gaskets	8425490000	Jacks
4016931090	Gaskets	8426910000	Lifting Machinery
4016993000	Vibration Control	8431100090	Parts of Winches, Jacks
4016995010	Mechanical Articles	8482101000	Ball Bearings
4016995500	Vibration Control	8482105044	Radial Bearings
4016996010	Mechanical Articles	8482105048	Radial Bearings
6813100050	Brake Linings & Pads	8482200020	Tapered Roller Bearings
6813200015	Brake Linings & Pads	8482200030	Tapered Roller Bearings
6813200025	Asbestos Friction	8482200040	Tapered Roller Bearings
6813810050	Brk Lngs & Pads, Not Asbest	8482200060	Tapered Roller Bearings
6813890050	Min Sub Friction Materials	8482200070	Tapered Roller Bearings
6813900050	Friction Materials	8482200080	Tapered Roller Bearings
7007110000	Safety Glass	8482400000	Needle Roller Bearings
7007110010	Safety Glass	8482500000	Other Cylindrical Bearings
7007211000	Windshields	8483101020	Transmission Shafts
7007211010	Windshields	8483103010	Camshafts & Crankshafts
7007215000	Safety Glass	8507100050	Storage Batteries
7009100000	Rear-View Mirrors	8507100060	Storage Batteries
7318160010	Lugnuts	8507904000	Parts for Lead Acid Batteries
7318160015	Lugnuts	8507904050	Parts for Batteries
7318160030	Lugnuts	8511100000	Spark Plugs
7318160045	Other Lugnuts	8511200000	Magnetos, Dynamos
7320100015	Leaf Springs	8511300040	Distributors
7320103000	Leaf Springs	8511300080	Ignition Coils
7320106015	Leaf Springs	8511400000	Starter Motors
7320106060	Leaf Springs	8511500000	Generators
7320201000	Helical Springs	8511802000	Voltage Regulators
8301200000	Locks	8511806000	Other Engine Ignition Equip.
8301200030	Steering Wheel Immobilizers	8511906020	Parts for Distributor Sets
8301200060	Other Locks	8511908000	Other Elec Ignition Equip
8302103000	Hinges	8512202000	Lighting Equipment
8302303000	Other Mountings	8512204000	Signaling Equipment
8302303010	Pneumatic Cylinders	8512300000	Sound Signaling Equipment
8302303060	Other Mountings	8512300030	Radar Detectors
8302306000	Other Mountings	8512300050	Sound Signaling Equipment
8407341400	Engines	8512402000	Defrosters
8407341540	Engines	8512404000	Windshield Wipers
8407341580	Engines	8512902000	Parts of Signaling Equip.
8407341800	Engines	8512905000	Parts of Lighting Equipment
8407342040	Engines	8512908000	Other Pts of Elec Equipment
8407342080	Engines	8517120020	Radio Telephones
8407344400	Engines	8519812000	Cassette Tape Players
8407344540	Engines	8525201000	CB Transmission Apparatus
8407344580	Engines	8525206000	Other Transmission Apparatus
8407344800	Engines	8525209020	Radio Telephones
8408202000	Compression Ignition Engine	8525209050	Radio Telephones
8409911040	Cast Iron Parts	8525601010	Radio Transceivers (CB)
8409913000	Aluminum Cylinder Heads	8527210000	Radiobroadcast Receivers

8409915010	Connecting Rods	8527290000	Other Radiobroadcast Receiv
8409915080	Parts	8531800038	Radar Detectors
8409919110	Connecting Rods	8531809038	Radar Detectors
8409919190	Parts	8536410005	Signaling Flashers
8409919910	Connecting Rods	8539100020	Beam Lamp Units
8409991040	Cast-Iron parts	8539100040	Beam Lamp Units
8409999110	Connecting Rods	8544300000	Ignition Wiring Sets
8409999190	Parts	8707100020	Bodies
8413301000	Fuel Injection Pumps	8707100040	Bodies
8413309000	Fuel, Lub., or Cooling Pumps	8707905020	Bodies
8413309030	Fuel Pumps	8707905040	Bodies
8413309060	Lubricating Pumps	8707905060	Bodies
8413309090	Cooling Medium Pumps	8707905080	Bodies
8413911000	Parts of Fuel Injection Pumps	8708100010	Stampings of Bumpers
8414308030	Compressors	8708100050	Bumpers and Parts
8414593000	Turbochargers	8708210000	Seat Belts
8414596040	Fans	8708290010	Stampings of Bodies
8414598040	Fans & Blowers	8708290025	Truck Caps
8415200000	Air Conditioners	8708290050	Parts & Access. of Bodies
8415830040	Air Conditioners	8708290060	Parts & Access. of Bodies
8415900040	Parts of Air Conditioners	8708295025	Truck Caps
8415908040	Parts of Air Conditioners	8708295070	Other Pts & Access of Bodies
8415908045	Parts of Air Conditioners	8708295170	Parts & Access of Bodies
8421230000	Oil or Fuel Filters	8708300010	Mounted Brake Linings
8421310000	Intake Air Filters	8708300050	Brakes & Servo-Brakes
8421394000	Catalytic Converters	8708310000	Mounted Brake Linings
8425490000	Jacks	8708390000	Other Brakes
8426910000	Lifting Machinery	8708401000	Gear Boxes
8431100090	Parts of Winches, Jacks	8708401110	Gear Boxes
8482101000	Ball Bearings	8708401150	Gear Boxes
8482101040	Ball Bearings	8708402000	Gear Boxes
8482101080	Ball Bearings	8708403500	Gear Boxes
8482105044	Radial Bearings	8708406000	Gear Boxes
8482105048	Radial Bearings	8708408000	Gear Box Parts & Access.
8482200010	Tapered Roller Bearings	8708500050	Drive Axles
8482200020	Tapered Roller Bearings	8708504110	Drive Axles
8482200030	Tapered Roller Bearings	8708504150	Non-Driving Axles
8482200040	Tapered Roller Bearings	8708507200	Drive Axles Parts & Access.
8482200050	Tapered Roller Bearings	8708600050	Non-Driving Axles
8482200060	Tapered Roller Bearings	8708700050	Road Wheels & Pts.
8482200070	Tapered Roller Bearings	8708800050	Suspension Shock Absorbers
8482200080	Tapered Roller Bearings	8708805000	Suspension Shock Absorbers
8482400000	Needle Roller Bearings	8708807000	Suspension System Parts
8482500000	Other Cylindrical Bearings	8708915000	Radiators
8483101030	Camshafts and Crankshafts	8708918000	Radiator Parts & Access.
8483103010	Camshafts and Crankshafts	8708925000	Radiators
8501324500	Electric Motors	8708928000	Muffler Parts & Access.
8507100060	Storage Batteries	8708935000	Clutches and Parts
8507304000	Nickel-Cadmium Batteries	8708945000	Steering Wheel, Column

8507904000	Parts for Lead Acid Batteries	8708948000	Steering Wheel Parts & Acces
8511100000	Spark Plugs	8708950000	Airbags for MVs
8511200000	Magnetos, Dynamos	8708990045	Slide-in Campers
8511300040	Distributors	8708990050	Pts & Access.
8511300080	Ignition Coils	8708990070	Wheel Hub Units
8511400000	Starter Motors	8708990090	Other Pts & Access
8511500000	Generators	8708990095	Pts & Access
8511802000	Voltage Regulators	8708995800	Wheel Hub Units
8511806000	Other Engine Ignition Equip.	8708996100	Airbags
8511902000	Parts for Voltage Regulators	8708998015	Wheel Hub Units
8511906020	Parts for Distributer Sets	8708998030	Slide-In Campers
8511906040	Other Parts Engine Ignition	8708998075	Other Pts & Access
8512202000	Lighting Equipment	8708998115	Wheel Hub Units
8512202040	Lighting Equipment	8708998130	Slide-in Campers
8512204000	Signaling Equipment	8708998175	Parts & Access NESOI
8512204040	Signaling Equipment	8716900000	Parts of Trailers
8512300020	Horns	8716905000	Parts
8512300030	Radar Dectector	9029100000	Revolution Counters
8512300040	Sound Signaling Equipment	9029205000	Other Speedometers/Tacho
8512402000	Defrosters	9029900000	Pts & Access of Rev Counter
8512404000	Windshield Wipers	9104000000	Inst Panel Clocks
8512902000	Parts of Signaling Equipment	9401200000	Seats
8512906000	Lighting Equipment Parts	9401901000	Seat Parts
8512907000	Parts of Defrosters	9401901010	Seat Parts of Leather
8512909000	Parts of Windshield Wipers	9401901080	Seat Parts
8517120020	Radio Telephones	9403901000	Parts of Furnitures
8519812000	Cassette Tape Players		
8519910020	Cassette Tape Players		
8519911000	Cassette Tape Players		
8519934000	Cassette Tape Players		
8525201500	Radio Transceivers		
8525206020	Radio Telephones		
8525209020	Radio Telephones		
8525601010	Radio Transceivers, CBs		
8527211005	Radio-Tape Players (CDs)		
8527211010	Radio-Tape Players		
8527211015	Radio-Tape Players		
8527211020	Radio-Tape Players		
8527211025	Radio-Tape Players		
8527211030	Radio-Tape Players		
8527214000	Radio-Combinations		
8527214040	Radio-Combinations		
8527214800	Radio-Combinations		
8527290020	Radio-Receivers AM		
8527290040	Radio-Receivers FM/AM		
8527290060	Radio-Receivers		
8527294000	Radio-Receivers FM/AM		
8527298000	Radio Recievers		
8527298020	Radio-Receivers AM		

8527298060	Radio-Receivers
8531800038	Radar Detectors
8531808038	Radar Detectors
8531809038	Radar Detectors
8536410005	Signaling Flashers
8539100010	Beam Lamp Units
8539100020	Beam Lamp
8539100040	Beam Lamp
8539100050	Beam Lamp Units
8539212040	Halogen Lamps
8544300000	Ignition Wiring Sets
8707100020	Bodies
8707100040	Bodies
8707905020	Bodies
8707905040	Bodies
8707905060	Bodies
8707905080	Bodies
8708100010	Stampings of Bumpers
8708100050	Bumpers and Parts
8708103010	Stampings of Bumpers
8708103050	Bumpers
8708106010	Stampings Parts of Bumpers
8708106050	Parts of Bumpers
8708210000	Seat Belts
8708290010	Stampings of Bodies
8708290025	Truck Caps
8708290050	Parts & Access. of Bodies
8708290060	Parts & Access. of Bodies
8708291000	Inflators & Modules Airbags
8708291500	Door Assemblies
8708292000	Body Stampings
8708295010	Stampings
8708295025	Truck Caps
8708295060	Other Parts
8708301090	Brakes and Parts
8708305020	Brake Drums
8708305030	Brake Rotors
8708305040	Brake Linings
8708305090	Brake Parts
8708315000	Mounted Brake Linings
8708391090	Brakes & Parts
8708395010	Brake Drums & Rotors
8708395020	Brake Drums
8708395030	Brake Rotors
8708395050	Brakes & Servo-Brakes
8708401000	Gear Boxes
8708401110	Gear Boxes
8708401150	Gear Boxes
8708402000	Gear Boxes

8708405000 Gear Boxes
8708407000 Cast Iron Parts, Gear Box
8708407550 Parts, Radiators
8708503000 Drive Axles
8708505000 Drive Axles
8708505110 Drive Axles
8708505150 Non-Driving Axles
8708506100 Drive Axles
8708506500 Non-Driving Axles, NESOI
8708507900 Non-Driving Axles Parts
8708508000 Drive Axles
8708508100 Cast Iron Parts, Drive Axles
8708508500 Parts, Drive Shaft
8708508900 Parts, Drive Axles
8708509110 Spindles of Non-Driving Axle
8708509150 Non-Driving Axles Parts
8708509300 Cast Iron Parts, Drive Axles
8708509500 Parts, Drive Shaft
8708509900 Parts, Drive Axles
8708605000 Non-Driving Axles
8708608010 Spindles
8708608050 Non-Driving Axles
8708704530 Road Wheels
8708704545 Road Wheels
8708704560 Wheel Rims
8708706030 Wheel Covers
8708706045 Wheel Covers & Hubcaps
8708706060 Parts & Access. for Wheels
8708708010 Wheels
8708708015 Wheels
8708708025 Wheels
8708708030 Wheels
8708708035 Wheels
8708708045 Wheel Rims
8708708050 Parts & Access. for Wheels
8708708060 Wheel Covers & Hubcaps
8708708075 Parts & Access. for Wheels
8708801300 Suspension Shock Absorbers
8708801600 Suspension Shock Absorbers
8708803000 Suspension Shock Absorbers
8708804500 Suspension Shock Absorbers
8708805000 Suspension Shock Absorbers
8708806000 Cast Iron Parts, SS
8708806510 Beam Hanger Brackets
8708806590 Parts for Suspension System
8708915000 Radiators
8708917000 Cast Iron Parts, Radiators
8708917510 Radiator Cores
8708917550 Parts, Radiators

8708925000 Mufflers
8708927000 Cast Iron Parts, mufflers
8708927500 Parts, Mufflers
8708935000 Clutches & Parts
8708936000 Clutches
8708937500 Parts of Clutches
8708945000 Steering Wheels, Columns
8708947000 Cast Iron Parts
8708947510 Steering Shaft Assembly
8708947550 Parts, Steering
8708950500 Inflators
8708952000 Parts, Airbags
8708993000 Cast Iron Parts
8708995005 Brake Hoses
8708995010 Steering Shaft Assemblies
8708995020 Wheel Hub Units
8708995030 Beam Hanger Brackets
8708995045 Slide in Campers
8708995060 Radiator Cores
8708995070 Cable Traction Devices
8708995080 Parts
8708995085 Parts
8708995090 Parts
8708995200 Cast Iron Parts
8708995500 Vibration Control Goods
8708995800 Wheel Hub Units
8708996100 Airbags
8708996400 Half Shafts & Drive Shafts
8708996700 Parts (joints?)
8708996710 Universal Joints->01
8708996720 Universal Joints- >01
8708996790 Other Joints->01
8708996810 Parts Pwr Trns, Univ Jnts
8708996820 Parts Pwr Trns, Univ Jnts
8708996890 Parts Power Train
8708997030 Beam Hanger Brackets
8708997060 Suspension System Parts
8708997330 Steering Shaft Assemblies
8708997360 Parts for Steering Systems
8708998005 Brake Hoses of Plastics
8708998015 Wheel Hub Units
8708998045 Radiator Cores
8708998060 Cable Traction Devices
8708998080 Parts
8708998105 Brake Hoses- Plastic
8708998115 Wheel Hub Units
8708998160 Cable Traction Devices
8708998180 Parts
8716905010 Axles & Parts for Trailers

8716905030	Wheels for Trailers
8716905050	Parts for Trailers
8716905060	Parts for Trailers
8718995025	Wheel Hub Units
9029104000	Taximeters
9029108000	Revolution Counters, Odom.
9029204080	Other Speedometers, Tach.
9029902000	Parts & Access of Taximeters
9029908040	Parts & Access of Speed/Tac
9029908080	Parts & Access of Odometers
9104002510	MVT & Cases Panel Clock
9104004000	Instrument Panel Clocks
9104004510	Movements of Inst. Clock
9401200000	Seats
9401200010	Child Safety Seats
9401200090	Seats
9401901000	Seat Parts
9401901010	Seat Parts of Leather
9401901020	Seat Parts of Textile
9401901080	Seat Parts
9401901085	Seat Parts
9403406000	Wooden Furniture for M.V.
9403506000	Wooden Furniture for M.V.
9403901000?	Furniture
9403901040	Parts of Furniture for M.V.
9403901050	Parts of Furniture for M.V.
9403901080	Parts of Furniture for M.V.
9403901085	Parts of Furniture for M.V.
9802004020	Combust. Engine Repair
9802005030	Value of Repairs on Engines

North American Industry Classification System (NAICS)

335911	Storage Battery Mfg
336211	Motor Vehicle Body Mfg
336311	Carburetor, Piston, Piston Ring, & Valve Mfg
336312	Gasoline Engine & Engine Parts Mfg
336321	Vehicular Lighting Equipment Mfg
336322	Other Motor Vehicle Electrical & Electronic Equipment Mfg
336330	Motor Vehicle Steering & Suspension Component
336340	Motor Vehicle Brake System Mfg
336350	Motor Vehicle Transmission & Power Train Parts Mfg
336360	Motor Vehicle Seating & Interior Trim Mfg
336370	Motor Vehicle Metal Stamping
336391	Motor Vehicle Air-Conditioning Mfg
336399	All Other Motor Vehicle Parts Mfg

Table 1

Statistics for All U.S. Manufacturing Establishments										
	2002	Chg*	2003	Chg*	2004	Chg*	2005	Chg*	2006	Chg*
All Employees	14,664,385	-7.5%	13,872,958	-5.4%	13,394,079	-3.5%	13,161,880	-1.7%	12,990,344	-1.3%
Employee Payroll (\$1,000)	575,165,127	-2.8%	567,602,408	-1.3%	569,703,575	0.4%	580,358,985	1.9%	592,342,060	2.1%
Production Workers	10,319,528	-8.0%	9,796,581	-5.1%	9,365,130	-4.4%	9,235,635	-1.4%	9,179,071	-0.6%
Production Worker Hours (1,000)	20,431,721	-8.7%	19,853,892	-2.8%	19,283,817	-2.9%	19,055,800	-1.2%	18,786,191	-1.4%
Production Worker Wages (\$1,000)	336,540,063	-1.7%	330,480,113	-1.8%	332,873,474	0.7%	337,980,878	1.5%	344,285,109	1.9%
Value of Industry Shipments (\$1,000)**	3,914,719,163	-1.4%	4,015,387,243	2.6%	4,308,970,620	7.3%	4,742,076,879	10.1%	5,019,963,474	5.9%

Source: *Annual Survey of Manufacturers, 2006*, U.S. Department of Commerce, Bureau of the Census. * = From Previous Year

** = Industry Shipments are products shipped by industry establishments.

Table 2

Statistics for U.S. Motor Vehicle Parts Manufacturing, NAICS 336211 and 3363										
	2002	Chg*	2003	Chg*	2004	Chg*	2005	Chg*	2006	Chg*
All Employees	763,105	-1.9%	712,864	-6.6%	688,627	-3.4%	661,268	-4.0%	628,430	-5.0%
Employee Payroll (\$1,000)	33,562,404	2.2%	33,189,602	-1.1%	33,192,112	0.0%	31,847,957	-4.0%	30,632,238	-3.8%
Production Workers	605,016	-1.7%	557,259	-7.9%	538,579	-3.4%	515,023	-4.4%	489,027	-5.0%
Production Worker Hours (1,000)	1,200,273	-2.3%	1,157,384	-3.6%	1,121,885	-3.1%	1,060,590	-5.5%	1,012,752	-4.5%
Production Worker Wages (\$1,000)	24,593,055	3.8%	24,022,454	-2.3%	24,011,281	0.0%	22,751,447	-5.2%	21,991,146	-3.3%
Value of Industry Shipments (\$1,000)**	212,537,954	11.4%	210,941,156	-0.8%	212,079,070	0.5%	216,902,592	2.3%	214,023,641	-1.3%
Value of Product Shipments (\$1,000)***	203,595,011	8.0%	202,394,646	-0.6%	204,813,969	1.2%	208,448,296	1.8%	206,000,093	-1.2%

Source: *Annual Survey of Manufacturers, 2006*, U.S. Department of Commerce, Bureau of the Census. * = From Previous Year

** = Industry Shipments are products shipped by industry establishments. *** = Product Shipments are all products regardless of industry establishment.

Table 3

U.S. Exports of Automotive Parts (\$millions)																
	2001	%Chg	2002	%Chg	2003	%Chg	2004	%Chg	2005	%Chg	2006	%Chg	2007	%Chg	2008	%Chg
Parts Exports	49,794	-7.3%	50,087	0.6%	48,501	-3.2%	52,628	8.5%	55,054	4.6%	58,864	6.9%	61,954	5.2%	57,476	-7.2%
All Export Commodities	731,026	-6.3%	693,257	-5.2%	723,743	4.4%	816,548	12.8%	904,380	10.8%	1,037,143	14.7%	1,162,708	12.1%	1,300,136	11.8%
% Share	6.8%	-1.0%	7.2%	6.1%	6.7%	-7.2%	6.4%	-3.8%	6.1%	-5.5%	5.7%	-6.8%	5.3%	-6.1%	4.4%	-17.0%

Source: U.S. Census Bureau

Table 4

Total World Original Equipment Parts Market												
	2001	% Change	2002	% Change	2003	% Change	2004	% Change	2005	% Change	2006	% Change
OE Parts Market (\$millions)	711,808	-6.3%	729,656	2.5%	802,850	10.0%	842,960	5.0%	781,650	-7.3%	727,123	-7.0%
Total OE Parts per Vehicle (\$)	12,992	-3.0%	13,029	0.3%	13,637	4.7%	13,586	-0.4%	12,304	-9.4%	10,991	-10.7%

Source: OESA Industry Review 2007/2008

Table 5

U.S. Original Equipment and Aftermarket Parts Market													
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	% Change
Size of U.S. OE and Aftermarket Parts Market (\$US Billions)	202.6	218.3	246.0	234.6	221.9	226.2	249.7	254.0	257.7	261.8	243.7	210.0	-13.8%
Size of U.S. OE Parts Market (\$US Billions)	147.7	162.9	190.0	178.1	164.8	168.5	191.1	193.1	194.4	196.0	175.3	139.4	-20.5%
Size of U.S. Aftermarket Parts Market (\$US Billions)	54.9	55.4	56.0	56.5	57.1	57.7	58.6	60.9	63.3	65.7	68.4	70.5	3.1%
U.S. Light Vehicle Production (Units)**	11,765,359	11,600,589	12,592,299	12,380,628	11,168,423	11,997,699	11,788,437	11,567,272	11,495,997	10,782,814	10,459,563	8,449,402	-19.2%
Content per Vehicle (\$US)	12,085	13,096	14,136	13,714	14,103	13,450	15,456	15,912	16,281	17,276	16,558.0	16,371.0	-1.1%
OE & Aftermarket Parts Sourced from U.S. owned Suppliers (\$US Billions)	138.7	144.9	150.8	135.4	126.7	120.8	128.4	119.0	108.3	105.8	89.8	73.0	-18.7%
% of Total Parts Market	68.5%	66.4%	61.3%	57.7%	57.1%	53.4%	51.4%	46.9%	42.0%	40.4%	36.8%	34.8%	
OE & Aftermarket Parts Sourced from U.S. transplant Suppliers (\$US Billions)	24.5	31.8	47.6	47.6	46.9	51.8	63.3	69.9	78.4	83.2	76.5	67.4	-11.9%
% of Total Parts Market	12.1%	14.6%	19.3%	20.3%	21.1%	22.9%	25.4%	27.5%	30.4%	31.8%	31.4%	32.1%	
Imports of Parts (\$US Billions)	39.4	41.6	47.7	51.7	48.3	53.7	58.0	65.0	71.1	72.8	77.4	69.6	-10.1%
% of Total Parts Market	19.4%	19.1%	19.4%	22.0%	21.8%	23.7%	23.2%	25.6%	27.6%	27.8%	31.8%	33.1%	

Source: DesRosiers

**Source: Wards Automotive

Table 6

U.S. Light Vehicle Aftermarket Dollar Volume (\$Millions)														
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008f	% Change	2009f
Survey Cost Method	152,981	152,620	154,922	153,123	156,019	160,154	164,806	169,876	177,069	185,224	188,638	193,793	2.7%	198,402
Joint Industry Channel Forecasting Model	144,073	148,228	153,289	159,873	161,456	163,038	162,078	167,643	174,282	179,207	186,686	189,954	1.8%	194,060

Source: AASA 2008-2009 Automotive Aftermarket Status Report published in August 2008 f=Forecast

Table 7

Top 10 Global OEM Suppliers														
	2001	Global OEM Sales	2002	Global OEM Sales	2003	Global OEM Sales	2004	Global OEM Sales	2005	Global OEM Sales	2006	Global OEM Sales	2007	Global OEM Sales
	Company	(\$Millions)	Company	(\$Millions)	Company	(\$Millions)	Company	(\$Millions)	Company	(\$Millions)	Company	(\$Millions)	Company	(\$Millions)
1	Delphi Corp.	24,188	Delphi Corp.	25,527	Delphi Corp.	26,200	Robert Bosch GmbH	26,800	Robert Bosch GmbH	28,418	Robert Bosch GmbH	29,687	Robert Bosch GmbH	36,160
2	Robert Bosch GmbH	18,000	Robert Bosch GmbH	19,086	Robert Bosch GmbH	23,200	Delphi Corp.	24,104	Delphi Corp.	26,900	Denso Corp.	28,530	Denso Corp.	35,700
3	Visteon Corp.	16,945	Visteon Corp.	16,900	Denso Corp.	16,856	Magna International Inc.	20,653	Denso Corp.	22,874	Magna International Inc.	23,883	Magna International Inc.	25,645
4	Denso Corp.	16,250	Denso Corp.	15,348	Visteon Corp.	16,513	Denso Corp.	19,927	Magna International Inc.	22,800	Delphi Corp.	22,737	Continental AG	25,000
5	Lear Corp.	13,625	Lear Corp.	14,400	Lear Corp.	15,747	Johnson Controls Inc.	19,300	Johnson Controls Inc.	19,400	Johnson Controls Inc.	19,500	Delphi Corp.	22,283
6	Johnson Controls Inc.	13,620	Johnson Controls Inc.	13,653	Magna Int'l Inc.	15,345	Visteon Corp.	17,700	Aisin Seiki Co.	17,909	Aisin Seiki Co.	19,367	Aisin Seiki Co.	21,705
7	Magna Int'l Inc.	10,500	Magna Int'l Inc.	12,188	Johnson Controls Inc.	15,192	Lear Corp.	17,000	Lear Corp.	17,089	Lear Corp.	17,839	Johnson Controls Inc.	18,500
8	TRW Automotive	9,600	Aisin Seiki Co. Ltd.	10,716	Aisin Seiki Co. Ltd.	13,534	Aisin Seiki Co. Ltd.	15,508	Visteon Corp.	15,876	Faurecia	15,000	Faurecia	17,400
9	Faurecia	8,600	Faurecia	10,000	Faurecia	12,700	Faurecia	13,327	Faurecia	14,000	Valeo SA	12,700	Lear Corp.	15,995
10	Aisin Seiki Co. Ltd.	8,460	TRW Automotive	9,900	TRW Automotive	11,300	Siemens VDO Automotive	11,600	TRW Automotive Inc.	11,726	TRW Automotive Inc.	12,162	ZF Friedrichshafen AG	15,100
Top 10 Tot		139,788		147,717		166,587		185,919		196,989		201,405		233,488
Top 100 Tot		347,900		353,385		401,545		501,807		475,490		533,000		611,923

Source: Automotive News. *calculated estimate. **American Axle and Manufacturing Holdings Inc.

Table 8

Top 10 OE Suppliers for North America														
	2001	NA Sales	2002	NA Sales	2003	NA Sales	2004	NA Sales	2005	NA Sales	2006	NA Sales	2007	NA Sales
	Company	(\$Millions)	Company	(\$Millions)	Company	(\$Millions)	Company	(\$Millions)	Company	(\$Millions)	Company	(\$Millions)	Company	(\$Millions)
1	Delphi Corp.	18,867	Delphi Corp.	19,656	Delphi Corp.	19,450	Delphi Corp.	17,596	Delphi Corp.	18,292	Delphi Corp.	13,870	Magna International Inc.	13,592
2	Visteon Corp.	11,736	Visteon Corp.	12,168	Visteon Corp.	11,080	Visteon Corp.	11,328	Magna International Inc.	12,768	Magna International Inc.	12,897	Delphi Corp.	11,810
3	Lear Corp.	8,858	Lear Corp.	9,504	Lear Corp.	9,448	Magna Int'l Inc.	10,326	Visteon Corp.	9,684	Lear Corp.	9,811	Johnson Controls Inc.	7,585
4	Johnson Controls Inc.	7,353	Johnson Controls Inc.	7,687	Magna Int'l Inc.	8,736	Johnson Controls Inc.	9,650	Lear Corp.	9,228	Johnson Controls Inc.	8,580	Lear Corp.	7,198
5	Magna Int'l Inc.	7,140	Magna Int'l Inc.	7,650	Johnson Controls Inc.	8,021	Lear Corp.	9,350	Johnson Controls Inc.	8,924	Dana Corp.	5,187	Robert Bosch Corp.	6,460
6	Dana Corp.	5,250	Dana Corp.	5,340	Dana Corp.	5,543	Dana Corp.	5,208	Dana Corp.	5,425	Denso Int'l America Inc.	4,558	Denso Int'l America Inc.	5,805
7	TRW Automotive	4,992	TRW Automotive	4,950	Robert Bosch Corp.	5,336	Robert Bosch Corp.	4,556	Robert Bosch Corp.	4,831	Robert Bosch Corp.	4,453	Continental AG	5,250
8	Robert Bosch Corp.	4,120	Robert Bosch Corp.	4,390	TRW Automotive	4,633	Denso Int'l America Inc.	4,384	Denso Int'l America Inc.	4,803	TRW Automotive Inc.	4,135	Dana Corp.	4,797
9	Denso Int'l America Inc.	3,689	Denso Int'l America Inc.	3,769	ThyssenKrupp***	4,401	TRW Automotive	4,235	ArvinMeritor	4,499	ArvinMeritor	4,598	TRW Automotive Inc.	4,067
10	ArvinMeritor Inc.	2,045	American Axle & Manu.**	3,341	Denso Int'l America Inc.	3,894	ThyssenKrupp***	4,021	TRW Automotive Inc.	4,456	Visteon Corp.	4,068	ThyssenKrupp USA Inc.	3,876
Top 10 Tot		74,050		78,455		80,542		80,655		82,910		72,157		70,440
Top 150 Tot		166,400		182,100		186,714		197,577		203,106		195,987		198,668

Source: Automotive News. *calculated estimate. **American Axle and Manufacturing Holdings Inc. ***ThyssenKrupp Automotive AG

Table 9

World Shipments of the 20 Largest Exporters of Auto Parts (\$US Millions)										
Reporting Country	\$US Millions					% Share				
	2003	2004	2005	2006	2007	2003	2004	2005	2006	2007
Reporting Total	531,721	648,190	735,411	833,645	734,137	100	100	100	100	100
Germany	76,796	96,535	102,737	110,801	110,399	14.44%	14.89%	13.97%	13.29%	15.04%
USA	63,922	70,561	74,218	80,173	74,809	12.02%	10.89%	10.09%	9.62%	10.19%
Japan	48,461	56,127	58,635	59,117	60,760	9.11%	8.66%	7.97%	7.09%	8.28%
France	35,193	41,168	40,901	46,149	43,903	6.62%	6.35%	5.56%	5.54%	5.98%
China	20,112	34,390	48,680	68,871	43,202	3.78%	5.31%	6.62%	8.26%	5.88%
Mexico	26,831	31,415	35,014	40,117	38,131	5.05%	4.85%	4.76%	4.81%	5.19%
Italy	22,873	28,502	30,426	32,946	34,880	4.30%	4.40%	4.14%	3.95%	4.75%
Canada	25,144	27,676	30,155	30,480	27,644	4.73%	4.27%	4.10%	3.66%	3.77%
Spain	16,742	19,518	20,273	21,915	22,892	3.15%	3.01%	2.76%	2.63%	3.12%
United Kingdom	24,491	23,881	36,007	62,123	20,975	4.61%	3.68%	4.90%	7.45%	2.86%
Poland	8,578	11,631	13,568	16,728	20,498	1.61%	1.79%	1.84%	2.01%	2.79%
South Korea	22,144	30,349	34,306	34,654	20,121	4.16%	4.68%	4.66%	4.16%	2.74%
Czech Republic	9,599	13,046	14,510	16,668	19,656	1.81%	2.01%	1.97%	2.00%	2.68%
Belgium	11,142	13,641	14,179	14,992	17,379	2.10%	2.10%	1.93%	1.80%	2.37%
Hungary	6,328	13,733	16,551	20,370	16,824	1.19%	2.12%	2.25%	2.44%	2.29%
Austria	12,502	12,925	13,764	14,203	15,409	2.35%	1.99%	1.87%	1.70%	2.10%
Sweden	11,051	12,978	13,588	13,995	12,095	2.08%	2.00%	1.85%	1.68%	1.65%
Netherlands	7,753	10,172	13,030	12,538	11,939	1.46%	1.57%	1.77%	1.50%	1.63%
Thailand	4,267	5,736	7,454	9,007	11,769	0.80%	0.88%	1.01%	1.08%	1.60%
Brazil	6,904	7,993	11,051	12,763	10,373	1.30%	1.23%	1.50%	1.53%	1.41%

Source: Global Trade Atlas, using OTM HTS-6 product list. Sorted by 2007 ranking.

Table 10

Employment in the U.S. Automotive Parts Industry, Thousands															
NAICS	Description	2002	% Change	2003	% Change	2004	% Change	2005	% Change	2006	% Change	2007	% Change	2008	% Change
336211	Motor Vehicle Bodies	68.3	-9.9%	61.9	-9.4%	64.5	4.2%	65.9	2.2%	67.9	3.0%	64.8	-4.6%	60.2	-7.1%
3363	Motor Vehicle Parts	733.6	-5.3%	707.8	-3.5%	692.1	-2.2%	678.1	-2.0%	654.7	-3.5%	607.9	-7.1%	544.5	-10.4%
33631	MV Gasoline Engine and Parts	93.0	-3.8%	85.5	-8.1%	80.2	-6.2%	76.3	-4.9%	73.2	-4.1%	68.0	-7.1%	62.2	-8.5%
336311	Carburators, Pistons, Rings, and Valves	19.9	-6.6%	17.7	-11.1%	16.1	-9.0%	14.9	-7.5%	13.2	-11.4%				
336312	Gasoline Engine and Engine Parts	73.1	-3.2%	67.8	-7.3%	64.1	-5.5%	61.5	-4.1%	58.2	-5.4%				
33632	MV Electric Equipment	110.1	-8.3%	104.0	-5.5%	100.5	-3.4%	95.8	-4.7%	90.8	-5.2%	79.9	-12.0%	70.3	-12.0%
336321	Vehicular Lighting Equipment	17.2	-3.4%	17.2	0.0%	16.6	-3.5%	16.8	1.2%	16.2	-3.6%	13.5	-16.7%	12.4	-8.1%
336322	Other MV Electric Equipment	92.9	-9.2%	86.9	-6.5%	83.8	-3.6%	79.0	-5.7%	74.6	-5.6%	66.3	-11.1%	57.9	-12.7%
33633	MV Steering and Suspension Parts	47.4	-8.0%	44.6	-5.9%	43.4	-2.7%	43.5	0.2%	42.4	-2.5%	38.0	-10.4%	34.1	-10.3%
33634	MV Brake Systems	45.3	-2.8%	45.9	1.3%	45.1	-1.7%	42.9	-4.9%	40.3	-6.1%	36.1	-10.4%	31.2	-13.6%
33635	MV Power Train Components	91.7	-4.2%	91.2	-0.5%	85.7	-6.0%	85.0	-0.8%	81.2	-4.5%	76.3	-6.0%	70.4	-7.7%
33636	MV Seating and Interior Trim	62.0	-4.5%	62.2	0.3%	66.1	6.3%	64.3	-2.7%	62.7	-2.5%	61.4	-2.1%	55.8	-9.1%
33637	MV Metal Stamping	105.5	-5.5%	101.9	-3.4%	99.0	-2.8%	98.6	-0.4%	95.6	-3.0%	89.8	-6.1%	77.7	-13.5%
33639	Other MV Parts	178.5	-4.8%	172.4	-3.4%	172.1	-0.2%	171.7	-0.2%	168.5	-1.9%	158.4	-6.0%	142.8	-9.8%
Total	336211+3363	801.9	-5.7%	769.7	-4.0%	756.6	-1.7%	744.0	-1.7%	722.6	-2.9%	672.7	-6.9%	604.7	-10.1%

Source: Bureau of Labor Statistics

Table 11

Employment in the U.S. Automotive Parts Industry												
NAICS	2001	% Change	2002	% Change	2003	% Change	2004	% Change	2005	% Change	2006	% Change
Bodies and Body Parts												
336211	41,771	-4.7%	41,450	-0.8%	40,874	-1.4%	43,779	7.1%	48,396	10.5%	50,702	4.8%
336360	52,670	-9.2%	53,957	2.4%	53,120	-1.6%	50,029	-5.8%	47,106	-5.8%	47,321	0.5%
336370	112,488	-3.9%	126,137	12.1%	109,023	-13.6%	107,372	-1.5%	99,365	-7.5%	95,398	-4.0%
Total	206,929	-5.5%	221,544	7.1%	203,017	-8.4%	201,180	-0.9%	194,867	-3.1%	193,421	-0.7%
Chassis and Drivetrain Parts												
336330	47,015	-7.8%	41,783	-11.1%	39,696	-5.0%	38,223	-3.7%	37,399	-2.2%	35,341	-5.5%
336340	38,736	-12.6%	42,356	9.3%	41,097	-3.0%	39,738	-3.3%	37,198	-6.4%	32,923	-11.5%
336350	98,753	-12.0%	101,828	3.1%	90,998	-10.6%	91,232	0.3%	80,494	-11.8%	76,874	-4.5%
Total	184,504	-11.1%	185,967	0.8%	171,791	-7.6%	169,193	-1.5%	155,091	-8.3%	145,138	-6.4%
Electrical and Electronic Parts												
336321	14,665	-2.6%										
336322	94,812	-7.6%										
33632	109,477	-6.9%	97,111	-11.3%	90,843	-6.5%	77,532	-14.7%	80,892	4.3%	72,620	-10.2%
336391	19,594	-3.9%	18,870	-3.7%	19,229	1.9%	19,423	1.0%	17,011	-12.4%	15,825	-7.0%
Total	129,071	-6.5%	115,981	-10.1%	110,072	-5.1%	96,955	-11.9%	97,903	1.0%	88,445	-9.7%
Engines and Engine Parts												
336311	16,656	-6.2%										
336312	71,979	-8.4%										
33631	88,635	-8.0%	94,092	6.2%	87,729	-6.8%	81,341	-7.3%	73,016	-10.2%	69,087	-5.4%
Total	88,635	-8.0%	94,092	6.2%	87,729	-6.8%	81,341	-7.3%	73,016	-10.2%	69,087	-5.4%
Miscellaneous Automotive Parts												
336399	168,635	-9.2%	145,521	-13.7%	140,255	-3.6%	139,957	-0.2%	140,392	0.3%	132,339	-5.7%
Total	168,635	-9.2%	145,521	-13.7%	140,255	-3.6%	139,957	-0.2%	140,392	0.3%	132,339	-5.7%
Total	777,774	-8.1%	763,105	-1.9%	712,864	-6.6%	688,626	-3.4%	661,269	-4.0%	628,430	-5.0%

Source: U.S. Department of Commerce, *Annual Survey of Manufacturers*. <http://www.census.gov/mcd/asmhome.html>

Table 12

Acquisitions of U.S. Automotive Parts Companies (SIC 3714)									
	1997	1998	1999	2000	2001	2002	2003	2004	2005
Number of all Deals*	47	59	52	33	38	30	37	26	32
Value of all Deals* (\$Millions)	3,766.4	11,570.7	18,620.0	6,395.3	1,117.5	12129.5	7516.2	2102.7	789.5

Source: Thomson Financial IBCM in AAIA *Aftermarket Factbook 2006/2007*.

*Includes deals with and without reported values.

U.S. AUTOMOTIVE PARTS TRADE BALANCE, 2000 - 2008
Table 13

In millions of dollars

Region/Country	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	%Chg
WORLD	-11,719	-13,239	-12,932	-19,002	-25,968	-30,816	-37,100	-36,315	-38,277	-33,142	-13.4%
ASIA and the PACIFIC											
Select ASEAN											
Philippines	-268	-355	-331	-290	-298	-328	-332	-401	-471	-506	7.5%
Singapore	-28	-21	-4	8	42	43	53	142	164	295	79.6%
Thailand	-294	-272	-326	-460	-433	-485	-563	-814	-1,030	-1,077	4.6%
Total ASEAN (1)	-1,043	-1,133	-1,135	-1,276	-1,201	-1,367	-1,428	-1,766	-2,253	-2,200	-2.4%
Chinese Economic Area											
China	-1,033	-1,410	-1,501	-1,898	-2,278	-3,249	-4,784	-6,112	-7,498	-8,150	8.7%
Hong Kong	53	35	41	23	-5	0	-20	-18	22	50	123.8%
Taiwan	-978	-954	-1,010	-1,217	-1,233	-1,493	-1,634	-1,677	-1,884	-1,887	0.2%
Total Chinese Economic Area	-1,958	-2,330	-2,470	-3,092	-3,516	-4,742	-6,439	-7,808	-9,360	-9,987	6.7%
Select Other Asia and the Pacific											
Australia	316	449	391	416	451	548	551	683	725	773	6.6%
India	-115	-149	-142	-163	-192	-268	-390	-481	-533	-542	1.7%
Japan	-10,883	-12,318	-11,141	-11,213	-11,695	-13,961	-14,999	-13,629	-13,017	-11,940	-8.3%
Korea	-322	-628	-753	-1,051	-1,238	-1,400	-2,148	-3,166	-3,371	-3,474	3.1%
EUROPE											
Select European Union											
Austria	953	826	916	722	275	247	441	530	81	-71	-187.8%
Belgium	258	288	266	304	283	252	163	226	242	246	1.6%
France	-1,022	-767	-759	-843	-856	-879	-815	-663	-512	-442	-13.7%
Germany	-2,502	-2,900	-2,630	-3,395	-4,407	-4,891	-5,330	-5,541	-6,766	-5,715	-15.5%
Italy	-336	-338	-367	-530	-611	-741	-828	-704	-805	-804	-0.1%
Netherlands	141	262	260	246	227	228	277	262	238	146	-38.7%
Spain	-258	-180	-176	-246	-286	-331	-264	-268	-211	-141	-33.4%
Sweden	-88	-98	-61	-58	-21	-105	-248	-353	-34	-35	3.7%
United Kingdom	72	51	260	-34	-6	-51	-282	-175	5	140	2479.3%
Total European Union (2)	-2,843	-2,868	-2,327	-3,932	-5,513	-6,394	-7,028	-6,838	-7,840	-6,684	-14.7%
Select Other Europe											
Czech Republic	-33	-46	-78	-114	-141	-149	-218	-218	-308	-356	15.4%
Hungary	-36	-64	-80	-128	-249	-164	-160	-152	-127	-131	3.5%
Poland	4	-29	-29	-42	-78	-82	-64	-62	-78	-38	-51.6%
Russia	12	11	25	15	22	26	43	113	115	227	97.8%
Total Other Europe	-53	-128	-161	-269	-446	-369	-400	-318	-398	-297	-25.3%
WESTERN HEMISPHERE											
Select Andean Community											
Colombia	63	73	66	56	52	89	89	95	104	144	39.0%
Ecuador	17	28	67	46	49	54	77	49	48	68	40.7%
Peru	33	19	23	19	29	26	48	49	79	101	28.7%
Venezuela	183	302	436	138	-23	202	412	567	660	847	28.3%
Total Andean Community (3)	300	426	598	262	109	375	629	767	899	1,175	30.7%
Select Central America											
Honduras	-5	-34	-20	-41	-64	-87	-153	-222	-220	-214	-2.4%
Total Central America (4)	120	69	73	46	-38	-144	-264	-305	-306	-319	4.4%
Select MERCOSUR											
Argentina	57	49	-120	-186	-92	-46	-14	2	40	102	153.8%
Brazil	-905	-847	-510	-821	-995	-1,145	-1,471	-1,622	-1,045	-893	-14.5%
Chile	58	50	46	69	57	59	87	147	193	286	47.8%
Total MERCOSUR (5)	-763	-737	-578	-939	-1,023	-1,126	-1,388	-1,466	-795	-463	-41.7%
NAFTA											
Canada	12,709	11,967	10,585	10,751	8,906	9,751	9,659	11,475	12,125	11,479	-5.3%
Mexico	-7,496	-6,104	-6,170	-8,744	-10,696	-11,800	-13,503	-13,572	-14,520	-11,391	-21.5%
Total NAFTA	5,213	5,864	4,415	2,007	-1,790	-2,049	-3,844	-2,097	-2,394	88	-103.7%
ALL OTHERS	311	244	298	202	124	82	47	110	365	730	100.0%

 Source: U.S. Census Bureau
 Prepared by: Office of Transportation and Machinery, U.S. Department of Commerce, 202-482-1418, 11 February 2009

Notes:

- *Foreign Trade Statistics, FT900: U.S. International Trade in Goods and Services, Exhibit 18: Motor Vehicles and Parts, U.S. Census Bureau
- 1) The ASEAN region comprises Brunei, Burma (Myanmar), Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand, and Vietnam
- 2) The selected European Union countries are Belgium, Denmark, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, the United Kingdom, Austria, Finland, and Sweden
- 3) The Andean Community comprises Bolivia, Colombia, Ecuador, Peru, and Venezuela
- 4) Central America comprises Costa Rica, El Salvador, Guatemala, Honduras, and Panama
- 5) The MERCOSUR countries are Argentina, Brazil, Chile, Paraguay, and Uruguay

U.S. AUTOMOTIVE PARTS EXPORTS, 2000 - 2008
Table 14

In millions of dollars

Region/Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	% Chg
WORLD	53,720	49,794	50,087	48,501	52,628	55,054	58,864	61,954	57,476	-7.2%
ASIA and the PACIFIC										
Select ASEAN										
Philippines	53	29	59	88	71	110	116	117	62	-46.9%
Singapore	135	143	141	142	149	157	239	256	355	38.8%
Thailand	143	85	86	96	96	97	79	110	116	5.1%
Total ASEAN (1)	402	309	343	385	381	433	499	568	611	7.6%
Chinese Economic Area										
China	225	258	344	510	636	623	815	1,130	893	-21.0%
Hong Kong	91	82	75	75	88	82	103	100	117	16.9%
Taiwan	79	75	77	133	111	96	124	119	78	-34.2%
Total Chinese Economic Area	395	415	495	718	835	802	1,042	1,350	1,088	-19.4%
Select Other Asia and the Pacific										
Australia	700	577	615	656	768	779	875	926	923	-0.4%
India	41	38	39	42	65	73	96	131	196	50.0%
Japan	2,217	2,008	2,285	2,051	1,534	1,449	1,748	1,740	1,546	-11.2%
Korea	454	369	332	309	466	562	570	593	416	-29.8%
EUROPE										
Select European Union										
Austria	1,056	1,117	944	556	487	814	888	623	333	-46.5%
Belgium	385	348	393	383	347	297	395	411	407	-1.0%
France	366	407	355	446	599	633	657	750	718	-4.4%
Germany	974	1,116	941	1,019	1,256	1,379	1,591	1,586	1,711	7.9%
Italy	135	158	122	140	132	130	139	157	169	7.9%
Netherlands	322	326	317	297	309	364	356	349	277	-20.8%
Spain	121	93	102	134	134	272	278	266	219	-17.9%
Sweden	143	127	154	208	241	198	198	223	225	0.9%
United Kingdom	1,241	1,236	1,072	1,061	994	844	872	999	1,024	2.5%
Total European Union (2)	4,848	5,048	4,492	4,345	4,615	5,071	5,501	5,517	5,324	-3.5%
Select Other Europe										
Czech Republic	14	8	11	9	8	18	21	25	31	22.8%
Hungary	33	20	52	67	55	53	73	75	83	10.2%
Poland	13	14	15	17	20	33	47	61	86	41.8%
Russia	15	27	17	25	31	46	116	125	245	95.1%
Total Other Europe	75	69	95	118	114	150	258	287	445	55.2%
WESTERN HEMISPHERE										
Select Andean Community										
Colombia	81	76	69	68	103	108	121	130	169	29.8%
Ecuador	29	67	47	50	55	78	49	49	69	40.9%
Peru	24	33	31	37	38	57	62	88	111	26.1%
Venezuela**	537	595	310	168	392	622	763	746	882	18.2%
Total Andean Community (3)	675	778	461	326	592	869	1,003	1,023	1,247	21.9%
Select Central America										
Honduras	37	32	34	34	86	117	164	175	124	-29.4%
Total Central America (4)	160	142	151	143	202	246	328	399	346	-13.2%
Select MERCOSUR										
Argentina	225	112	37	93	132	154	189	228	248	9.0%
Brazil**	401	444	454	480	565	551	601	722	842	16.6%
Chile	92	79	102	103	123	154	207	259	334	29.3%
Total MERCOSUR (5)	736	647	598	685	830	872	1,015	1,234	1,470	19.1%
NAFTA										
Canada	29,601	26,372	27,968	27,474	29,914	31,239	31,900	32,665	28,003	-14.3%
Mexico*	12,559	12,010	11,326	10,343	11,304	11,407	12,796	13,896	13,890	0.0%
Total NAFTA	42,161	38,381	39,293	37,817	41,219	42,646	44,695	46,561	41,893	-10.0%
ALL OTHERS	858	1,012	887	907	1,009	1,103	1,234	1,627	1,972	21.2%

Exports, f.a.s.

Sources: U.S. Census Bureau

Prepared by: Office of Transportation and Machinery, U.S. Department of Commerce, 202-482-1418, 11 February 2009

Notes:

*Foreign Trade Statistics, FT900: U.S. International Trade in Goods and Services, Exhibit 18: Motor Vehicles and Parts, U.S. Census Bureau

**1998 and 1999 data include transshipments to Brazil and Venezuela through St. Vincent and Grenadines

1) The ASEAN region comprises Brunei, Burma (Myanmar), Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand, and Vietnam

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3) The Andean Community comprises Bolivia, Colombia, Ecuador, Peru, and Venezuela

4) Central America comprises Costa Rica, El Salvador, Guatemala, Honduras, and Panama

5) The MERCOSUR countries are Argentina, Brazil, Chile, Paraguay, and Uruguay

*1995 data revised to reflect \$698 million in exports underreported by Census

U.S. AUTOMOTIVE PARTS IMPORTS, 2000 - 2008
Table 15

In millions of dollars

Region/Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	%Chg
WORLD	66,959	62,726	69,089	74,469	83,444	92,154	95,179	100,231	90,618	-9.6%
ASIA and the PACIFIC										
Select ASEAN										
Philippines	408	360	349	386	399	441	517	588	568	-3.3%
Singapore	156	147	134	100	106	104	97	92	60	-34.4%
Thailand	415	411	546	529	582	660	892	1,140	1,192	4.6%
Total ASEAN (1)	1,535	1,444	1,619	1,586	1,747	1,860	2,264	2,821	2,811	-0.4%
Chinese Economic Area										
China	1,635	1,758	2,242	2,788	3,884	5,408	6,928	8,628	9,042	4.8%
Hong Kong	57	41	51	80	89	102	121	78	67	-13.8%
Taiwan	1,033	1,085	1,294	1,366	1,604	1,731	1,801	2,003	1,966	-1.9%
Total Chinese Economic Area	2,725	2,885	3,587	4,234	5,577	7,240	8,850	10,709	11,075	3.4%
Select Other Asia and the Pacific										
Australia	251	186	198	205	220	227	192	201	150	-25.4%
India	190	179	202	234	333	463	578	663	738	11.2%
Japan	14,535	13,150	13,498	13,745	15,494	16,448	15,377	14,757	13,486	-8.6%
Korea	1,082	1,122	1,383	1,546	1,866	2,709	3,736	3,965	3,891	-1.9%
EUROPE										
Select European Union										
Austria	230	201	222	281	240	373	358	542	404	-25.4%
Belgium	97	82	89	100	95	134	168	168	160	-4.8%
France	1,133	1,165	1,197	1,302	1,478	1,449	1,320	1,263	1,160	-8.1%
Germany	3,874	3,746	4,336	5,426	6,147	6,709	7,132	8,352	7,426	-11.1%
Italy	474	525	652	751	874	958	844	961	973	1.2%
Netherlands	60	66	71	70	81	86	95	111	131	17.7%
Spain	301	269	349	420	464	537	546	478	359	-24.8%
Sweden	241	188	212	229	345	446	551	256	259	1.2%
United Kingdom	1,190	976	1,106	1,068	1,045	1,126	1,047	994	884	-11.0%
Total European Union (2)	7,716	7,375	8,425	9,858	11,009	12,099	12,339	13,357	12,008	-10.1%
Select Other Europe										
Czech Republic	60	86	125	150	156	236	238	333	387	16.0%
Hungary	97	100	180	315	219	213	225	202	214	6.0%
Poland	42	43	57	95	103	97	109	138	124	-10.6%
Russia	4	2	2	3	5	4	4	11	18	66.1%
Total Other Europe	203	230	364	564	483	550	576	684	742	8.4%
WESTERN HEMISPHERE										
Select Andean Community										
Colombia	8	10	13	16	14	19	26	27	25	-6.3%
Ecuador	0	0	1	1	1	1	0	1	1	55.9%
Peru	4	10	12	8	12	9	13	9	10	4.3%
Venezuela	235	159	172	191	190	211	196	86	35	-59.1%
Total Andean Community (3)	249	179	199	216	217	240	236	124	72	-42.1%
Select Central America										
Honduras	70	52	75	99	173	270	385	395	338	-14.4%
Total Central America (4)	91	69	105	181	345	510	633	704	665	-5.6%
Select MERCOSUR										
Argentina	177	233	223	185	178	168	187	187	146	-22.1%
Brazil	1,248	955	1,275	1,474	1,711	2,022	2,224	1,767	1,735	-1.8%
Chile	42	33	33	46	64	66	60	65	49	-25.5%
Total MERCOSUR (5)	1,473	1,225	1,538	1,708	1,956	2,261	2,481	2,029	1,933	-4.7%
NAFTA										
Canada	17,634	15,787	17,217	18,569	20,164	21,581	20,424	20,539	16,524	-19.5%
Mexico	18,663	18,180	20,069	21,039	23,104	24,910	26,368	28,416	25,281	-11.0%
Total NAFTA	36,297	33,967	37,286	39,607	43,268	46,490	46,792	48,955	41,805	-14.6%
ALL OTHERS	613	714	686	783	927	1,056	1,124	1,262	1,242	-1.6%

Imports, customs value

Source: U.S. Census Bureau

Prepared by: Office of Transportation and Machinery, U.S. Department of Commerce, 202-482-1418, 11 February 2009

Notes:

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1) The ASEAN region comprises Brunei, Burma (Myanmar), Cambodia, Indonesia, Laos, Malaysia, Philippines, Singapore, Thailand, and Vietnam

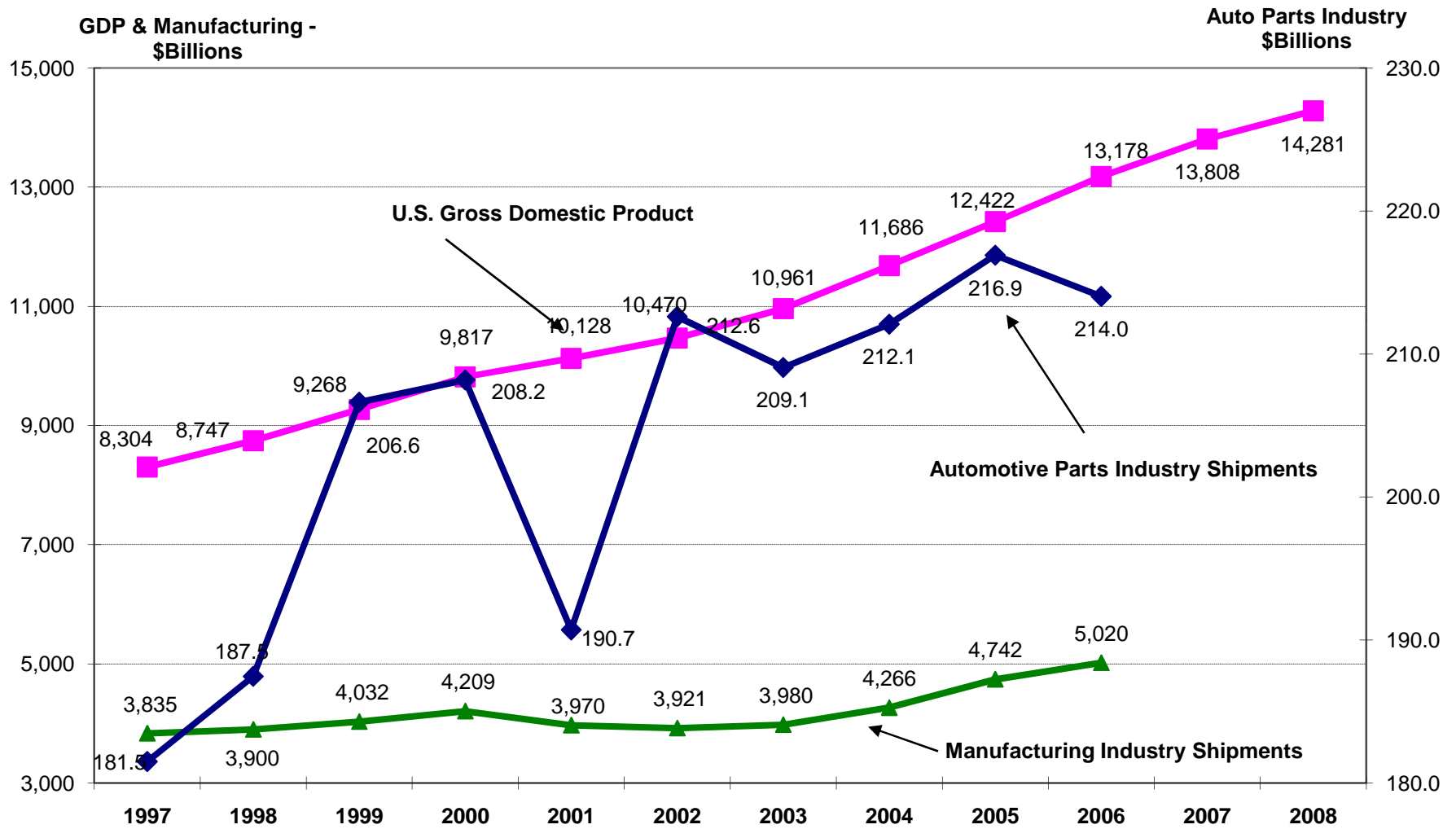
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Chart 1
 Gross Domestic Product, Manufacturing Industry Shipments, and Automotive
 Parts Industry Shipments, 1997-2008.



Source: U.S. Department of Commerce.

Chart 2

Aftermarket sales track the economy. The aftermarket accounted for 1.7% of the 1997 GDP and an estimated 1.3% in 2008.

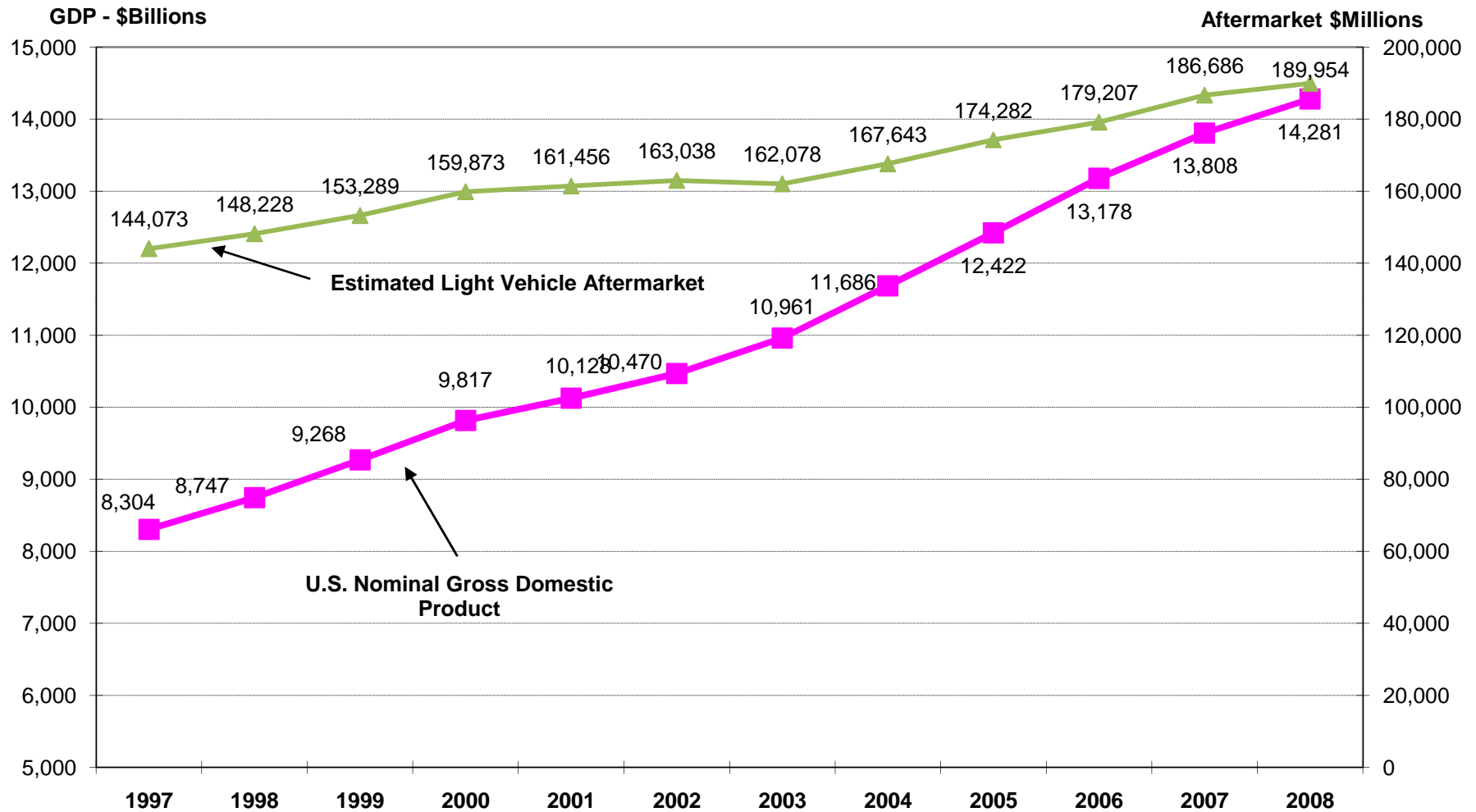
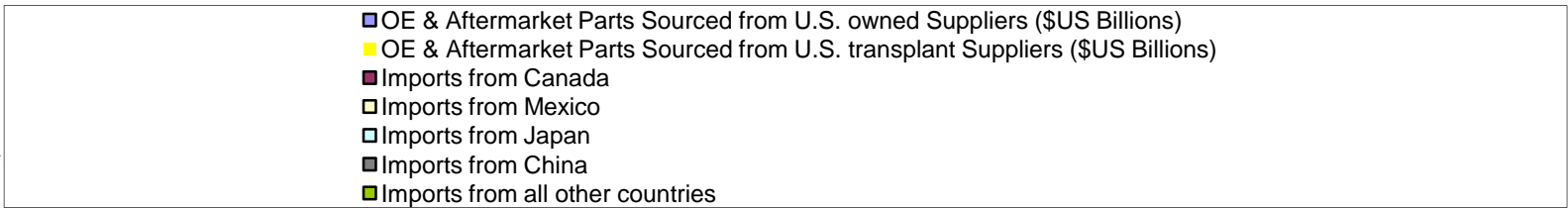
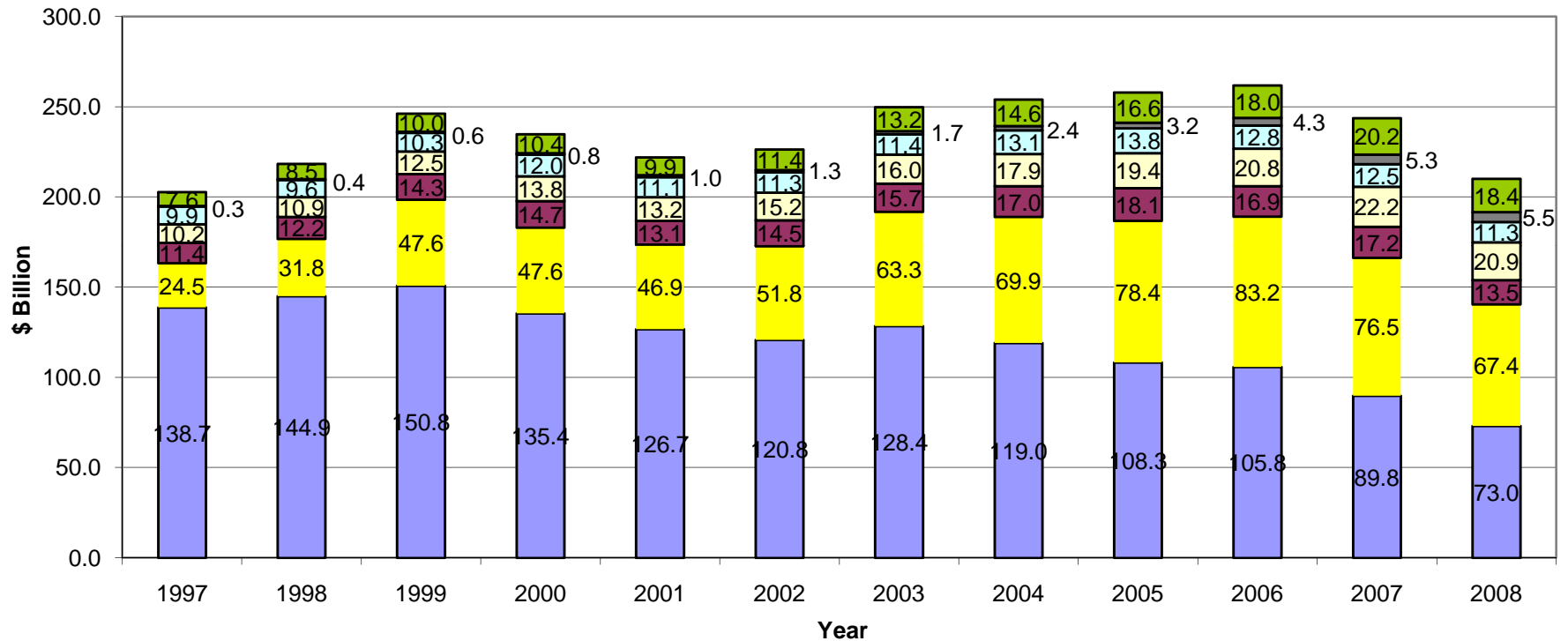


Chart 3
U.S. OE and Aftermarket Parts Market, 1997-2008
The U.S. Supplier Share has been declining since 2003.



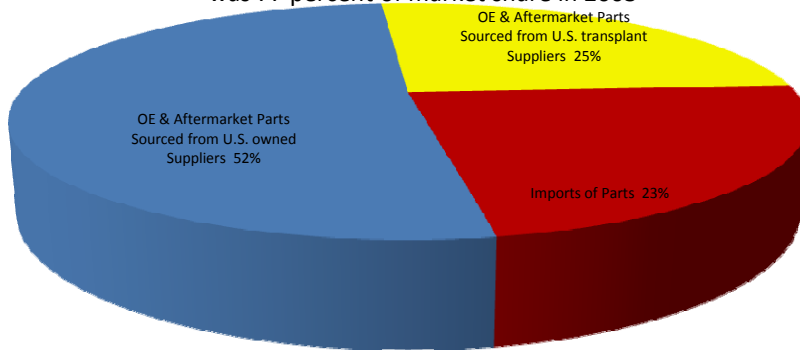
Source: DesRosiers

Chart 4

U. S. OE and Aftermarket Parts, 2003

\$249.7 Billion

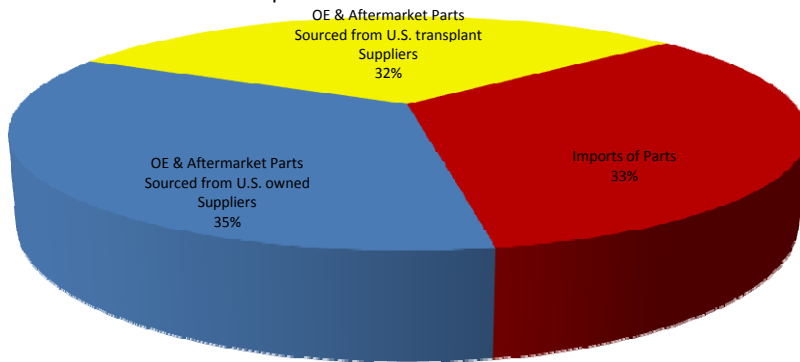
OE and Aftermarket parts sourced from suppliers in the United States was 77 percent of market share in 2003



U.S. OE and Aftermarket Parts, 2008

\$210 Billion

OE and Aftermarket parts sourced from suppliers in the United States was 67 percent of market share in 2008



Source: DesRoisers.

Chart 5

Employment in the U.S. auto parts industry has dropped to 4.5 percent of total manufacturing employment in 2008 from 5.3 percent in 2000.

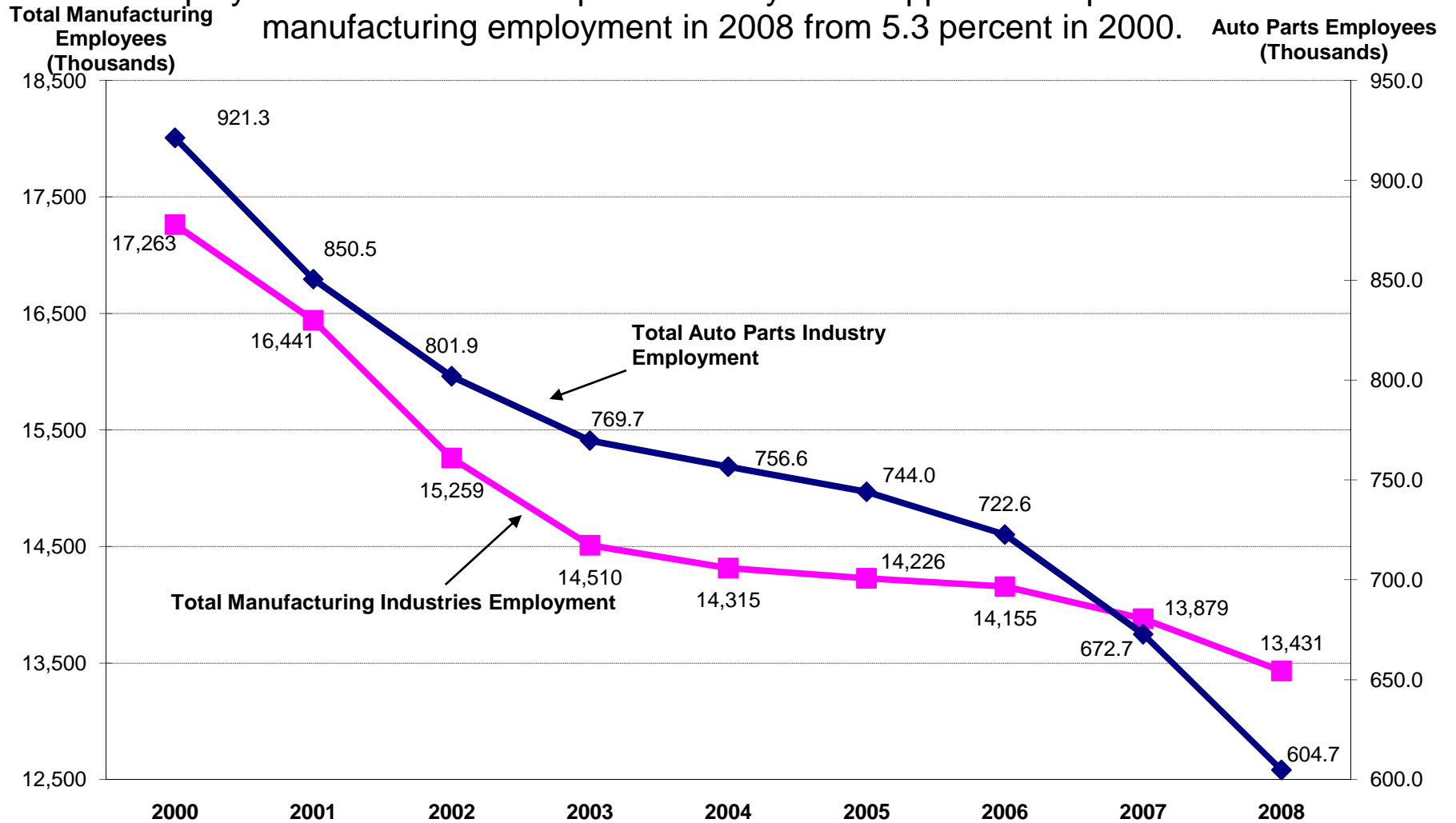
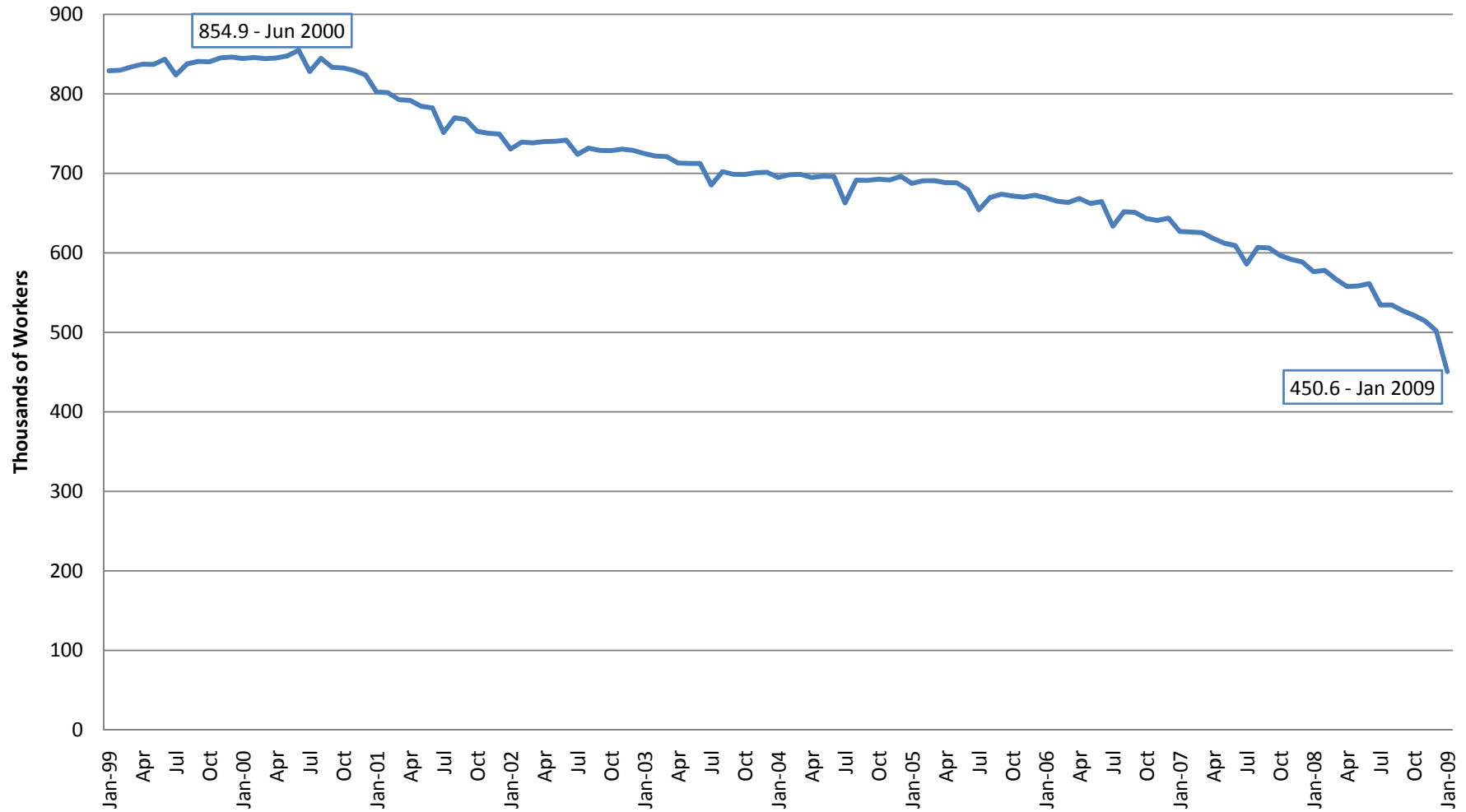


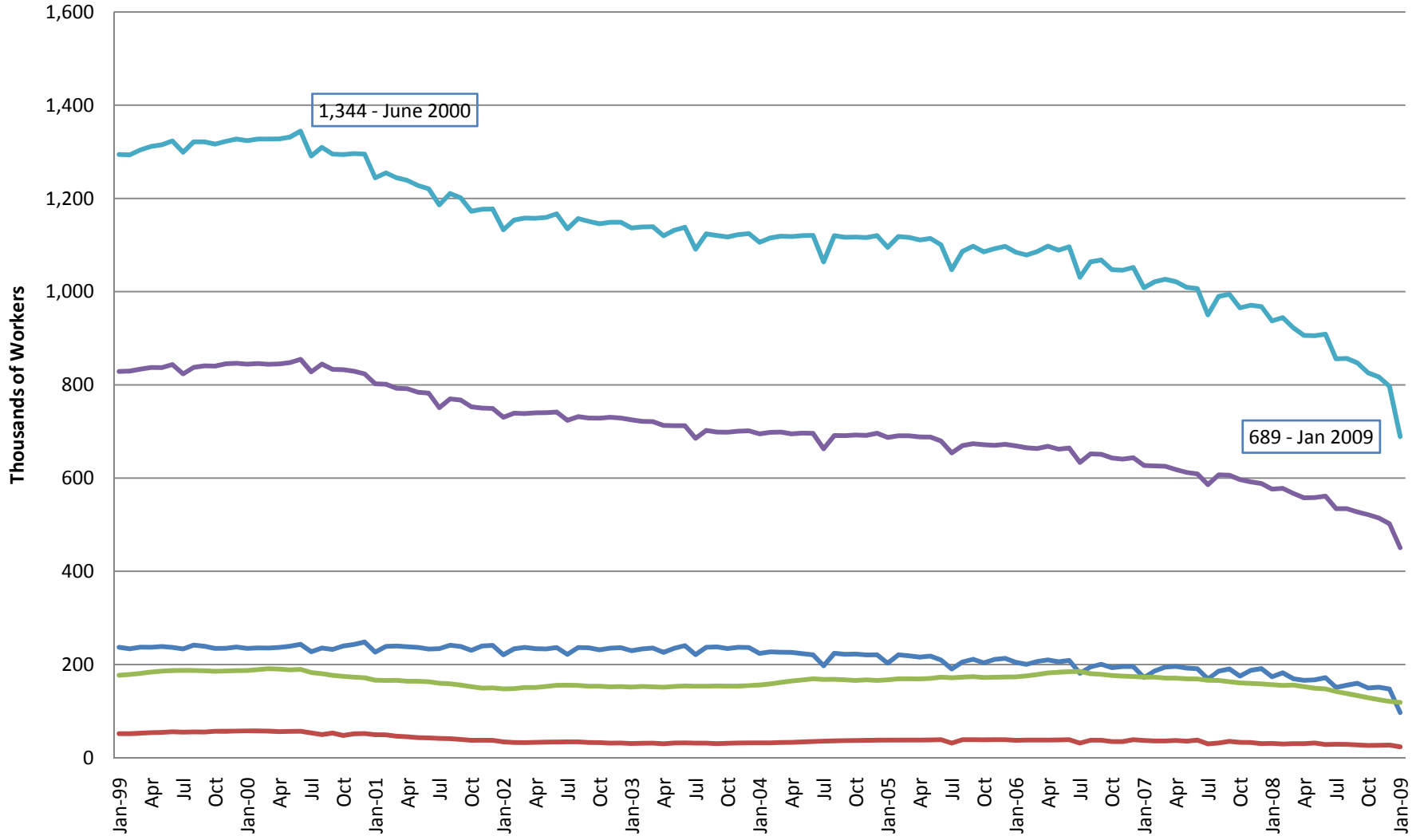
Chart 6

Motor Vehicle Parts Manufacturing Employment, Jan. 1999- Jan. 2009 monthly



Source: Bureau of Labor Statistics, U.S. Department of Labor

Chart 7
Total Automotive Employment, Jan. 1999- Jan. 2009 Monthly



— Automobiles and Light Trucks
 — Heavy Duty Trucks
 — Motor vehicle bodies and trailers
— Motor vehicle parts
 — Total Automotive Employment

Source: Bureau of Labor Statistics, U.S. Dept. of Labor

Chart 8

U.S. auto parts exports fell 7.2% in 2008 and imports fell 9.6%. The result was a decline of the parts trade deficit with the world by 13.4 percent.

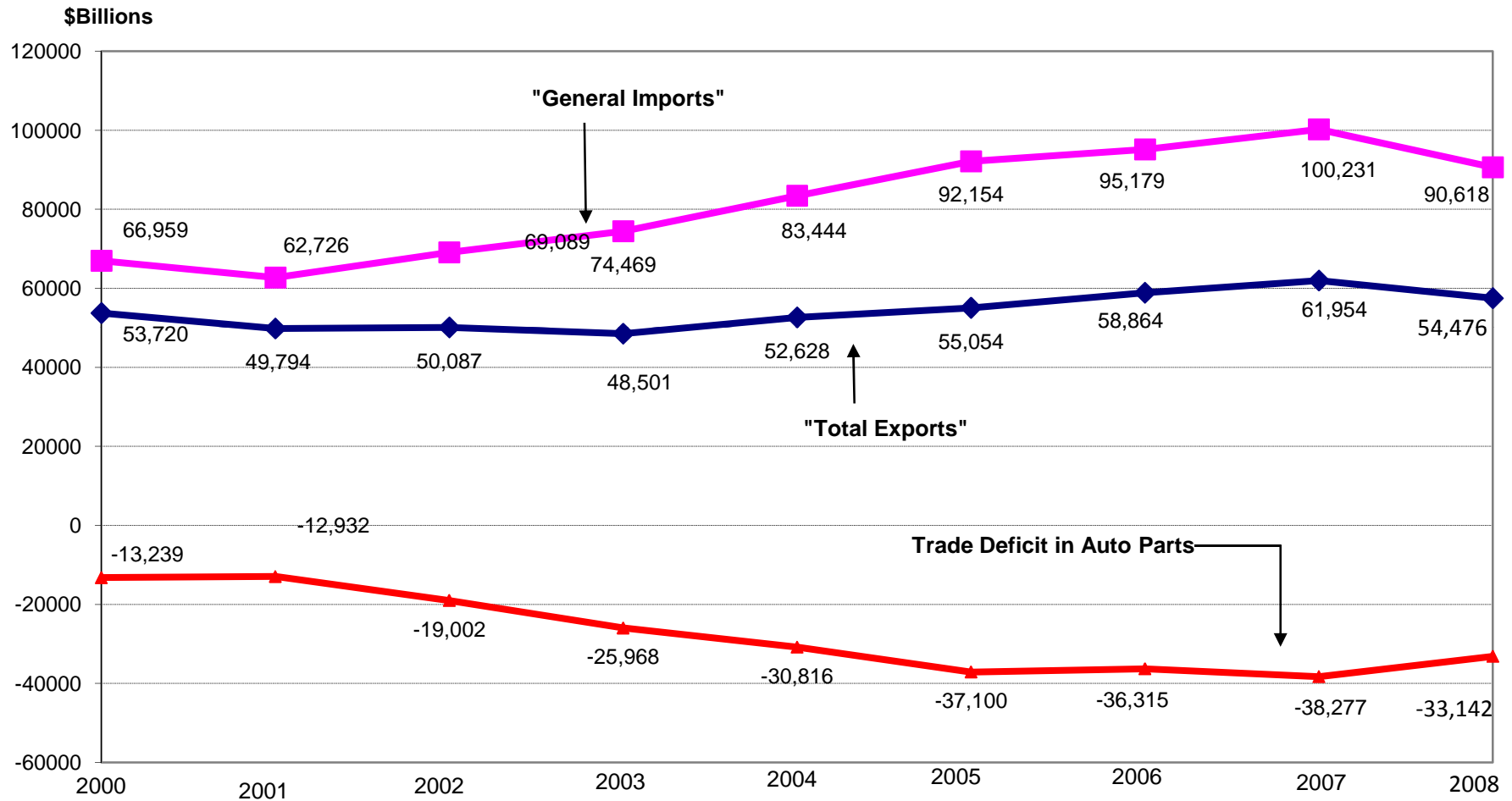
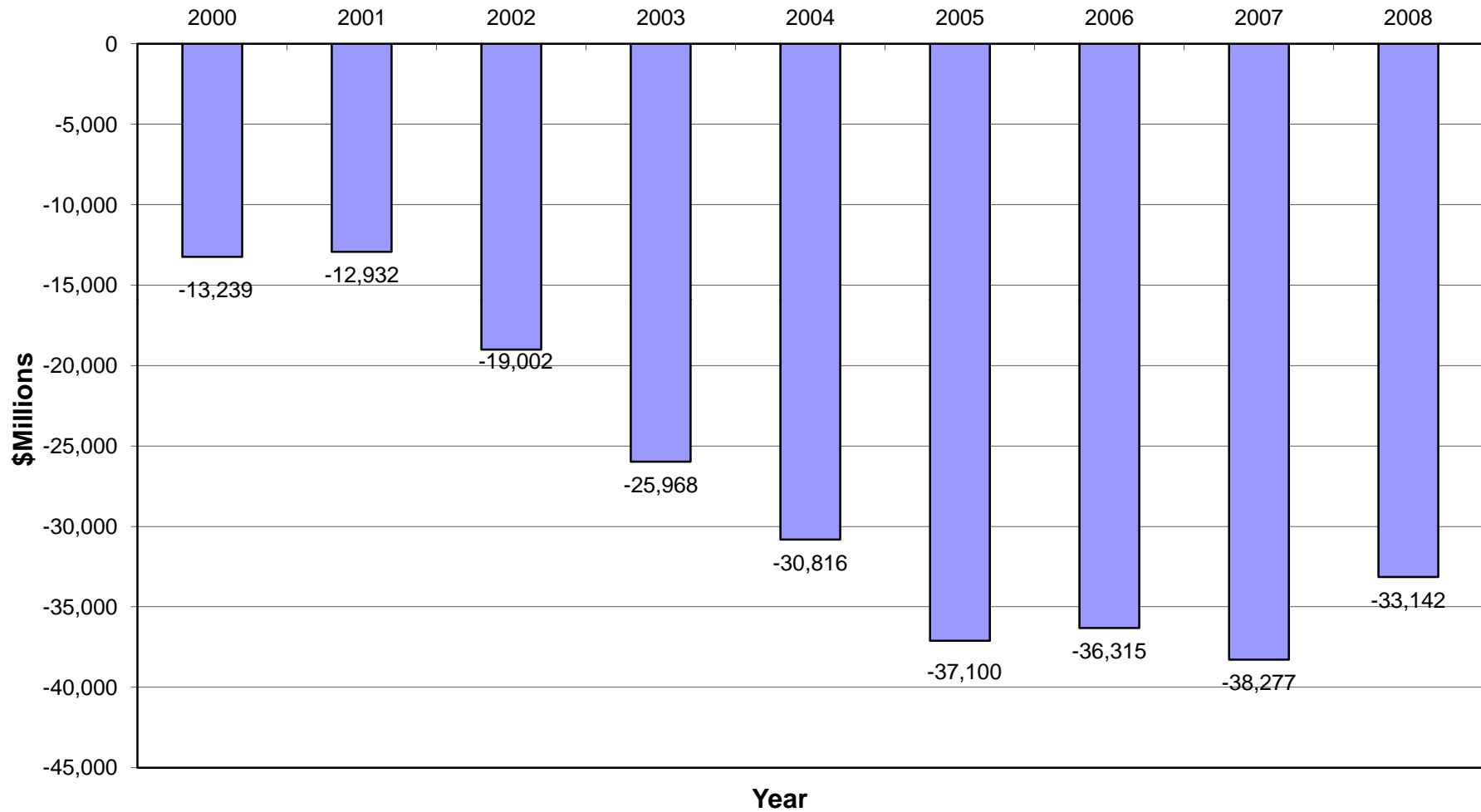


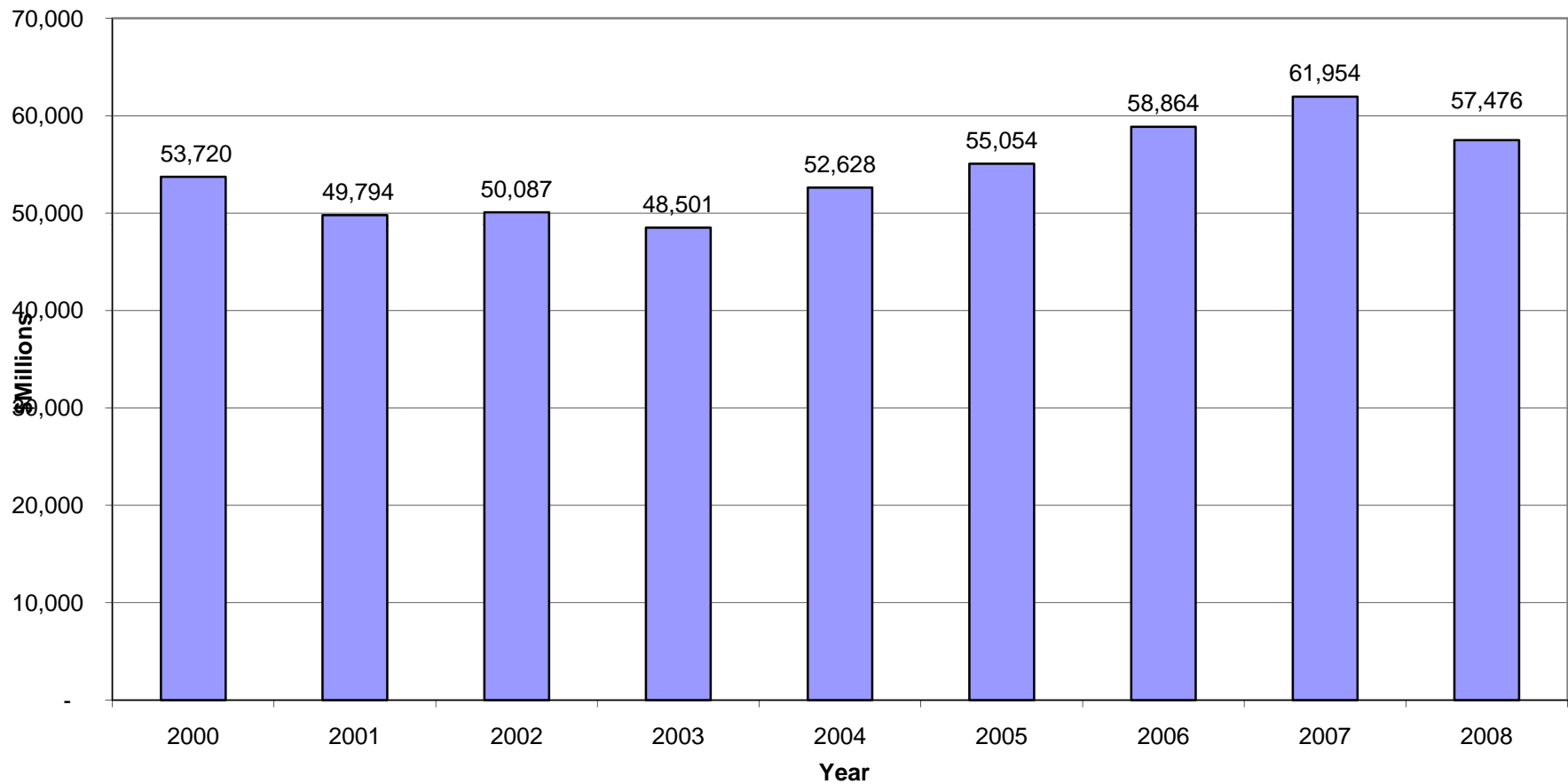
Chart 9
A 13.4 decrease in U.S. automotive parts trade deficit in 2008 was the result of ...
U.S. Automotive Parts Trade Balance, 2000-2008



Source: U.S. Department of Commerce, Bureau of the Census.

Chart 10 Exports decreasing 7.2 percent in 2008 ...

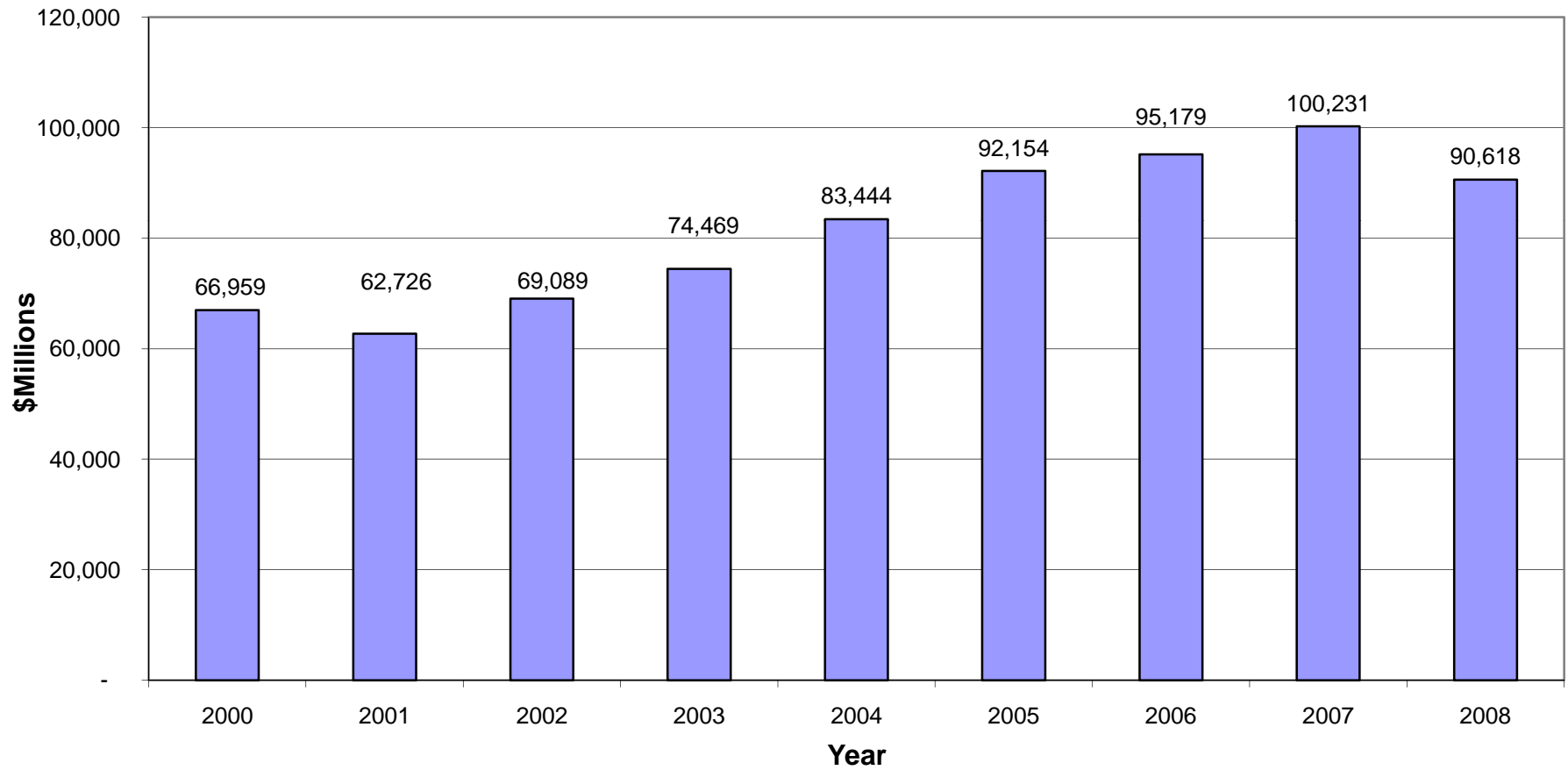
U.S. Automotive Parts Exports, 2000-2008



Source: U.S. Department of Commerce, Bureau of the Census.

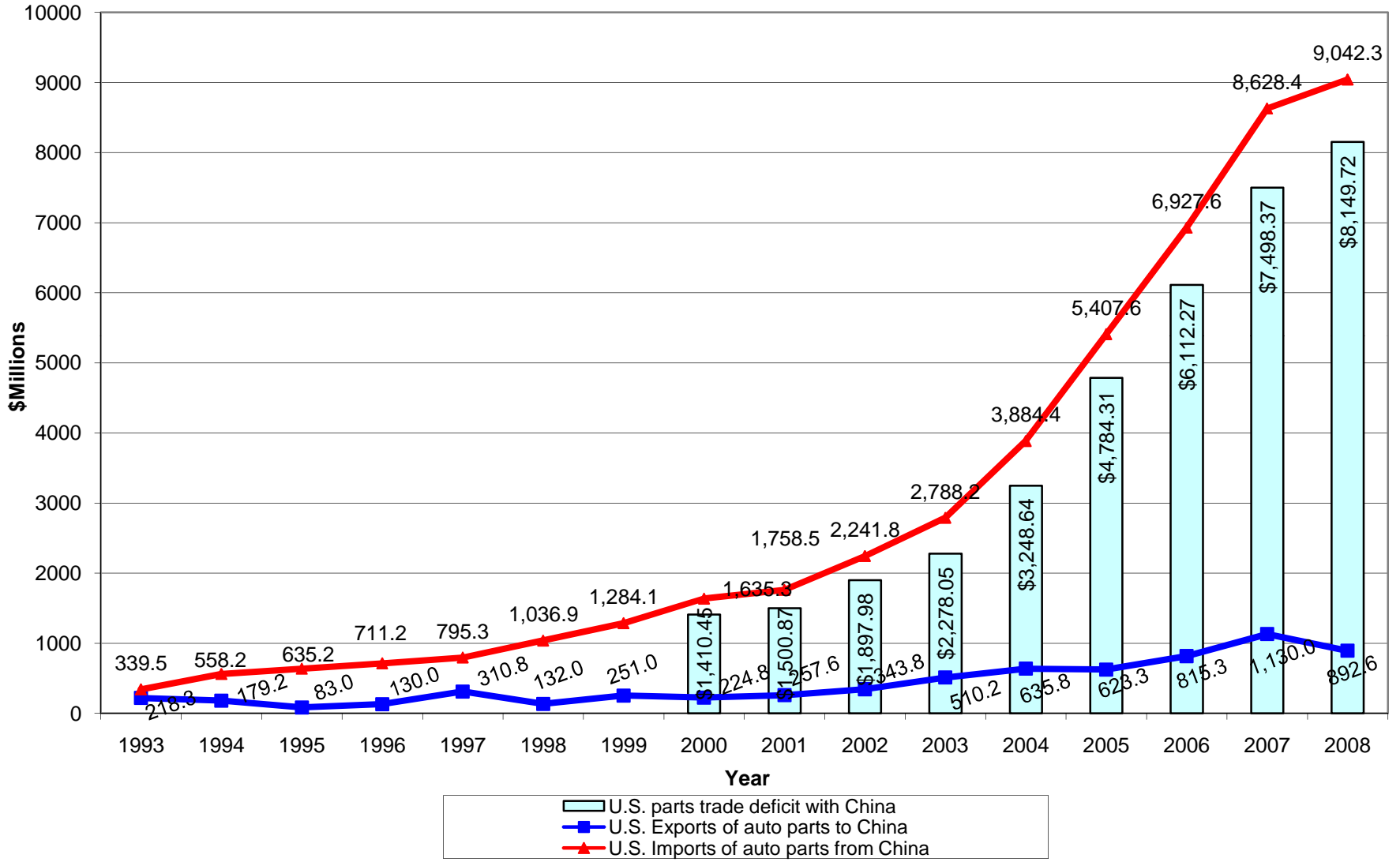
Chart 11
while Imports decreased 9.6 percent in 2008.

U.S. Automotive Parts Imports, 2000-2008



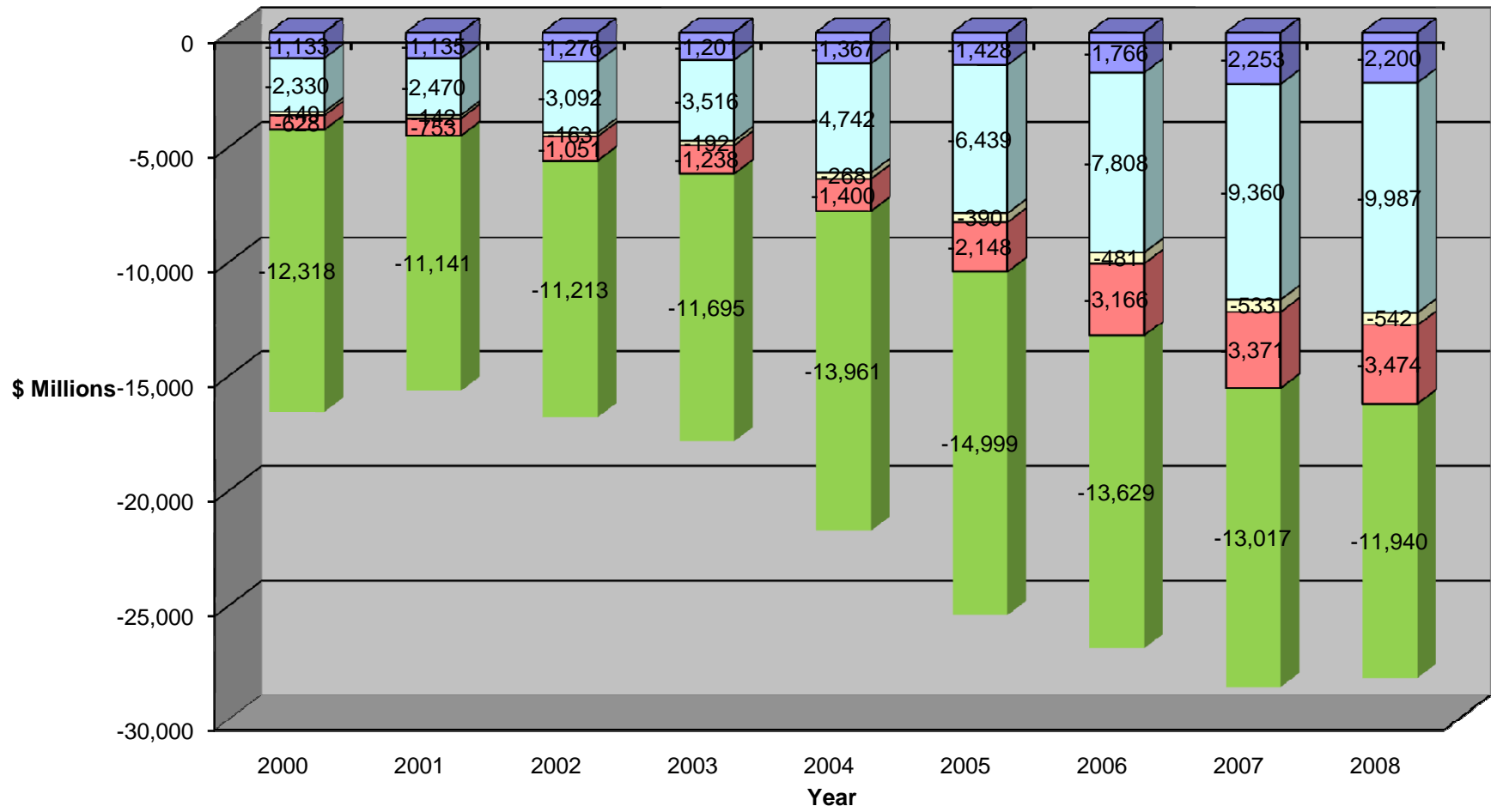
Source: U.S. Department of Commerce, Bureau of the Census.

Chart 12
U.S. - China Auto Parts Trade, 1993-2008
In 2008, the parts trade deficit with China increased 8.7 percent over 2007 levels



Source: U.S. Department of Commerce, Bureau of the Census.

Chart 13
The U.S. auto parts trade deficit with Asian countries continues to increase.



■ Total ASEAN (1)
 ■ Total Chinese Economic Area
 ■ India
 ■ Korea
 ■ Japan

Source: U.S. Bureau of Census