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2016 Top Markets Report **Automotive Parts**

A Market Assessment Tool for U.S. Exporters

April 2016



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Executive Summary

The automotive industry is the largest manufacturing sector in the United States. It is truly a global industry with automakers from the United States, Europe, Japan and Korea producing cars and automotive parts for consumers around the world. With so much activity taking place, this Top Markets Report provides U.S. auto parts suppliers with an assessment of opportunities and challenges, and can be used as a resource to help suppliers successfully export to various markets throughout the world. Separate models were developed to rank opportunities for original equipment (OE) parts and for aftermarket parts export markets through 2021. Rankings are provided for a total of 30 markets, with detailed country case studies written about nine different markets. In addition, the report includes two snapshots regarding new automotive technologies and benefits from the Trans-Pacific Partnership.

Rankings

The rankings for the OE and aftermarket models show a number of similarities, with both models having Canada, Mexico and China as the top-ranked markets.

However, despite these similarities, distinctions do emerge in both the order of the rankings and the relative values that many countries received. While Canada, Mexico and China are the top three in both the OE and aftermarket rankings, they receive these scores for varying reasons in each analysis. In regards to OE, China had the highest average vehicle production (17.8 million) between 2012 and 2014, more than double the second largest vehicle producer in this analysis (Japan produced 8.3 million vehicles on average from 2012 to 2014). China is also projected to produce over 27 million vehicles by 2020. In addition, it is the third largest market for U.S. automotive parts, with U.S. automotive part exports growing from less than \$1 billion in 2009 to almost \$2.4 billion in 2015. Given the large size of the market and the growth of U.S. automotive parts exports to the market since 2009, China looks to be a strong prospect market for American-made OE auto parts. In the aftermarket rankings, China is also a market with large potential, largely for similar reasons.

Figure 1: Automotive Parts Export Market Rankings

Original Equipment Parts		Aftermarket Parts	
Country	Ranking	Country	Ranking
Canada	1	Canada	1
Mexico	2	Mexico	2
China	3	China	3
Japan	4	Hong Kong	4
Germany	5	Singapore	5
Korea	6	Chile	6
Belgium	7	Peru	7
Hong Kong	8	Belgium	8
Singapore	9	Netherlands	9
France	10	Germany	10

Canada and Mexico, however, are the top two markets in the OE and aftermarket rankings for a different set of reasons. While they produce fewer vehicles than China (Canada averaged 0.9 million and Mexico averaged 1.8 million between 2012 and 2014), they have historically been the largest market for the export of U.S. automotive parts, accounting for almost 75 percent of U.S. auto parts exports in 2014 and 2015. In addition, the automotive industry is highly integrated among Canada, Mexico and the United States given the close proximity in terms of distance and the sharing of a border. Based on these factors and the continued growth of vehicle manufacturing and investments in Mexico, it is expected that these two neighboring markets of the United States will continue to be strong markets for U.S. auto parts exporters in the future.

Looking further at the OE model, Japan, Germany and Korea round out the top six potential markets. These three countries are the largest producers of vehicles following China, so it is understandable that there would be a greater demand for OE parts in these countries. On average, Japan produced 8.3 million vehicles, Germany produced 5.5 million vehicles, and Korea produced 4.2 million vehicles. In addition, Germany is the fourth largest

market for U.S. auto parts: Japan is fifth and Korea is ninth. As a result of the high level of vehicle production in these countries, they will likely be strong prospect markets for OE parts in the future.

There are also similarities in rankings between the 2015 Top Markets Report and the 2016 version. Canada, Mexico and China, in that order, were identified as the top three markets for both the OE equipment and aftermarket rankings in both reports. For the OE rankings, Japan, Germany and Belgium were identified as top 10 prospective markets in both 2015 and 2016. If Singapore and Hong Kong are removed from the top 10 on the assumption that they are trans-shipment hubs, then the Netherlands and Chile also rise to the top ten, meaning that eight of the top 10 markets from the 2015 report are also in the 2016 report's top ten. Korea rose from 12 to 6 in the new rankings, which can be partially attributed to the continued rise in auto parts exports to Korea since the KORUS FTA was brought into force in 2012.

In regards to the aftermarket rankings, nine of the top 10 countries were the same in both the 2015 and 2016 Top Markets Reports. Australia was the only country to fall out of the top ten, dropping from number eight to number 12. Therefore, the aftermarket model shows significant consistency in identifying the top potential markets from one year to the next, even accounting for the updated data.

Case Studies

The 2016 report has country case studies for nine countries that summarizes export opportunities in selected markets. The case studies represent a range of countries to illustrate a variety of points and are not necessarily the top 10 markets overall. These case studies provide an overview of the market in the given country, the challenges and barriers to exporting automotive parts to the market, and opportunities for U.S. companies. The nine case studies are Mexico, China, Germany, Brazil, Korea, Australia, Thailand, Saudi Arabia and Colombia.

Overview and Key Findings

Introduction

The U.S. automotive parts industry has nearly doubled since 2009 in terms of exports. Today, there are large domestic automakers in countries around the world, including China, India and Russia—not to mention, legacy manufacturers in the United States, Europe and Japan. Each manufacturer produces their own parts, such as engines, transmissions, frames and body parts. But, increasingly, many large manufacturers are turning to first-tier suppliers for the design and production of most components and even large sub-assemblies. In fact, large first tier suppliers are now as global as the vehicle manufacturers.

The first tier suppliers get subcomponents from second tier and third tier suppliers, and this chain continues down to raw material suppliers. To limit exposure to currency fluctuations, reduce transportation costs, minimize risks of damage in transit, avoid adverse political results and take advantage of local incentives, automakers tend to produce in the market/region where the vehicle will be sold. Mass-produced vehicles are generally only exported to countries where the economies of scale do not support local assembly. The major exception is limited-production luxury, sports or other special-use vehicles.

Similarly, parts and vehicle manufacturers seek to produce OE parts as close to the assembly plants as possible. They do it in part to address the factors pushing towards vehicle assembly localization. Modern auto plants are built for just-in-time delivery of components, making long overseas supply chains costlier and riskier. Exceptions tend to be high-tech, high-cost and light-weight components, such as computer modules. As another example, exports of light-weight alloy wheels are more likely to be shipped long distances than heavy and inexpensive, basic steel wheels.

The situation is similar for aftermarket parts but not to the same degree. An aftermarket replacement part, such as a shock absorber or brake assembly, could be the exact same part, built by the same OE supplier. But this would be less true for expensive and/or high-tech specialty components used at the

discretion of the purchaser to enhance the appearance or performance of a vehicle.

As a result of these factors, there is massive intra-regional trade between the United States, Canada and Mexico in both OE and aftermarket parts, while imports from the United States are smaller in countries such as Japan and Korea. On the other hand, there are relatively large trades in aftermarket parts, including specialty aftermarket parts to countries such as the UAE and Saudi Arabia, which do not have local vehicle or parts production.

While the global automotive industry is fiercely competitive, there are other factors that limit or even distort trade. For decades, various governments around the world have used trade distorting policies to support the creation and expansion of domestic automotive industries that were not otherwise economically feasible. This has been accomplished through combinations of subsidies, tariffs and non-tariff barriers.

A prime example is India, which has a large and rapidly growing automotive industry made up of indigenous manufacturers and foreign companies forced to produce there by prohibitive tariffs. Brazil has a large industry made up of foreign manufacturers facing high localization requirements. Similarly, the Malaysian national automobile industry makes noncompetitive vehicles but is highly subsidized and protected by barriers.

Another particularly important and rapidly growing impediment for U.S. automotive exporters is the development or acceptance of safety and environmental standards or regulations that differ from the United States. This is a major problem whether these differences were created as a purposeful barrier to trade, or not. The bottom line is that exporting auto parts from the United States to various markets can be challenging, even for the most competitive suppliers.

Key Findings: Top Markets and Methodology

There are some similarities in the results of both the OE and aftermarket, yet distinctions emerge in both the rankings and the relative values for many countries (full results can be found in Attachment 1). While Canada, Mexico and China are the top three markets in both the OE and aftermarket rankings, they receive these scores for varying reasons in each analysis. In regards to OE, China had the highest average vehicle production (17.8 million) between 2012 and 2014, more than doubling the second largest vehicle producer in this analysis during the same time period (Japan produced 8.3 million vehicles on average). China is also projected to produce over 27 million vehicles by 2020. In addition, it is the third largest market for U.S. automotive parts. Combined, given the weight assigned to these factors in this analysis, China is a strong prospect market for American-made OE auto parts. For the aftermarket, again due largely to the sheer size of the market in China and the recent growth of U.S. auto exports there, China is a market with large potential.

Canada and Mexico, however, are the top two prospective markets for a different set of reasons. Although they do not produce nearly as many vehicles as China (Canada—973,041; Mexico—1.8 million), they have historically been the largest market for the export of U.S. automotive parts, accounting for almost 75 percent of U.S. exports in 2014. In addition, given the integration of the auto industry among Canada, Mexico and the United States, the close proximity in terms of distance, and the sharing of a border, these markets will continue to be strong prospect markets for the U.S. auto parts exporters going forward.

Looking further at the OE model, Japan, Germany and Korea round out the top six potential markets. This makes sense as these three countries were also the largest producers of vehicles following China. Japan produced 8.3 vehicles on average, Germany produced 5.5 million vehicles, and Korea produced 4.2 million vehicles. In addition, Germany is the fourth largest market for U.S. auto parts, Japan is fifth and Korea is ninth. All of this confirms that these will likely be strong prospect markets going forward.

There are also similarities in rankings for the top markets of the 2015 and 2016 versions of the Top Markets Report. In both cases, Canada, Mexico and China, in that order, were identified as the top three markets for both the OE equipment and aftermarket rankings. For the OE rankings, once again Japan, Germany and Belgium were in the top 10 prospective markets in 2015 and 2016. If Singapore and Hong Kong are removed from the top 10 on the assumption that they are trans-shipment hubs, then the Netherlands and Chile also rise to the top ten, meaning that eight of the top 10 markets from the 2015 report are still in the top 10 in the 2016 report. Korea rose from 12 to 6 in the new rankings, which can be partially attributed to the rise in auto parts exports to Korea since the implementation of the KORUS FTA.

In regards to the aftermarket rankings, even more consistency resulted in the rankings between 2015 and 2016. Nine of the top 10 countries were the same for both years. In both years for the aftermarket rankings, the U.S. parts exports variable was expected to be the largest predictor of future success of exports. As a result, past exports are a driving force in predicting future success, and our largest export markets (Mexico, Canada, China, etc.) are likely to be leading markets for aftermarket parts in the future.

In 2009, the United States exported approximately \$43 billion worth of automotive parts. The top five markets, in order, were Canada, Mexico, Germany, China and Japan. By 2015, the value of automotive parts exports from the United States was almost \$81 billion. The order of the top five markets by 2015 had changed to Mexico, Canada, China, Germany and Japan. See Attachment 3 for a full list of the top 30 export markets for U.S. automotive parts between 2009 and 2015. Trade data related to auto parts does not distinguish between OE and aftermarket parts, which is a limitation for this analysis.

Of the nearly \$81 billion of U.S. automotive exports in 2015, Mexico accounted for about \$30 billion of these exports, and Canada accounted for \$29 billion. Combined, these NAFTA partners accounted for almost 75 percent of all U.S. automotive parts exports. Exports to both of these markets grew substantially over the same time period, with exports to Mexico more than doubling from \$12.1

billion in 2009 to over \$30 billion in 2015. Exports to Canada rose from \$19.6 billion in 2009 to \$29.4 billion in 2015. It should, however, be noted that exports to Canada peaked in 2012 with \$31.8 billion and has subsequently declined slightly each year since to just under \$30 billion in 2015. As a result of NAFTA, the U.S. auto parts industry is highly integrated in the North American supply chain, contributing to the flow of goods among the three markets. The third leading market for U.S. exports in 2015, China, steadily grew as a market for U.S. exports from 2009 to 2014 but declined slightly from \$2.6 billion in 2014 to \$2.4 billion in 2015. U.S. automotive exports to Japan nearly doubled from \$835 million in 2009 to \$1.5 billion in 2015.

For the European market, Germany is the top destination for U.S. automotive parts exports, followed by the United Kingdom, Italy, the Netherlands, Belgium, France and Spain. Brazil is the top destination for U.S. parts exports in South America with exports nearly doubling from \$554 million in 2009 to \$1 billion in 2015, although exports did decline from 2014 to 2015. The next largest markets in this region for U.S. parts are Chile, Colombia, Argentina, Venezuela and Peru.

Methodology

When trying to discern where the future growth markets will be for both OE parts and aftermarket parts, there are a number of potential variables to consider. One is the size of the domestic automotive market. This can be seen by the trends in vehicle sales in recent years, the number of vehicles on the road in the market, the relative wealth in the market, and the average age of the vehicles in the market, among others.

One complication in this analysis is that HTS codes do not offer a distinction between which parts are OE and which are aftermarket. In addition, the supplier itself may not know the intended use of its part as, for example, a supplier of brakes may not necessarily know whether its manufactured part will ultimately be used as an OE part by the automaker in its manufacturing facility or whether it will be used as a replacement part for a damaged or defective brake in the manufacturer's service network.

One way to distinguish this to some degree is by identifying whether or not the domestic market has

a locally based vehicle production industry. Regions, like the UAE, that do not manufacture vehicles would be expected to be importing a large proportion of aftermarket parts to either replace damaged parts or to enhance performance. In addition, markets with an older fleet on the roads and with limited new sales would also likely be purchasing a larger share of aftermarket parts in order to keep these older fleets running and on the road rather than purchasing new vehicles. Given these constraints, the models we developed for OE and aftermarket are below:

OE Model: $(\text{Sales} \times .05) + (\text{U.S. Parts Exports} \times .35) + (\text{U.S. Import Share} \times .1) + (2020 \text{ Projected Production} \times .15) + (\text{Distance} \times .05) + (\text{Domestic Production} \times .2) + (\text{Openness to Trade} \times .1)^1$

Aftermarket Model: $(2019 \text{ Projected Sales} \times .1) + (\text{U.S. Parts Exports} \times .35) + (\text{U.S. Import Share} \times .2) + (\text{Age Proxy} \times .1) + (\text{Distance} \times .05) + (\text{Openness to trade} \times .2)$

The variables and weights used in each of the models are shown above. For the OE model, the sales variable was calculated using Business Monitor International data and was the average sales within each market from 2012 to 2014. A three-year average was used to account for any anomalies, spikes, or decreases in sales in a given year. The U.S. parts exports variable also was a three-year average of the number of automotive parts exported to each market from 2012 to 2014 using the Schedule B codes in Attachment 1. This variable was given a fairly large weight under the assumption that recent past exports would be a good indicator of future exports as well. The import share variable was calculated using U.N. Merchandise Trade data and HS codes at the six-digit level. The import share variable calculates what percentage of automotive parts imported into a market were imported from the United States in relation to other countries. The 2020 projected production variable is a forecast of vehicle production levels calculated by Business Monitor International. The distance variable is a measure to account for the distance between two markets by measuring the distance, in kilometers, between the largest cities in a market and the United States. The domestic production variable accounts for the level of vehicle production in given markets based on Business Monitor International calculations. The variable was calculated again using a three-year average from 2012 to 2014. The

openness to trade variable comes from the International Chamber of Commerce's third edition of the Open Markets Index released in September 2015. Each of these variables was then standardized

to give each country a ranking between 0-1. The results of these rankings for each variable in each of the markets analyzed can be found in the table below.

Figure 2: OE Rankings and Model Standardized Scores

Country	Overall Ranking	Market Size (2012-2014)	U.S. Parts Exports (2012-2014)	U.S. Import Share Average 12-14	Production Projected 2020	Distance	Total Domestic Production (2012-2014)	Openness to Trade
Canada	1	0.0415	1.0000	1.0000	0.0291	1.0000	0.0545	0.59375
Mexico	2	0.0378	0.8484	0.9414	0.1040	0.8176	0.1027	0.25
China	3	1.0000	0.0651	0.0710	1.0000	0.3244	1.0000	0.21875
Japan	4	0.2592	0.0415	0.0967	0.2990	0.3333	0.4674	0.40625
Germany	5	0.1694	0.0513	0.0208	0.2145	0.6451	0.3070	0.625
Korea	6	0.0646	0.0219	0.1152	0.1608	0.3197	0.2322	0.46875
Belgium	7	0.0258	0.0114	0.0237	0.0176	0.6544	0.0272	0.78125
Hong Kong	8	0.0004	0.0121	0.1208	0.0000	0.1966	0.0000	1
Singapore	9	0.0000	0.0085	0.1683	0.0000	0.0426	0.0000	1
France	10	0.1017	0.0113	0.0241	0.0638	0.6579	0.0867	0.5
Netherlands	11	0.0230	0.0084	0.0304	0.0000	0.6560	0.0005	0.78125
Chile	12	0.0133	0.0139	0.2897	0.0002	0.5005	0.0002	0.5625
Spain	13	0.0413	0.0039	0.0000	0.0985	0.6622	0.0970	0.40625
Peru	14	0.0060	0.0033	0.2780	0.0000	0.6545	0.0000	0.46875
United Kingdom	15	0.1249	0.0323	0.0479	0.0691		0.0841	0.5625
Sweden	16	0.0144	0.0008	0.0120	0.0074	0.6265	0.0089	0.6875
Australia	17	0.0486	0.0479	0.2720	0.0000	0.0000	0.0000	0.5625
India	18	0.1448	0.0041	0.0728	0.1843	0.2747	0.1795	0.09375
Brazil	19	0.1671	0.0299	0.1065	0.0935	0.5378	0.1536	0
Russia	20	0.1364	0.0103	0.0509	0.0663	0.5492	0.1041	0.25
Colombia	21	0.0081	0.0060	0.2791	0.0032	0.7754	0.0040	0.25
Poland	22	0.0151	0.0008	0.0002	0.0236	0.5921	0.0278	0.53125
Italy	23	0.0750	0.0080	0.0236	0.0266	0.5895	0.0222	0.40625
United Arab Emirates	24	0.0187	0.0145	0.0623	0.0000		0.0000	0.75
Saudi Arabia	25	0.0412	0.0061	0.1216	0.0000	0.3545	0.0000	0.5
Turkey	26	0.0324	0.0000	0.0115	0.0393	0.5134	0.0363	0.28125
Thailand	27	0.0298	0.0066	0.0299	0.0331	0.1336	0.0515	0.375
Venezuela	28	0.0015	0.0162	0.5055	0.0003		0.0023	0.09375
South Africa	29	0.0234	0.0071	0.1280	0.0118	0.2217	0.0153	0.3125
Argentina	30	0	0.0020	0.0381	0.0175	0.4829	0	0.0625

The aftermarket model included a number of the same variables that were included in the OE model (U.S. parts exports, U.S. import share, distance and openness to trade). The 2020 projected sales variable in this model is also a forecast of vehicle sales developed by Business Monitor International. The vehicle age variable is a proxy variable derived by

creating a measure using sales as a share of vehicles in operation. It is assumed that a country that has a lower share of new vehicles sales in relation to the number of vehicles in that market will have an older vehicle fleet. These results can be seen in the table below.

Figure 3: Aftermarket Rankings and Model Standardized Scores

Country	Overall Ranking	2020 Projected Sales	U.S. Parts Exports (2012-2014)	U.S. Import Share 2012-2014	Vehicle Age Proxy	Distance	Openness to Trade
Canada	1	0.0271	1.0000	1.0000	0.15652	1.0000	0.59375
Mexico	2	0.0405	0.8484	0.9414	0.06289	0.8176	0.25
China	3	1.0000	0.0651	0.0710	1.00000	0.3244	0.21875
Hong Kong	4	0.0013	0.0121	0.1208	0.18543	0.1966	1
Singapore	5	0.0061	0.0085	0.1683	0.10922	0.0426	1
Chile	6	0.0093	0.0139	0.2897	0.36291	0.5005	0.5625
Peru	7	0.0069	0.0033	0.2780	0.45979	0.6545	0.46875
Belgium	8	0.0231	0.0114	0.0237	0.22306	0.6544	0.78125
Netherlands	9	0.0157	0.0084	0.0304	0.12613	0.6560	0.78125
Germany	10	0.1525	0.0513	0.0208	0.15011	0.6451	0.625
United Arab Emirates	11	0.0202	0.0145	0.0623	0.36144		0.75
Australia	12	0.0370	0.0479	0.2720	0.16954	0.0000	0.5625
Saudi Arabia	13	0.0368	0.0061	0.1216	0.42339	0.3545	0.5
Sweden	14	0.0180	0.0008	0.0120	0.14165	0.6265	0.6875
Colombia	15	0.0077	0.0060	0.2791	0.25669	0.7754	0.25
Korea	16	0.0522	0.0219	0.1152	0.22469	0.3197	0.46875
Japan	17	0.1642	0.0415	0.0967	0.16505	0.3333	0.40625
France	18	0.0817	0.0113	0.0241	0.14511	0.6579	0.5
United Kingdom	19	0.0978	0.0323	0.0479	0.14449		0.5625
Thailand	20	0.0098	0.0066	0.0299	0.49070	0.1336	0.375
Poland	21	0.0150	0.0008	0.0002	0.00000	0.5921	0.53125
Venezuela	22	0.0000	0.0162	0.5055	0.08256		0.09375
Italy	23	0.0700	0.0080	0.0236	0.06385	0.5895	0.40625
South Africa	24	0.0162	0.0071	0.1280	0.22507	0.2217	0.3125
Spain	25	0.0412	0.0039	0.0000	0.04916	0.6622	0.40625
Russia	26	0.0694	0.0103	0.0509	0.14939	0.5492	0.25
India	27	0.1362	0.0041	0.0728	0.46835	0.2747	0.09375
Turkey	28	0.0313	0.0000	0.0115	0.21504	0.5134	0.28125
Brazil	29	0.0957	0.0299	0.1065	0.28142	0.5378	0
Argentina	30	0.0232	0.0020	0.0381	0.20891	0.4829	0.0625

Industry Overview and Competitiveness

The automotive parts manufacturing industry is comprised primarily of two segments: original equipment (OE) suppliers and aftermarket suppliers. OE suppliers design and manufacture parts required for the assembly of passenger cars and trucks. OE production accounts for an estimated two-thirds to three-fourths of the total automotive parts production. Thus, automotive parts consumption is heavily linked to the demand for new vehicles. If vehicle production goes up or down in a given market, then demand for OE parts will correspondingly go up or down, as well. Conversely, if a market has little, or no, domestic vehicle production, demand for OE parts will be limited or nonexistent.

Aftermarket parts are automotive parts built or remanufactured to replace OE parts as they become worn or damaged. Automotive aftermarket buyers include retailers, repair or service facilities, do-it-yourself consumers, and wholesalers or distributors. This segment provides parts and equipment for maintenance, repair and enhancement of vehicles. Related to this is specialty equipment, which are the parts and tools for consumer preference vehicle modifications. Specialty equipment refers to parts made for comfort, convenience, performance, safety or customization and are designed for add-on after the original assembly of the motor vehicle.

Automotive parts include, but are not limited to, the following:

- bodies and parts
- windshields
- chassis and drivetrain parts
- electrical and electric components (fans, compressors, storage batteries, signaling equipment, etc.)
- engines and parts
- miscellaneous parts (brake fluid, anti-freeze, lifting machinery, etc.)
- automotive tires and parts

See Attachment 2 for the 10 digit Schedule B codes of the automotive parts covered in this report.

Vehicle manufacturers are large companies that historically like to build where they sell. Companies, including Volkswagen, Ford, GM, Honda, Hyundai, etc., have established manufacturing facilities

throughout the world. Given these manufacturers' large, international marketing and manufacturing operations, they have already tapped into most of the markets, both large and small. These companies also already have established business connections with their Tier 1 suppliers and rely heavily on just-in-time delivery from these suppliers in order to maintain optimal productivity throughout the manufacturing process. In addition, vehicle manufacturers have very sophisticated plans in place when making sourcing and investment decisions.

Automakers deliver vehicles either through established assembly plants in the markets or through complex export operations to smaller markets. For example, BMW manufactures products at 30 sites in 14 countries on four continents. Likewise, BMW has used its Spartanburg, South Carolina plant as a base for exports since the mid-1990s, and this is the sole location for exclusive production of its X-3, X-5 and X-6 models. In 2013, almost 300,000 vehicles were manufactured at this facility, and 70 percent of the plant's production volume was exported to 140 markets around the world. Similarly, the 2015 Mustang, assembled in Flat Rock, Michigan, will be available in more than 100 markets.

Some suppliers are similar to the vehicle producers in that they are large, complex operations with investments throughout the world. For example, Magna has over 130,000 employees with 312 manufacturing operations and 83 product development, engineering and sales centers in 29 countries. Denso has approximately 140,000 employees and operates in 35 countries, with global sales totaling \$39.8 billion for the fiscal year that ended on March 31, 2014. In contrast, many Tier 2 (and lower tier) manufacturers of automotive parts are small and medium-size enterprises (SMEs).

Most U.S. SME auto suppliers do not export. Those that do export do so primarily to Canada and/or Mexico. This demonstrates untapped potential to introduce U.S. suppliers to foreign markets, particularly for the aftermarket. These SMEs do not have the marketing departments, international operations and vast resources to readily expand their operations to new markets throughout the world in the same capacity as the vehicle manufacturers and many of the Tier 1 suppliers.

A factor that can make exporting difficult is the ever-increasing competitiveness of the automotive industry worldwide. There are more and more parts suppliers entering the market that offer lower price points, quality products and/or advanced technologies. In addition, some of these suppliers receive or have received subsidies provided by their local governments.

U.S. manufacturers with aftermarket products that are easy to produce and fairly low-tech will face the greatest challenges. The U.S. Department of Commerce's International Trade Administration can provide counseling to determine the export potential for U.S. auto parts suppliers' products on a micro level. In addition, U.S. suppliers will benefit from Commerce's market intelligence and business matchmaking services. If problems arise, commercial advocacy can also be offered.

This Top Markets Report aims to identify the best markets going forward for these companies to focus their efforts in identifying export opportunities. By focusing on automotive parts, this study provides helpful market information to assist companies in identifying promising markets to expand their business, grow exports and remain competitive on a global scale.

Global Industry Landscape

While U.S. automotive exports have nearly doubled since 2009, U.S. exports declined slightly in 2015 from \$81.1 billion in 2014 to \$80.8 billion in 2015. Exports to Canada dropped slightly to \$29.4 billion in 2015, while exports to Mexico rose to \$30.1 billion. As a result, Mexico supplanted Canada for the first time as the largest export market for U.S. automotive parts. Given the continued expansion of vehicle production in Mexico, potentially exceeding 5 million units by the end of the decade, it is logical to expect that Mexico will continue being the largest export market for U.S. auto parts. Exports to China also decreased from \$2.5 billion in 2014 to \$2.4 billion in 2015.

Combined, U.S. exports of automotive parts to the European Union countries have shown steady growth since 2012, increasing from \$5 billion in 2012 to \$7.2 billion in 2015. Between 2014 and 2015 alone, exports grew from \$6.3 billion in 2014 to \$7.2 billion in 2015. This correlates to the resurgence in

the new car market in the EU. New passenger vehicles registrations grew 9.3 percent in 2015 to 12.6 million units. Automotive parts exports to each of the top European markets (Germany, United Kingdom, Italy, the Netherlands and Belgium) also grew.

Challenges and Barriers for U.S. Automotive Parts Exporters

One of the greatest challenges facing U.S. auto parts exporters is the global regulatory environment. Lack of harmonization, coherence and transparency of regulations and standards deeply affect the competitiveness of U.S. vehicle and automotive parts manufacturers worldwide. Conforming to two different standards is costly and time-consuming. Until recently, most developing countries have had only limited regulatory requirements, and thus, they accepted virtually any vehicles built at minimal safety and emissions levels. This has made it possible for American companies to export U.S.-compliant vehicles and products to these markets.

Unfortunately, many countries are now choosing to make their requirements more stringent and are frequently turning to sole acceptance of regulatory standards developed by the European Union. Because of this, they are no longer allowing the sale of U.S.-compliant products in their markets. It is ironic that many of the countries that are adopting EU standards have existing regulatory systems more similar to the U.S. system (e.g., Chile, Colombia, Russia, etc.).

Countries moving to sole acceptance of EU regulatory requirements have been doing this largely because the EU has been aggressive in marketing its regulatory system and also appears to be including requirements for adopting its regulations in its trade agreements. In addition to the barriers cropping up from the move toward EU standards, there are recent hints that emerging markets, such as China or India, are developing their own separate regulations. Having even more sets of regulatory standards will only make it harder to export to other markets and certainly raise the cost of doing business. This is one of the many reasons why it is in the interest of European and U.S. policy makers to push for regulatory convergence in the ongoing Transatlantic Trade and Investment Partnership (TTIP)

negotiations. Regulatory harmonization is important for manufacturers and consumers globally.

Another barrier to trade for auto parts manufacturers (especially small to medium-sized companies) is the push by foreign governments for localization. In an effort to increase investment in their local economy, some countries encourage localization and offer incentives to build a manufacturing facility and/or partner with a local firm. China, for example, pressures companies to produce in-country and partner with local vehicle manufacturers and suppliers in order to build up its indigenous industry.

Many markets with a fairly large domestic industry impose high tariffs and excise taxes in order to drive up the costs of imports. In Thailand, ad valorem tariffs can be as high as 80 percent for imports that compete with domestically produced automobiles and parts. Excise taxes on automobiles are usually based on various vehicle characteristics, such as engine size, weight and wheelbase, which make the tax calculations complex.

Exporting automotive parts to the EU can amount to tariffs of 2 to 5 percent of total costs, and for already assembled parts, tariffs may even account for 15 to 20 percent of overall costs. Where there are low margins, tariff costs can result in missed business opportunities overseas.

In addition, some government policies attempt to close the market for outside competitors by forcing consumers to work within an established network of local companies. These policies regulate and restrict foreign companies from competing by creating restrictions on investment and distribution and by regulating purchasing decisions by consumers.

Furthermore, the conclusion of a number of our trade agreements will hopefully create better opportunities for U.S. parts suppliers and lower the cost of doing business. These trade agreements aim to increase harmonization, lower tariffs, reduce barriers and address issues, such as counterfeiting and intellectual property protection.

Opportunities for U.S. Automotive Parts Exporters

Trans-Pacific Partnership

The Trans-Pacific Partnership (TPP) is a great opportunity for U.S. automotive parts exporters. TPP unlocks new opportunities for exports of 'Made-in-America' auto parts. Historically, U.S. auto exporters have faced a broad range of formidable barriers to export in TPP countries. The TPP will reduce the cost of exporting, increase the competitiveness of U.S. firms and promote fairness and transparency.

The United States exported over \$63 billion in auto parts to TPP markets in 2015. These exports currently face tariffs as high as 40 percent in Malaysia and 32 percent in Vietnam. At the same time, competing auto parts made in China face lower, or even zero, tariffs in Malaysia and Vietnam as a result of trade agreements China has with those countries. Under TPP, 98.1 percent of U.S. auto parts exports to the TPP countries will be eligible for immediate duty-free treatment.

In addition to eliminating tariffs, the TPP agreement offers a range of new tools to open markets for U.S. automotive exports. The U.S.-Japan bilateral agreement addresses a wide range of non-tariff measures in Japan that have served as barriers to American-made autos, trucks and parts, including transparency in regulations, standards, certification, financial incentives and distribution.

Japan's Non-Tariff Measures (NTMs) have historically limited market access for U.S. motor vehicle exports through opaque regulatory regimes, restrictions of distribution of U.S. vehicles, and onerous standards and technical regulations. This, in turn, has also limited U.S. parts exports to Japan. The United States addressed these automotive barriers through bilateral negotiations with Japan in parallel with the broader TPP negotiations.

For example, TPP will ensure Japan's opaque auto regulation committees are administered in a transparent and open manner with timely and public notice of their formation and of meetings. The agreement also provides an opportunity for interested persons to participate in those meetings and make information on proposals publicly available. TPP also requires a 12-month period before new regulations requiring a substantial change to motor vehicle design or technology come into effect.

Japan's unique standards currently impose excessive costs on U.S. automakers. To lower these costs, Japan will accept certain U.S. motor vehicle standards. Additionally, TPP requires that the introduction of vehicles that include new technologies not be unduly delayed for release in the Japanese market, as is often the case today.

Japan's Preferential Handling Procedure (PHP) allows U.S. producers to sell cars in Japan using faster, less costly certification procedures. Under TPP, Japan agreed that it will not make the PHP program more costly or complex and that motor vehicles certified using the PHP program will continue to be eligible for financial incentives available to Japanese vehicles. As part of its entry to the TPP negotiations, Japan agreed to double the size of the PHP program.

TPP reinforces strong rules of origin, allowing benefits to fall on inputs produced in any of the member countries. This concept, called cumulation, strengthens incentives for TPP businesses to integrate production and supply chains within the TPP region. This makes it more attractive to do business with producers in the United States and other TPP countries than with producers outside the TPP region.

TPP creates strong protections for patents, trademarks and copyrights. This Agreement goes beyond past trade agreements to require Parties to criminalize the theft, including cyber theft, of trade secrets. Given the high level of research and development costs made by the U.S. automotive industry, these steps should help to further protect U.S. companies' intellectual property.

Finally, TPP includes strong rules of origin for cars, trucks and parts. These rules ensure that TPP benefits will only go to the United States and the other TPP countries and will expand the auto industry's potential export opportunities. These rules of origin are more accurate, more easily verifiable and more enforceable than those of previous agreements.

For more detailed information, please visit: www.trade.gov/fta/TPP.

Country	2009	2010	2011	2012	2013	2014	2015
TPP Region	\$33,860.3	\$46,688.9	\$53,890.8	\$60,899.0	\$62,467.5	\$63,906.7	\$63,320.5
Mexico	\$12,088.5	\$17,456.1	\$21,474.9	\$24,341.3	\$26,584.7	\$29,118.2	\$30,059.0
Canada	\$19,551.9	\$25,896.7	\$28,417.3	\$31,837.6	\$31,780.0	\$30,664.4	\$29,369.9
Japan	\$835.2	\$1,310.0	\$1,439.4	\$1,488.0	\$1,343.7	\$1,429.1	\$1,509.9
Australia	\$687.4	\$1,084.7	\$1,392.4	\$1,935.3	\$1,488.1	\$1,436.5	\$1,291.5
Chile	\$288.9	\$408.5	\$508.3	\$565.3	\$561.8	\$542.0	\$447.9
Singapore	\$253.9	\$347.1	\$422.8	\$435.5	\$377.0	\$348.0	\$291.5
Peru	\$96.7	\$115.0	\$157.7	\$209.6	\$224.9	\$237.6	\$214.7
New Zealand	\$21.3	\$30.2	\$35.6	\$39.9	\$43.5	\$49.5	\$54.3
Malaysia	\$20.4	\$25.2	\$25.9	\$26.6	\$37.5	\$55.1	\$48.9
Vietnam	\$15.8	\$15.0	\$16.2	\$19.0	\$24.2	\$25.5	\$31.7
Brunei	\$0.2	\$0.4	\$0.4	\$0.9	\$2.2	\$0.7	\$1.2

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Sector Snapshots

This section contains a sector snapshot that summarizes new automotive part technologies and opportunities globally.

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New Technologies

Rapid technological advances are having profound effects on the global automotive industry. The impacts will alter the way humans and vehicles interact and can possibly fundamentally alter the light vehicle market itself.

Public policy has acted to spur sales of alternative fuel and zero emission vehicles, pushing an ongoing shift toward more diverse fueling and drivetrain technologies. At the same time, technological improvements in advanced drivetrain technologies are moving them to the mainstream.

Likewise, advanced computing, telecommunications, sensors and learning technologies are morphing the way people will interact with vehicles and how vehicles will interact with the environment. While most of these technologies will debut in advanced economies first, they will quickly spread to other regions.

Advanced Engines, Drivetrains and Vehicle Construction

Public policy is helping to push alternative fuels and fuel-related technologies by creating markets and mandating product availability. The policies often have a number of overlapping goals, including point and carbon emission reductions, employment, or improved energy security. Vehicle efficiency and carbon emission reduction regulations are becoming more stringent and, thereby, continuing to push manufacturers to increase their level of investments. Most have been focusing on reducing weight and advancing engine technologies.

Automakers are reducing vehicle weight through such things as advanced composites, high strength metals and smaller, more efficient electronics. By reducing weight without reducing size, light weighting can improve vehicle efficiency while maintaining space for energy absorption, thereby maintaining levels of safety while also providing similar consumer utility. The advantages of light weighting for fuel efficiency are self-reinforcing. Reducing weight lowers the amount of energy needed to move and stop the vehicle for equivalent

performance. Each decrease allows further decreases elsewhere. For instance a lower vehicle weight requires smaller brakes, allowing further decreases in the weight of brake components which further reduces weight.

Firms have also been focusing on increasing the efficiency of internal combustion engines. Achieving the same level of power in a smaller, lighter package contributes to the “virtuous cycle” of vehicle light weighting. In addition to the benefits of lighter weight, smaller engines also have lower internal friction, and in gasoline engines, they have smaller pumping losses. Companies are increasingly using turbochargers, advanced ignition, variable valve technology and direct fuel injection to increase the power at any given displacement and enable engine downsizing. They have been using advanced transmission technologies to help those engines run in their most efficient ranges while losing less energy transmitting the power to the road. Lowering the operating range of an engine (the difference between its fastest to slowest revolutions) generally allows engineers to achieve higher power and economy from a given engine displacement. Seven, eight or even nine speed transmissions allow engines to be designed for a smaller power curve than five or four speed transmissions. Continuously variable transmissions allow engineers to tune the engine for constant operation. Traditional clutches and torque converters either slip constantly or slip during the changing of gears, thus wasting engine power. Dual clutch transmissions allow power to remain engaged, saving the energy usually lost to slipping.

Fuels

Public policy has also been important for the expansion of markets for alternative fuels. Many nations globally mandate the use of biofuels in their fuel supply. The U.S. Renewable Fuels Standard requires EPA to set certain amounts within the U.S. fuel supply based on technology and availability. There are relatively few differences from a vehicle drivetrain technology and production standpoint, so costs are low on a per vehicle basis. There are, however, significant infrastructure costs and production constraints. Biomass-based gasoline and

diesel fuels, which have essentially the same basic fuel properties of current petroleum-based fuels, avoid nearly all of those vehicle cost and infrastructure issues but continue to have high relative costs and face production constraints.

Low U.S. natural gas prices are leading to increased use of commercial fleet vehicles. Gas-based fuels present on-board storage packaging problems due to their low density. The low density currently necessitates relatively expensive and large high-pressure tanks, which have significant packaging issues, or liquefaction, which has boil off and insulation issues. Automotive conversions generally lose much of their trunk volume. The low density also leaves these vehicles with limited range. Natural gas vehicles also face considerable infrastructural barriers. Use of natural gas as a vehicle fuel is substantial in Germany, Argentina, Brazil, Venezuela, India, Pakistan and Iran.

Diesel is the main alternative fuel to gasoline worldwide with ubiquitous use in the commercial sector. Several European firms with significant investment in the technology have been focusing on expanding the market for diesel-fueled vehicles in the light vehicle sector. While it is still petroleum-based, the technology for its use is widely available, and increasing its use can reduce oil consumption. Diesel engines can provide 25 percent more fuel efficiency and more torque at lower rpm than gasoline engines, though emission reduction technologies can reduce that amount considerably. Due to thicker castings and higher quality components needed to withstand the higher pressures and torque of diesel combustion, comparative diesel engines tend to be more expensive to produce and have higher upfront costs for consumers. The lower fuel costs from increased efficiency, however, can usually pay back those increased upfront costs over time.

Diesel engines account for approximately half of the European market, largely due to public policy, which included tax advantages that make diesel fuel cheaper versus gasoline in Europe. Diesels have not been popular in the United States, accounting for less than one percent of light vehicle sales, in part due to poor consumer perceptions regarding diesels caused by offerings from the 1980's. Emissions concerns were already leading to moves to end public policy support for diesel in Europe, but recent

disclosures that Volkswagen had illegally cheated on emissions compliance in the United States has probably ended any hopes of greatly expanding the market globally. Other countries have opened investigations as well. In fact, Volkswagen has recently committed to expanding its electrified vehicle offerings. According to CEO Matthias Müller "The car of the future ... is electric."

Electrified Vehicles

The increasing stringency of vehicle efficiency and carbon emission reduction regulations are also helping to push the manufacture of electric drive technologies, though other mandates and incentives are also playing a role. One of the main policies advancing electric drivetrains globally is the California Zero Emission Vehicle mandate. The mandate has forced manufacturers to market plug-in or fuel cell vehicles, improving the viability of those vehicles. California's mandates will begin to escalate in 2018, and by 2025, roughly 1 in 7 new vehicles (1.4 million) sold in California will be a plug-in or hydrogen fuel cell vehicle. Norway also has significant purchase incentives, including major tax reductions for plug-in vehicles. Due to those major incentives, plug-in vehicles are already roughly a third of new car sales in the country. China is also pushing electrification of its vehicle fleet with significant purchase incentives as well as incentives for the production of vehicles, including allowing the entrance of new manufacturers.

Many firms continue to explore hydrogen fuel cell vehicles. Fuel cells produce electricity through a chemical reaction. In this way fuel cells are electric vehicles with a different energy storage system. Like plug-in vehicles, fuel cells offer low direct emissions in comparison to conventional vehicles. If pure hydrogen is used, the only direct byproduct is water vapor. This clean "tailpipe" has long been one of the chief reasons to pursue hydrogen fuel cell vehicles. Several automakers have been offering small numbers for public consumption. Limited fueling infrastructure and high costs, in part due to extremely low volumes, have prevented significant uptake.

While hybrid vehicles have been available for almost two decades and many manufacturers offer at least one model, only Toyota has been able to make them a significant portion of their sales. Hybrid power

systems use their electric drive components to recapture energy and to augment their petroleum-fueled engine, allowing the engine to operate in higher efficiency ranges. Like most efficiency related technologies, the added costs of the technology are faced at the time of purchase while lower operating costs are seen over time. While hybrids provide substantial improvements in efficiency over internal combustion engine driven vehicles, greater reliance on electrical energy to drive vehicles could provide much greater gains in transportation efficiency and fueling costs.

Batteries and electric motors are highly efficient in their storage and use of electricity. Likewise, the large turbines at electrical power generation stations achieve much greater efficiencies than the internal combustion engines found in regular automobiles. Charging vehicles from the electrical grid allows them to benefit from the greater efficiencies of the large power generation stations and the fact that there are multiple fuels feeding the grid, causing substantial fuel price competition. The result is plug-in vehicles have lower emissions per mile using the average U.S. power generation mix of electricity than even typical hybrid vehicles. They are generally much cheaper to operate; until recently, however, the cost of batteries has made plug-in vehicles significantly more expensive. To provide vehicles with a similar purchase price, the vehicles generally had to have lower ranges (roughly 100 miles or less for battery-only vehicles). Alternatively, they have offered plug-in hybrids with even lower ranges (40 or less miles) that carry an internal combustion engine and associated systems with the additional packaging and cost constraints present.

Dramatic cost reductions over the last few years have significantly reduced all plug-in vehicle production costs. The reductions have been so large that plug-in vehicles appear to have already attained purchase cost competitiveness at the high end of the vehicle market with Tesla outselling all of its competition in the U.S. market. They appear close to achieving similar purchase cost parity with the middle of the market over the next few years. GM plans to bring to market its 2017 Bolt EV at a sales price of \$35,000 at the end of 2016. It will have an expected vehicle range of over 200 miles. This is roughly the U.S. average vehicle sales price, and vehicle-use surveys indicate the consumer utility at this range is high enough for most U.S. vehicle travel.

Since the United States has some of the highest miles traveled rates in the world, the range should also cover most global usage. A number of other manufacturers are promising similar offerings by 2018. Likewise, the same technological advances that have led to lower cost and higher range in plug-in only vehicles has led to reduced costs and lower packaging constraints for plug-in hybrids.

Charging infrastructure is already significantly further advanced than all the other non-petroleum alternatives to petroleum. Nearly 50 percent of U.S. households have access to outdoor plugs, enabling a large potential market for early adoption. The load of a typical vehicle charging to cover normal usage is similar to a washing machine running overnight. As such, even standard 110 volt outlets can provide enough energy for 80 percent of trips via overnight charging. Nonetheless, improvements will need to be made to accommodate very large numbers of plug-in vehicles, and vehicle charging infrastructure is a constraint in markets without consumer-owned parking. There should be time to accommodate those changes. It takes roughly 15 years to turn over the U.S. vehicle fleet, so even if plug-in vehicles were to be 100 percent of 2016 sales, it would be 2031 before the fleet would be fully plug-in capable.

Other Technologies

New technologies are increasingly merging the automotive market with other fields and industries. For instance, companies are beginning to provide electric grid stability services (helping maintain grid voltage levels) by increasing or decreasing the charging of groups of plug-in vehicles. Likewise, the line between consumer electronics and automobiles is increasingly blurring. There are increasing levels of infotainment, electronics and telecommunications technologies being embedded in vehicles. Not only are automotive firms increasingly participating in the Consumer Electronics Show in Las Vegas, but GM first announced its new Chevy Bolt there, which indicates the level of influence that these changes are having. These changes include the integration of smartphone technology for both convenience and safety and the offering of internet hotspots in some vehicles.

The vehicles themselves are starting to communicate with each other, the road and, potentially, consumers. Enabling vehicle-to-vehicle

communications allows automobiles to warn each other of otherwise unseen dangers. Allowing vehicle-to-infrastructure communication makes possible traffic signals that switch to green as traffic approaches. Vehicle-to-other-communication allows the vehicle to know the movement of individuals based on the smart phone in their pockets.

Vehicles are also beginning to drive themselves. Most firms already offer vehicles that provide a number of autonomous functions. These include adaptive cruise control systems that adjust speed to maintain safe following distances or active safety braking systems that detect and avoid crashes. The addition of improved sensor technologies, increases in computing power, more accurate maps and ongoing research are quickly closing the gap between these systems and full automation. The software in these vehicles will not be perfect, but the computers will not suffer from distraction and will have significantly faster reaction times than human drivers. They are expected to lead to dramatic reductions in accident rates. Showing how the vehicle and consumer electric markets are merging, Google, on the flip side of vehicle manufacturers, has logged over a million miles in its self-driving vehicle. The Silicon Valley start-up, Tesla, is already offering some of the most sophisticated vehicle automation options currently available in its "Autopilot" highway driving and "Summons" self-parking feature suite.

Fully automated vehicles could completely change the automotive market. They could provide extremely low-cost on-demand transportation services, displacing most, if not all, taxi, bus, limo

and truck drivers. They could dramatically reduce the number of vehicles needed for equivalent levels of service by, for instance, providing taxi or bus services during the peak commuting periods and offering package delivery services during off peak times with no driver rest requirements. This would mean a substantial contraction in vehicle and parts manufacturing in addition to the changes to the vehicle service markets. Autonomous vehicles can dramatically reduce the need for vehicle parking, making valuable city land available for other uses. With reaction times in milliseconds and communications with vehicles around them, they can enable increased throughput on roads and highways. They can also travel at much closer distances, enabling platooning to slip stream for reduced air drag on the highway and improve highway energy efficiency. They could also reduce interregional rail and air travel by making longer road travel less burdensome (and counteract possible congestion reduction benefits noted above).

Top Opportunities:

- Weight reduction technologies
- Advanced engine control technologies
- Turbos
- Advanced transmissions
- Vehicle accessory electrification technologies
- Sensors
- Advanced batteries and battery inputs
- Advanced electronics

Country Case Studies

The following pages include country case studies that summarize U.S. automotive parts export opportunities in selected markets. The overviews outline ITA's analysis of the U.S. export potential in each market and offer recommendations to exporters that can improve their competitiveness. The markets represent a range of countries to illustrate a variety of points – and not the top markets overall.

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Mexico

Type: Large Market; Large Share

In 2015, Mexico was ranked as the largest export market for U.S. auto parts overall, supplanting Canada. The size of its market and the shared border provides an excellent market for U.S. OE and aftermarket parts. Auto sales have shown consistent growth since 2010, from 820,406 units in 2010 to over 1.3 million units in 2015, which is a record high. Nissan was the best-selling brand, followed by General Motors and Volkswagen. But while U.S. exports of new passenger vehicles grew from 129,128 units in 2010 to 153,738 units in 2013, exports declined to 137,023 units in 2015.

Original
Equipment
Rank

2

Aftermarket
Rank

2

Today, Mexico, which produced 3.4 million vehicles in 2015, is ranked the seventh largest vehicle producer in the world and the first in Latin America. According to the Mexican Association of the Automotive Industry, Mexico may surpass Korea by 2020, becoming the sixth largest worldwide vehicle producer with more than 5 million vehicles. The auto sector accounts for 18.3 percent of Mexico's manufacturing sector and 3.2 percent of national GDP. Furthermore, Mexico's auto parts industry is closely tied to its American counterpart and economic growth in the United States. Low labor costs and extensive free trade agreements have provided incentives for vehicle manufacturers and its suppliers to establish plants in Mexico to export to the world, contributing to Mexico's production growth.

Overview of the Automotive Parts Market in Mexico

Since 2009, U.S. auto parts exports to Mexico have more than doubled from \$12.1 billion to over \$26.5 billion in 2013, over \$29 billion in 2014 and over \$30 billion in 2015. Exports to Canada, the second largest market for U.S.-made parts, also showed growth from \$19.6 billion in 2009 to \$31.8 billion in 2012, but exports to Canada have declined each of the last three years to \$29.4 billion in 2015. Combined, our North American Free Trade Agreement (NAFTA) partners account for about 75 percent of all U.S. parts exports. Trade between the United States,

Canada and Mexico is bound by the terms of NAFTA. As a result, there are no duties on Canadian and Mexican imports of automotive parts that meet the NAFTA rule of origin.

According to the National Auto Parts Industry (INA), Mexico is the sixth largest auto part producer. Production has grown from \$41.2 billion in 2009 to over \$76.8 billion in 2013 with production exceeding \$85 billion in 2015. The growth of vehicle production will further lead to increased demand for the auto parts industry and for a wider range of products for assembly companies' production lines. In addition, the continuing growth in the number of vehicles sold domestically will increase the demand for aftermarket parts. More than 80 percent of Mexican vehicle production is exported abroad.

Figure 5: 2015 Mexico Automotive Market

Sales (units)	1,380,889
U.S. Auto Parts Exports	\$30,059,032,686
Total Auto Parts Imports	\$46,466,469,150
Total Domestic Vehicle Production	3,589,142
Passenger Vehicles in Operation	26,972,225
U.S. Auto Parts Export Growth 2009-2015	+149%

Challenges and Barriers to Automotive Parts Exports

Mexico's pursuit of free trade agreements with dozens of countries across North and South America, Europe, and Asia has made it an increasingly competitive market for manufacturing. Mexico also joined the Trans Pacific Partnership recently. These "FTAs combined with low labor rates and close proximity to the United States open the door for U.S. aftermarket companies to set up cost effective production facilities within Mexico and then to export finished products to the United States, Latin America and worldwide markets."ⁱⁱ For example, according to INA, Mexico offers 10 percent savings in auto parts manufacturing when compared to costs in the United States.

Mexico is the sixth largest auto part producer in the world, so the market is already competitive. There are 198 auto part plants in the northeast region of Mexico, 70 plants in the northwest region, 142 plants in the west and 101 plants in the central region. In total, Mexico has around 2,559 auto parts companies, with 65 percent being foreign owned companies. Tier 1 and tier 2 suppliers that already supply OEMs in Mexico will likely be enticed or pressured to follow these customers with new investments of their own in order to secure their supply contracts. Nineteen percent of the foreign owned auto parts companies already established in Mexico are from the United States, with Japan accounting for 18 percent, followed by Germany at 12 percent. Examples of the suppliers already operating in Mexico include Bosch, Magna, Hitachi Automotive Systems, Delphi, Michelin, Denso and TWO Automotive, among many others.

The United States is the leading exporter of auto parts to Mexico with 53 percent, followed by China with 13 percent, Japan with 6.8 percent, and Canada, Korea, and Germany with 4 percent each. While the United States exported over \$30 billion in auto parts to Mexico in 2015, it imported over \$50 billion in parts from Mexico. This is almost triple (\$18.1 billion) the imports from the second largest source of U.S. imports, Canada.

Mexico accepts both U.S. and European safety standards, increasing competitive pressure from European parts companies.

Opportunities for U.S. Companies

Original Equipment Parts

There are currently 10 passenger vehicle manufacturers in Mexico, including General Motors, FCA Group, Ford, Nissan, Honda, Toyota, VW, Mazda, Kia and Audi. This manufacturing base produces more than 40 brands and 500 models in 23 manufacturing plants and has a network of 1,700 dealers. BMW is investing \$1 billion in a new plant in central Mexico and will begin production in 2019. Audi's new plant is expected to come online in 2016 with a capacity of 150,000 vehicles. Nissan and Daimler have signed a joint venture agreement and are investing over \$1 billion in a new plant that is expected to begin production in 2017 with an initial capacity of 230,000 units. Kia has also invested \$1 billion in a Mexican auto plant that is expected to begin production in the first half of 2016 and will have capacity to build 300,000 vehicles annually. In April 2015, Toyota announced that it would invest \$1 billion to build a new plant in Mexico producing the Corolla. The plant is expected to begin production in 2019 with a capacity of 200,000 Corollas per year. Ford is planning to double its vehicle production in Mexico, and it will invest \$1.5 billion in a new plant that will build 350,000 cars annually. Previously, Ford announced its plans to invest \$2.5 billion for two new engine and transmission plants and an expansion of its diesel engine production in Mexico. In late 2014, General Motors announced it was investing \$5 billion through 2018 to double capacity at its four plants in Mexico. In 2014, Mazda opened a new small-car assembly plant in Mexico that has an annual capacity of 200,000 vehicles. Mexico's growth in passenger vehicle production will inevitably create an increased demand for original equipment parts.

Aftermarket Parts

Mexico has a large number of older cars, providing opportunities for repair and aftermarket parts and accessories. More than fifty percent of total vehicles are 10 years old or older. The average Mexican consumer owns a 14-year-old vehicle. The combination of the ages of the vehicles with poor road conditions that put excessive strain on vehicles provides a prime market for aftermarket parts. In the aftermarket, there are business opportunities for gasoline and diesel engines, transmissions and parts,

collision and repair parts, electric parts, maintenance, and repairing equipment. The Mexican car fleet is fairly similar to the U.S. car fleet, thereby making aftermarket parts from the United States an attractive option. Popular models include Chevrolet's Aveo, Spark and Sonic; Nissan's Versa, March, Tsuru and Sentra; and Volkswagen's Jetta and Vento. In 2015, Nissan was the best-selling brand with a 25.7 percent market share, followed by General Motors (19 percent market share), Volkswagen (13.3 percent), Toyota (6.3 percent),

Ford (6.5 percent) and Honda (5.4 percent). Combined, the geographic proximity, similar fleets, and large number of vehicles reaching prime aftermarket age should provide plenty of opportunities for U.S. companies to export aftermarket parts to Mexico.

For additional information on this market, please visit: <http://www.export.gov/mexico/> .

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China

Type: Large Market; Small Share

The Government of China has viewed its automotive sector, including the auto parts industry, as a pillar industry for many years. The sector is projected to grow rapidly under the government's latest economic development plans, which devote particular attention to the latest automotive technologies employed in electric and hybrid vehicles.

Original
Equipment
Rank

3

Aftermarket
Rank

3

Overview of the Automotive Parts Market in China

China is the third largest market for U.S. auto parts exports. In 2015, there were \$2.3 billion in exports with a decrease of nearly 1 percent from the previous year. China exported \$18 billion in auto parts to the United States in 2015, a slight increase over 2014.

BMI Automotive estimates that light-vehicle sales in China will increase 4.4 percent in 2016 to reach 24.3 million vehicles. SUVs are a fast-growing segment in China. China's growth in new passenger vehicle sales and the aging of China's vehicles will inevitably create an increased demand for both original equipment (OE) parts and aftermarket parts.

As the number of new cars continues to grow so does the number of older cars, especially cars that have just gone out of warranty (which is typically three years in China). By 2017, the average car age will be 4.5 years old which will increase demand for

aftermarket parts and services.

The emergence of a Chinese aftermarket is relatively new. Most of the service is done through the original equipment manufacturer, where the buyer purchased the vehicle new. There is also service through repair shops authorized by the original equipment manufacturer. Independent aftermarket suppliers are usually small regional companies that sell through distributors to independent repair shops. This tends to be a complex distribution chain with many layers.

Recently, small direct channels which are owned by a strong brand company, usually foreign, have emerged. This distribution channel has proved to be successful as Chinese consumers tend to be price and brand conscience and worry that they are buying genuine parts.

New auto-related regulations and policies in China continue to be developed as the market grows. The Chinese government continues with directed policies to decrease the number of auto component suppliers and increase their own quality and competitiveness.

Challenges and Barriers to U.S. Automotive Parts Exports to China

U.S. automakers and automotive parts manufacturers face significant challenges in China's automotive market as China has implemented a series of policies that have had a discriminatory effect on foreign enterprises, including caps on

Figure 6: 2015 China Automotive Market

Sales (units)	24.6 million
U.S. Auto Parts Exports to China	\$2,388,637,302
Total Chinese Auto Parts Imports	\$45,741,366,143
Total Domestic Vehicle Production	24.32 million
Vehicles in Operation	145,501,274
U.S. Auto Parts Export Growth 2009-2015	+154%

majority foreign ownership in most cases. Additional problems arose after China's economic policymakers began devoting substantial resources and creating new policies to assist Chinese automobile enterprises in developing cutting-edge New Energy Vehicle (NEV) and hybrid technologies and building domestic brands that could succeed in global markets.

Chinese policy makers have recently hinted that they may be developing their own standards. Having a unique set of standards will make it even harder to export to Chinese markets and will certainly raise the cost of doing business.

Chinese auto and auto parts producers benefit from many Chinese government policies, including import restraints, domestic content rules, technology transfer policies, export requirements, and domestic and export subsidies. Auto parts targeted by these plans include batteries, electric motors, electronic control systems and fuel cells.

China remains a major source of counterfeit auto parts, and it is a concern for the industry worldwide. U.S. companies, whether exporting or not, should be diligent about protecting their intellectual property in China and be on the lookout for any counterfeit products for sale not only in China, but worldwide. Companies should also be aware of pervasive industrial espionage and take precautions to protect computer systems and critical technologies.

China has been slow to update the laws and regulations regarding vehicle modifications, which limit U.S. parts exports of specialty products. In addition, there is concern that there will be certification requirements for aftermarket parts sold in China, which could be burdensome for parts suppliers.

Opportunities for U.S. Companies

While it can be difficult for U.S.-made parts to compete with low-cost Chinese parts, there are many opportunities for exports. Many Chinese consumers appreciate the quality and reliability of U.S.-made parts, and they have the means to pay extra for them. In addition, those parts with advanced technologies or unique features have the potential to be exported.

Original Equipment (OE)

Vehicle sales are predicted to stay strong in 2016, reaching 24 million. The tax cut on cars with engines less than 1.6 liters will encourage consumers to buy. It is projected that auto and auto component makers will increase localization in their manufacturing operations.

China requires foreign vehicle brands that manufacture in China to have a joint venture with a Chinese partner. Currently, over 20 foreign automakers produce vehicles in China, including GM, Ford, Fiat/Chrysler, Daimler, BMW, Volkswagen, Audi, Peugeot/Citroen, Jaguar/Land Rover, Volvo, Toyota, Honda, Nissan, Infiniti, Isuzu, Mazda, Mitsubishi, Suzuki, Hyundai and Proton.

Ford has stakes in two JVs in China, Jiangling Motors Corp. and Changan Ford Automobile. Changan Ford passenger vehicle sales increased 7 percent to 836,425 vehicles for 2015 while Jiangling Motors sales decreased 6 percent to 253,359. Ford also imported 25,340 vehicles last year.

GM has 10 joint ventures in China, its largest market worldwide. GM, along with its joint ventures, sells under the Buick, Cadillac, Chevrolet, Opel, Baojun, Wuling and Jiefang nameplates. GM's joint venture, Shanghai GM, announced in 2015 that it will invest \$16.4 billion in new car development from 2016 to 2020. Separately, GM announced in 2014 that it will invest \$14 billion in China from 2014 to 2018 and open 5 more auto assembly plants by 2018 with a goal of increasing production from its current 3.5 million units in China per year to 5 million units. In 2015, GM increased sales in China by 5.2 percent to reach 3,612,653 vehicles.

Fiat Chrysler recently established a JV with Guangzhou Automobile Group Co., and Chinese production of the Jeep Grand Cherokee began late last year. Fiat Chrysler forecasts that its sales in China would increase to 850,000 vehicles in 2018 from 195,000 in 2014. By 2018, GAC Fiat will be producing eight models in China. China has become the largest Jeep market outside of the United States.

OE parts suppliers already in the global supply chain for these vehicle manufacturers could have some advantage in supplying these Chinese plants, but in most cases, the parts will be produced there. For

example, Delphi, a major U.S. parts manufacturer currently has 28 manufacturing plants in China with plans to increase this further.

According to data from the China Association of Automobile Manufacturers (CAAM), the top-selling models in China in 2015 were SAIC GM Wuling Hongguang, SAIC Volkswagen New Lavida, Great Wall Haval H6, Dongfeng Nissan Sylphy, SAIC GM Wuling Baojun 730, SAIC GM Buick Excelle families, FAW-Volkswagen New Sagita, SAIC Volkswagen New Santana, FAW-Volkswagen New Jetta and SAIC Volkswagen Tiguan.

Aftermarket

Beginning on January 1, 2015, automakers are required to provide maintenance and technical information for all models with independent repair shops. In addition, original equipment suppliers will be allowed to sell their products directly to consumers and non-authorized dealers. These changes will encourage greater competition and will allow component manufacturers more access to aftermarket sales.

Currently, China's after-sales market is still in its development stage with immense opportunities for growth. The average age of the country's vehicle fleet is three years old, and by 2017, the average car age will be 4.5 years old, which will increase demand for aftermarket parts and services. Despite its underdevelopment, the Chinese after-sales market generated \$73 billion in 2013, compared to the U.S. aftermarket sales of \$131 billion in 2012.

A growing after-sales market and a strong potential for clean energy vehicles will encourage U.S. exports followed by investment from suppliers. U.S. aftermarket companies can meet potential buyers at Automechanika Shanghai, which will be held from November 30 to December 3, 2016.

Specialty

Currently, China has regulations that prohibit many vehicle modifications, constraining U.S. specialty

auto equipment exports. ITA is working to inform Chinese industry and government representatives about how the United States safely regulates the American aftermarket, including specialty equipment.

The Specialty Equipment Market Association (SEMA) has a Market Development Cooperator Program (MDCP) award with ITA to help U.S. specialty parts companies increase their exports to China. Each fall, SEMA organizes an event in China where U.S. specialty parts companies can explore the market and meet potential buyers.

Subsector Best Prospects

As the Chinese Government works to reduce pollution and the importation of oil, it has been making regulatory changes that target increasing fuel efficiency. These changes will create opportunities for advanced technology components, such as turbochargers, which decrease fuel consumption.

According to CAAM, domestic electric vehicle (EV) sales are expected to reach 273,150 units by 2017. This is considerably down from previous government predictions of achieving 500,000 unit EV sales by 2015 and 5 million by 2020. The Chinese government is implementing several policies that encourage the adoption of EVs, including its goal to have charging stations in every parking lot. In addition, the government's mandate that 30 percent of its fleet be EV is seen as an incentive for the EV manufacturers.

U.S. companies that specialize in vehicle emissions controls are in a great position to take advantage of the Chinese market as they have more advanced technology than the Chinese suppliers do.

China adopted stricter diesel emission regulations (Euro 4), and China is currently drafting stricter passenger vehicle fuel consumption regulations.

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Germany

Type: Large Market; Large Share

Germany ranks fifth on ITA’s list of top U.S. auto parts export markets. The German automotive market seems to have finally rebounded as the German economy has improved, and Europe, overall, is growing at modest levels. The TTIP is expected to breathe new life into vehicle sales and production. Hopefully, the TTIP will eliminate tariffs and significantly reduce the costs created by divergent regulations and standards, including costs for additional research and development, production of EU-specific lines, as well as testing and certification costs. In addition, both the United States and Europe are moving ahead with collaborative research and development of advanced technologies, which will improve the markets for fuel efficient vehicles and advanced automotive parts and technologies.

Original Equipment Rank
5

Aftermarket Rank
10

Overview of the Automotive Parts Market in Germany

Despite a slow economic recovery, Germany continues to outperform other European markets. Suppliers have not been as impacted by the slowdown because they are often less reliant on the growth of a single company and generally enjoy a more global sales base. In fact, with nearly one dozen German auto plants scattered throughout the country, Germany hosts the largest concentration of the 47 OEM plants located throughout Europe. In the largest autos market in the EU, German vehicle and parts manufacturers directly employ more than

800,000 people with a further 3 million employed indirectly.

Volkswagen was the leader in sales in Germany for 2015 (685,000 units sold), followed by Mercedes (286,000), Audi (269,000), BMW (249,000), Ford (225,000) and Opel (229,000). Particularly popular Ford models included the flagship Ford Mondeo and the Ford Kuga. Popular Opel models included the Astra, the compact SUV Mokka and the Opel Meriva.

Challenges and Barriers to Automotive Parts Exports

As the world’s largest exporter specializing in high-end manufactured goods and capital products, Germany has been particularly hard hit by the slowdown in both the G7 and emerging markets.

The barriers to trade that exist in Germany are similar to the barriers that suppliers face throughout Europe and the rest of the world. Lack of harmonization and convergence, lack of transparency of regulations and standards, and tariffs are the major barriers for doing business in Germany. These barriers, while surmountable, raise the cost of doing business for U.S. automotive vehicle and parts suppliers.

Figure 7: 2015 Germany Automotive Market

Sales (units)	3,539,832
U.S. Auto Parts Exports to Germany	\$1,959,900,297
Total German Auto Parts Imports	\$93,242,367,905
Total Domestic Vehicle Production	5,739,900
Vehicles in Operation	47,816,579
U.S. Auto Parts Export Growth 2009-2015	+57%

Automotive regulatory standards issues are one of the trade-restricting non-tariff barriers (NTBs) for exports of both vehicles and parts into the EU. Conforming to two different standards is costly and time-consuming. According to the Auto Alliance, “a popular U.S. model a manufacturer wanted to sell in Europe required 100 unique parts, an additional \$42 million in design and development costs, incremental testing of 33 vehicle systems, and an additional 133 people to develop, all without any performance differences in terms of safety or emissions.” Achieving regulatory convergence reduces costs associated with the current regulatory inefficiencies, which thereby facilitates increased trade and competitiveness. An ambitious and comprehensive U.S.-EU agreement on regulatory convergence has been viewed as a unique opportunity to foster global harmonization.

Additionally, tariffs are a major cost driver for parts suppliers. Some automotive parts can have tariffs of 2 to 5 percent of total costs. Where there are low margins, tariff costs can result in missed business opportunities overseas. It is estimated that import duties on U.S.-EU trade in automotive parts amounted to \$783 million in 2013. Duties assessed on \$6.9 billion of U.S. exports of automotive parts into the EU equaled \$220 million (using estimated weighted average duty of 3.2%) in 2013. Tariff elimination is a key goal of the ongoing TTIP negotiations.

It is difficult for U.S. aftermarket parts companies to enter Germany’s market for various reasons: warranty concerns, a highly sophisticated market, as well as fierce global competition. These challenges represent high barriers for new-to-market (NTM) manufacturers and products, especially for product groups such as lubricants, additives, care products, and other aftermarket parts and accessories. NTM companies must commit to high investments in marketing and/or local sales staff in order to gain market share, which can only be achieved through displacement of competitors. Distributors and agents are very reluctant to take on new products and brands, unless the product’s unique selling proposition is strong and the foreign manufacturer shows commitment to invest in product development in Germany.

Opportunities for U.S. Companies

Due to Germany’s position as a leading automotive technology provider and its sophisticated market structure, selling into the automotive parts sub-sector is difficult. Broad market opportunities, however, exist for technological innovations and applications. Moreover, technological advances, historically the sole preserve of the vehicle manufacturer, are increasingly taking place at the supplier level. OEMs are accordingly differentiating themselves in terms of brand reputation and service.

Due to increasingly strict EU regulations and policy, especially regarding emission control, opportunities are arising as manufacturers and suppliers have to adapt to the regulatory requirements. Business opportunities exist especially in high-tech sectors, such as innovative materials and components, technology to increase fuel efficiency, alternative drive technology, new vehicle designs, and innovative (urban) mobility concepts.

German OEMs and tier-suppliers are still making considerable investments in the United States—for every new model that is manufactured in the NAFTA-region, OEMs will seek a number of local suppliers. The strategy for foreign suppliers is to source as much locally as possible (ideally 60 to 80 percent). German OEMs urge their existing partners to follow them to respective foreign manufacturing facilities—but that does not always work, especially not quickly. Accordingly, they will seek local suppliers in order to avoid higher costs and risks associated with parts being shipped to foreign production sites (e.g., transportation, currency/exchange rates fluctuations, etc.).

In the long run, the best opportunities for U.S. automotive parts suppliers will come from the passage of the TTIP Agreement. The TTIP calls for an elimination of all tariffs on trade and a significant reduction in the cost of differences in regulations and standards by promoting greater compatibility, transparency and cooperation. It also seeks to establish rules of origin to ensure that preferential duty rates under the agreement with the European Union apply only to those eligible to receive such treatment and to define procedures to apply and enforce such rules. The TTIP offers significant benefits in terms of promoting U.S. international competitiveness, jobs and growth. According to an EU Economic Assessment report, the elimination of tariffs and 10 percent of U.S. and EU NTBs would

result in increased exports of U.S. vehicles and parts into the EU by 207 percent. If 25 percent of those same NTBs are eliminated, U.S. exports would increase by 347 percent (based on 2027 projections). The impact of TTIP will be especially felt in Germany as the largest producer and exporter of automobiles in the EU.

Subsector Best Prospects

Demand for smaller and more energy-efficient mid-range passenger vehicles is growing. In Germany, demand for the small car, as well as the SUV segments, has grown significantly. An environment subsidy introduced in 2009 has facilitated a shift toward small and compact vehicles. A further decisive factor driving demand for smaller vehicles is energy efficiency. Fuel consumption and greenhouse gas emission levels play a pivotal role in auto purchasing behavior. Also, in the past, the type of car owned spoke volumes about its owner and his or her position in society. Today, cars are no longer the simple indicator of wealth and status that they once were. Societal trends in western societies including “downshifting” and increased environmental awareness are being reflected in new car ownership patterns. In the premium segment, “exclusivity” and “high performance” are giving way to sustainable and urban mobility as selling points. Auto parts that support these concepts should have an increased competitive position.

Alternative Drive Systems

In Germany, there is a major focus on improving internal combustion engine energy efficiency (i.e., downsized and turbo charged engines), developing alternative drive technologies (including electric, hybrid, clean diesel, compressed natural gas/liquefied petroleum gas and fuel cell cars), and adapting lightweight materials (such as carbon fiber parts – CFRP) and electronics. According to a McKinsey study, the overall market value for new vehicles with optimized combustion engines is set to reach between 280 and 300 billion Euros by 2020. Impressive developments have already been made in developing smaller, highly charged “homogeneous combustion” engines and dual clutch transmission (DCTs). Diesel has been the principal alternative to gasoline for light duty vehicles. A number of German manufacturers have made large investments in diesel technologies and have been

focusing on advancing the global market for diesels going forward. Due in part to poor air quality, there had been growing political opposition to European public policy support for diesel technologies. Volkswagen's diesel emissions compliance scandal has largely sidelined those efforts globally. Demand for alternative drive systems is the result of increased environmental awareness, rising gas prices and more rigorous CO2 limits for new vehicles. Subsidies and incentives, such as exemptions from vehicle sales tax, free parking and other benefits, for vehicles with alternative systems are also important drivers of demand.

Vehicle Emissions

Fuel consumption and CO2 emission levels of European passenger cars are 95 g/km of CO2, phasing in with 100 percent compliance reached in 2021. The light-commercial vehicles are expected to reach 147 g/km of CO2 by 2020. Manufacturers are working to achieve large reductions through drive train-related measures, including micro-hybrid, vehicle architecture, advanced transmissions, efficient air-conditioning systems and tire-inflation control systems. At the same time, control of point emissions are requiring advanced emission control strategies and equipment, such as particle traps and urea systems, for diesel pollution. The stringency of these requirements is also expected to rise particularly as a result of the VW scandal. The combination of these tightening requirements is increasing the push toward vehicle electrification technologies.

Electromobility

The German government has made more than one billion Euros in funding available as part of its initiative to put one million EVs on Germany's roads by 2020. The National Electromobility Development Plan has been drawn up to promote all aspects of electric driving, including the development of battery technology, grid integration and market acceptance of electric vehicles. Today, electric vehicle sales are still marginal, but it is the fastest growing vehicle segment. In response to its diesel emissions scandal, Volkswagen has turned its focus on expanding its line-up of electric drive vehicles and has promised 20 more electrified vehicles by 2020.

Biofuels

The German government introduced mandatory blending quotas for biofuels with fossil fuels in 2007. Beyond these quotas, the German government has set a biofuels share by energy content target of 12 percent by 2020 – 7 percent above the stated EU target. This should create more opportunities for vehicle electronic control technologies, including sensors and modules to take better advantage of different fuel types.

Other Best Prospects

Opportunities exist in advanced vehicle technologies, including automotive semiconductors; innovative lighting technology (LED/laser, etc.); software, IT and Car-to-X communication technology; (smart) driving assistance and infotainment; (integrated) mobility services and concepts; range extender technology; and efficient and economical battery technology.

Australia

Type: Mature; Diverse Market with Modest Growth

Australia's auto market is mature with modest growth expected going forward. BMI forecasts that new vehicle sales in Australia will increase 6.8 percent between 2015 and 2019, growing to 1.2 million units in 2019. Australia was the seventh largest destination for U.S. auto parts exports in 2015, and the market has relatively few barriers for U.S. companies. Since auto production in Australia is winding down over the next couple of years, future U.S. parts exports will be for aftermarket use.

Original
Equipment
Rank

17

Aftermarket
Rank

12

Overview of the Automotive Parts Market in Australia

In 2015, sales of new passenger cars, SUVs and commercial vehicles in Australia totaled a record 1.2 million units, which was an increase of 3.8 percent from 2014. Passenger cars accounted for 44.6 percent of the market; SUVs accounted for 35.4 percent of the market; light commercial vehicles were 17.2 percent of the market, and heavy trucks were 2.8 percent. Market leaders were Toyota (17.8 percent market share), Mazda (9.9 percent), GM Holden (8.9 percent), Hyundai (8.8 percent) and Mitsubishi (6.2 percent). Australia is one of the most open automobile markets in the world with almost 70 brands and 350 different models being offered for sale. Popular vehicles include the Toyota Corolla, Mazda3, Toyota Hilux, Hyundai i30 and the Ford Ranger.

Currently, there are three vehicle manufacturers and approximately 140 original equipment suppliers producing in Australia. For the first 10 months of 2015, BMI reported that auto production was 143,349 units, a decrease of 4.5 percent from 2014's first 10 months.

However, by the end of 2017, Australia's vehicle production is expected to end. Ford will stop producing vehicles and engines in Australia in October 2016. In addition, both Toyota and GM Holden will no longer produce vehicles and engines in Australia by the end of 2017. The automakers will still sell and distribute their imported vehicles in the country. Ford also plans on maintaining vehicle development and engineering capabilities in Australia, and Holden plans to continue to design and engineer vehicles. Australia's low tariffs for imported vehicles, relatively high production costs for the region, reduced economies of scale (for automakers and suppliers), and the value of the Australian dollar contributed to the decisions to end local vehicle production.

After vehicle assembly ceases in Australia, some original equipment suppliers in Australia are expected to survive by exporting, producing for the aftermarket and/or diversifying their products; many suppliers, however, are expected to close. Some are relocating production to low cost markets.

Australia has one of the highest vehicle ownership rates in the world, with an estimated 764 vehicles per 1,000 people. The average age of all vehicles

Figure 8: 2015 Australian Automotive Market

Sales (units)	1,155,408
U.S. Auto Parts Exports to Australia	\$1,291,505,053
Total Australian Auto Parts Imports	\$7,150,362,174
Total Domestic Vehicle Production	172,000 (est.)
Vehicles in Operation	~17 million
U.S. Auto Parts Export Growth 2009-2015	+88%

registered in Australia is 10.1 years, and there are approximately 17 million total vehicles in operation. The average annual growth rate for passenger cars registered from 2010 to 2015 was 10.4 percent. Gasoline vehicles accounted for almost 78 percent of the total vehicle fleet, and diesel vehicles accounted for almost 20 percent of the total vehicle fleet.

The Australian aftermarket for replacement parts and accessories is estimated to be worth between \$5 and \$6 billion and is split fairly evenly between local producers and imports. Annual Australian exports of aftermarket parts are estimated by the Australian Automotive Aftermarket Association (AAAA) to be \$800 million.

U.S. auto parts exports to Australia have grown from approximately \$1.1 billion in 2010 to almost \$1.3 billion in 2015. In 2014, the United States and China were virtually tied in being Australia's top source of imports of auto parts, each with 19 percent of the import market. Japan was the third largest supplier, comprising 11 percent of the imports, followed by Thailand, Germany and Korea.

There are approximately 4,000 vehicle dealer franchises in Australia. The AAAA estimates that over 60 percent of vehicles are serviced in Australia's independent aftermarket, and 70 percent of the replacement parts and accessories sold in Australia are from channels other than vehicle dealers.

Challenges and Barriers to Automotive Parts Exports

The Australian auto parts market is competitive, and U.S. companies compete with a well-established domestic manufacturing industry as well as with other global suppliers for both new and remanufactured parts. The large number of global automakers selling in the market, as well as the market's growth, has aftermarket suppliers from around the globe competing for sales. Although Australia has a free trade agreement with the United States, it also has free trade agreements with other large trade partners, including China, which came into force in December 2015. In addition, currency exchange rates can obviously affect demand for U.S. products and suppliers' price competitiveness. Australia's long distance from the United States must also be taken into consideration when shipping

products and when providing support and service to Australian customers.

Opportunities for U.S. Companies

Although Australia will no longer assemble autos after 2017, opportunities remain for certain segments of the aftermarket, particularly for U.S. specialty equipment and aftermarket products for trucks and SUVs. U.S. manufacturers have a good reputation in Australia for making high-quality, well-engineered auto aftermarket and specialty products.

Currently, there are relatively few barriers to exporting automotive products to Australia. If products can be classified as automotive items of minimum 51 percent U.S. content, there are no customs tariffs under the U.S.-Australia Free Trade Agreement. Documentation stating the rules of origin should accompany the shipment of goods.

U.S. aftermarket parts for off-road vehicles and SUVs, such as suspension components, have excellent potential in Australia. According to 4x4australia.com, the top-selling 4x4 vehicles in Australia are Toyota Hilux, Ford Ranger, Mitsubishi Triton, Holden Colorado, Toyota Prado, Nissan Navara, Jeep Grand Cherokee, Isuzu D-Max, Mazda BT-50 and Toyota Land Cruiser 200 Series.

Australians also enjoy high-performance and luxury vehicles, which increases opportunities for related U.S. aftermarket parts. Mercedes, BMW and Audi are leaders in luxury vehicle sales, with Mercedes possibly becoming one of the top 10 selling vehicle brands in Australia in 2016.

The importation of remanufactured, re-built and/or used motor vehicle parts is permitted into Australia. All parts, whether new, used or remanufactured, are treated the same by Australian customs.

Australia, which uses right-hand drive vehicles, is the seventh largest destination for U.S. exports of new passenger cars. Aftermarket parts for these vehicles (such as the Toyota Highlander or the Kluger in Australia, Ford Mustang, Nissan Pathfinder, and Dodge's Ram 2500 and 3500 pickups) have export potential. In 2015, U.S. exports to Australia of new passenger vehicles and light trucks totaled 58,567 units with a value of \$1.6 billion. In addition, Australia was the third largest destination for

medium and heavy duty truck exports by value (almost \$120 million) and the seventh largest by unit (1,217).

Since auto production will end in 2017, an increase in number of U.S. vehicles exported to Australia is expected, which will only increase export opportunities for the U.S. aftermarket and specialty parts for these vehicles.

The Australian government is considering allowing Australian consumers to bypass Australian dealers and import new vehicles that are right-hand-drive, are less than a year old and have less than 500 kilometers on the odometer. The vehicles would, at least initially, have to be sourced from Japan or the United Kingdom (both are right-hand-drive markets).

A \$12,000 (Australian dollars) tax on imported used cars will end in 2018.

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Brazil

Type: Large, Growing Market; Medium Share

In this analysis, Brazil is ranked the 19th best market for original equipment parts and the 29th for aftermarket products. The U.S. shipped \$1 billion in auto parts exports to Brazil in 2015. While Brazil has a very large market with many positive advantages and the U.S. industry exports a considerable volume of parts to the country, the nation's highly protected economy offers limited opportunities for significantly increased auto parts exports. In addition, the Brazilian economy is in the throes of a prolonged recession, and the automotive sector has experienced three consecutive years of contraction. The most reliable avenue for most firms seeking access to the Brazilian market is through the supply chains of vehicle assemblers or larger parts firms already producing in the Brazilian market. The U.S. Government should continue engaging with the Brazilian government to convince them that open trade is in the best interest for Brazil's economic growth, which would simultaneously increase opportunities for U.S. exporters.



Overview of the Automotive Parts Market in Brazil

Brazil is the largest automotive market in South America with over 2 million units in vehicle sales in 2015. It is also the largest producer of automobiles on the continent with over 40 facilities. Korean, Japanese and Chinese brands have been making steady gains in the market, but despite the recent gains, Fiat, Ford, GM and VW maintain nearly 70 percent of sales.

The country had an estimated GDP per capita of \$15,800 in 2015. The economy, however, is experiencing a period of decline and hopes that the pending Summer Olympics would offer a reprieve. This may be tempered by news of the Zika virus and its expected negative impact on tourism. The automotive market has been particularly impacted with production down by over 20 percent in 2015.

Brazil saw significant increases in vehicle ownership levels prior to the current downturn. There are now roughly 180 vehicles per 1,000 people, which put vehicle ownership rates at less than half of developed market levels. Thus, there is significant

room for growth. Unlike the U.S. market, which skews toward larger luxury vehicles and light trucks, Brazilian market vehicles tend to be mostly smaller and mid-size models. According to Brazil's automobile vehicle association, ANFAVEA, the vehicle brands with the most registrations in 2015 were Fiat Chrysler, GM, Volkswagen, Ford, Renault and Hyundai.

Brazilian automotive production is geared toward

Figure 9: 2015 Brazil Automotive Market

Sales (units)	2,568,976
U.S. Auto Parts Exports to Brazil	\$1,039,076,701
Total Brazilian Auto Parts Imports	\$14,343,134,389
Total Domestic Vehicle Production	2,544,458
Vehicles in Operation	51,129,875
U.S. Auto Parts Export Growth 2009-2015	+88%

the domestic market and local models usually feature low embedded technology, and market innovations are limited with flex-fueled vehicles (capable of running off either gasoline or ethanol in any proportion) being a rare exception. Over 90 percent of vehicles sold in the market are currently flex-fuel capable. U.S.-based auto parts companies have a large manufacturing presence in Brazil.

Challenges and Barriers to Automotive Parts Exports

Brazil has one of the most protected automotive markets in the world. Taxes are calculated in a cascading fashion based on the CIF value (free for board price, freight, insurance and other port expenses). The import tax is 35 percent, on top of which is the 55 percent industrial product tax, then the state tax of 18 percent in Sao Paulo and the Social Contribution Tax of 11.6 percent. Together these taxes can increase the price of imported cars by over 100 percent.

In spite of the stringent protection, vehicle manufacturers rely heavily on imported auto parts. They do so largely because of the difficulties and high costs of doing business in the country.

The country's high labor costs, generally low automation levels, poor logistics infrastructure, high taxes and bureaucratic issues result in significantly higher production costs. For example, less than 2 percent of automotive parts and virtually no finished vehicles are sent by rail in Brazil. Likewise, there is little shipboard movement of goods despite extensive coastlines and accessible waterways.

Brazil does not allow the import of used vehicle parts except for antiques. Imports of remanufactured parts are only authorized for the original manufacturer on

the conditions of having the same guarantee as new parts and a letter from the appropriate association (generally the Brazilian automotive association, ANFAVEA) that the imported parts are not made in Brazil. The import license, commercial invoice and the packaging must indicate that it is a remanufactured product. There is already extensive remanufacturing within Brazil.

Opportunities for U.S. Companies

Selling original equipment parts to vehicle assemblers operating in Brazil is the most reliable opportunity for exporting into the Brazilian market.

Brazil will host the 2016 Summer Olympics and thus, is continuing to invest in building the necessary facilities, which provides opportunities for construction-related road vehicle parts and accessories.

The Brazilian Government started the Inovar Auto program (Decree 7819) in late 2012 to spur greater investment and counter growing imports from Asia. The program offers tax reduction incentives for OEMs that invest in Brazil and localize production. The program continues until December 2017. Companies in the program must commit to having their production achieve a 12 percent reduction in fuel consumption and an 18.84 percent reduction in carbon emissions. Suppliers with products that can help firms attain these thresholds cost effectively can potentially have their products become part of the imported supply chain of Brazilian market OEMs.

In addition, there are early opportunities for adapting flex-fueled engines for hybrid systems, and there is currently exploratory work underway for plug-in vehicle technologies.

Korea

Type: Large Market; Small Share

The United States and Korea Free Trade Agreement (KORUS FTA) eliminates tariffs on over 95 percent of industrial and consumer goods within five years, with tariffs on U.S. car exports fully eliminated in 2016. The FTA attempts to address automotive safety standards and new Korean environmental standards that have served as barriers to U.S. exports to create a more open and fair market for U.S. auto companies.

Original
Equipment
Rank

6

Aftermarket
Rank

16

On March 15, 2012, the United States and Korea brought into force the United States-Korea Free Trade Agreement (KORUS FTA). Trade between the United States and Korea is bound by the terms of the KORUS FTA. The FTA was negotiated to increase opportunities for U.S. businesses and promote of American exports. It eliminates tariffs on over 95 percent of industrial and consumer goods within five years. For autos specifically, the FTA contains measures to address automotive safety standards and new Korean environmental standards that have served as barriers to U.S. exports with the intention of creating a more open and fair market for U.S. auto companies. For example, the FTA immediately cut Korea's tariff on U.S. car exports in half from 8 to 4 percent, and it was fully eliminated in 2016. Korea immediately eliminated its 10 percent tariff on U.S. trucks. Since the ratification of the KORUS FTA, the tariff on automotive parts and accessories, which are new or used, is zero percent.

In Korea, imported vehicles accounted for about 15.5 percent of all vehicles in total market share in 2015, up from 5 percent in 2009 and 10 percent in 2012. According to the Korea Automobile Importers & Distributors Association (KAIDA), the number of newly registered imported cars in 2015 was 243,900, a 24.2 percent rise from 2014. Exports of U.S. passenger vehicles and light trucks to Korea have been steadily climbing. In 2009, the United States exported less than 5,000 vehicles. U.S. vehicle exports rose to 20,086 in 2012 and reached over 46,000 vehicles by the end of 2015. In 2015, almost 1.9 million passenger vehicles were sold in Korea. According to Ward's, total production of vehicles in

Korea was 4.66 million units in 2011, 4.56 million units in 2012 and 4.52 units in 2013. From the 2013 numbers, 3.45 million were produced by Hyundai and Kia, 782,721 by GM and 129,638 by Renault.

Today, Korea is ranked the fifth largest vehicle producer in the world. Korea's top two automakers, however, have been shifting production to their plants outside of Korea. "In 2008, Hyundai made 60 percent of its vehicles in Korea, but now the country accounts for only about 40 percent of Hyundai production. Kia used to make almost 80 percent of its vehicles in Korean factories, but now 60 percent are made there."ⁱⁱⁱ Factors leading to production in other markets outside of Korea include costlier wages as well as disruptive strikes and walkouts, making Korea less competitive for auto production.

Overview of the Automotive Parts Market in Korea

Korea ranks as the ninth largest export market for U.S. auto parts overall. According to this analysis, Korea ranks as the sixth best prospect market for OE parts and the sixteenth best market for aftermarket parts. Factors that contributed to its rank for OE include Korea's high level of domestic vehicle production and Korea currently being a top 10 market for overall U.S. parts exports.

From 2009 to 2015, U.S. auto parts exports have more than tripled from \$303 million to over \$926 million. In 2014, U.S. auto parts exports to Korea reached \$914 million, a 15 percent increase from 2013. According to the Korea Auto Industries Co-op Association (KAICA), the total sales volume in the

Figure 10: 2015 Korea Automotive Market

Sales (units)	1,875,551
U.S. Auto Parts Exports to Korea	\$926,448,708
Total Korean Auto Parts Imports	\$10,373,022,935
Total Domestic Vehicle Production	6,315,971
Vehicles in Operation	20,780,689
U.S. Auto Parts Export Growth 2009-2015	+206%

Korea auto parts industry for OE parts was \$49.3 billion in 2014, \$46.3 billion in 2013, \$46.1B in 2012, \$46.6B in 2011, \$37.4B in 2010 and \$26.8B in 2009. For aftermarket parts, sales totaled \$2.9 billion in 2014, \$2.8 billion in 2013, \$2.8 billion in 2012, \$2.8 billion in 2011, \$2.2 billion in 2010 and \$1.6 billion in 2009.

Challenges and Barriers to Automotive Parts Exports

Historically, Korea has maintained a number of policies that inhibit U.S. auto exports, including rigid automotive safety and environmental standards unique to the Korean market. These policies have given domestic producers advantages and have made it difficult for foreign manufacturers to compete. In 2014, the American Chamber of Commerce in Korea issued a report focused on the key issues and recommendations for the auto industry in Korea. In this report, AmCham stated in 2012 and 2013, "Korea imposed burdensome parts certification, registration and marking requirements...Over the next few years, the list of parts that Korea will require to be certified, registered and marked will dramatically increase...Korea's parts rules are unreasonable and unduly burdensome." These issues, among others, make competing in the Korean market a challenge.

The European Union - Korea Free Trade Agreement (FTA) entered into force in July 2011. The European automobile industry has faced market issues in Korea that remain even after the FTA, citing that Korean authorities remain reluctant to dismantle existing non-tariff barriers (NTBs) and that new barriers have also emerged.^{iv} As a result of the

provisions of EU-Korea FTA, U.S. exporters face increased competition from European suppliers.

Given that Korea is one of the largest vehicle manufacturers in the world, the market is already extremely competitive. In 2014, there were 879 first-tier suppliers serving the automakers, down from 898 in 2013. The number of these suppliers for Hyundai was 343, followed by 330 for Kia and 316 for GM Korea. China is already the leading exporter of parts to Korea with most exports coming primarily from Asia or the EU. While the United States exported over \$926 million in auto parts to Korea in 2015, it imported over \$8.5 billion in parts from Korea.

Opportunities for U.S. Companies

The OE segment accounted for approximately 94 percent of the market with the aftermarket accounting for the remainder. Cooperating with Hyundai and Kia Motors in the United States or with U.S. parts suppliers that have a manufacturing base in Korea is highly recommended. Hyundai Motors and Kia Motors have plants in Alabama and Georgia. A good working relationship with Hyundai and/or Kia in the United States will help suppliers enter the Korean market. In addition, examples of the suppliers already operating in Korea include Bosch, Denso, Continental, Magna, Johnson Controls, Delphi, TRW and Visteon, among many others. Best sub-sector prospects for OE include vehicle diagnostic systems, electronic control systems and low-emission related technologies.

For the aftermarket, demand in Korea is for vehicle diagnostic systems, replacement parts for imported vehicles, high-end car audio systems and components, and high-performance automotive chemicals, such as wax and rust-proofing solutions. It should be noted that Korean consumers typically rely primarily on OEM's after-sales service networks to service their cars rather than using independent shops.

Therefore, Korea's market is a competitive environment, and U.S. suppliers need to offer technological advantages. Partnering with a Korean distributor could also be effective in breaking into the aftermarket.

Saudi Arabia

Type: Modest Growth

Saudi Arabia was the 20th largest destination for U.S. auto parts exports in 2015, and the market has some, but relatively few, barriers for U.S. companies. U.S. parts exports are assumed to overwhelmingly be for aftermarket use, since Saudi Arabia currently has very limited local vehicle and parts production.

Original
Equipment
Rank

25

Aftermarket
Rank

13

In the recent past, Saudi Arabia's auto and auto aftermarket have developed at a robust pace thanks to the strength of the Saudi Arabian economy, favorable auto financing, low gas prices, high private consumption levels and a growing population. The recent decline in oil prices, announced spending cuts for 2016 by the Saudi Government, and weak global growth, however, are expected to negatively affect Saudi Arabia's economy, at least in the short term. This economic slowdown is likely to result in fewer new vehicle purchases but could positively impact auto aftermarket sales if vehicles are kept for longer periods of time.

Overview of the Automotive Parts Market in Saudi Arabia

Saudi Arabia is the largest auto market for both new and used vehicles and the largest auto parts market in the Gulf Cooperation Council (GCC). It is also the region's largest importer of automotive products with some of these imports being re-exported within the region. Currently, there is a small amount of local auto parts and truck production, but there is no light vehicle production. The majority of all types of vehicles and parts sold in the country are imported.

U.S. auto parts exports to Saudi Arabia have grown from \$273.1 million in 2010 to \$355.1 million in 2015. In 2013 (latest figures available), the United States was Saudi Arabia's fifth largest source of auto parts with 9 percent of the import market. Japan was the largest source, comprising 23 percent of the imports, followed by Germany, China and Korea.

There is a lack of official government statistics for new vehicle sales (passenger cars, commercial vehicles and trucks) in Saudi Arabia, but annual sales are estimated to be 900,000 for 2015, which is double the size from 2006. Sales are forecasted to increase to 1 million units in the next couple of years. Some of the popular passenger vehicles in Saudi Arabia include Toyota's Hilux, Corolla, Yaris, Land Cruiser and Camry; Hyundai's Elantra and Accent; General Motors' Yukon, Tahoe, Suburban and Impala; and Ford's Expedition, Ranger, Taurus and Explorer. Toyota is estimated to have over a third of total market share, and Hyundai has approximately a fifth of total market share.

According to Ward's, the country was estimated to have 4 million passenger vehicles and 2.1 million commercial vehicles on the road in 2013. This could increase to a total of almost 8 million vehicles in the next couple of years. There is a mix of both newer vehicles and older models. The most popular pre-

Figure 11: 2015 Saudi Arabia Automotive Market

Sales (units)	870,000
U.S. Auto Parts Exports to Saudi Arabia	\$355,116,297
Total Saudi Arabian Auto Parts Imports	\$5,337,491,280
Total Domestic Vehicle Production	unknown
Vehicles in Operation	3,803,000
U.S. Auto Parts Export Growth 2009-2015	+30%

owned vehicle brands are Toyota, Hyundai and Chevrolet, according to SellAnyCar.com.

Saudi Arabia's growing youth population, rising disposable income levels, favorable financing environment, and greater public and private sector investments have all contributed to Saudi's increased vehicle demand over the past few years. The recent slowdown in Saudi's economy, however, could decrease the growth rate for new vehicle sales over the next couple of years. For 2016, BMI estimates a growth rate of 4.9 percent. If consumers keep their vehicles longer, this could result in an increased demand for aftermarket repair parts.

The growth of vehicle sales and the increase in the number of dealerships and aftermarket distributors in Saudi Arabia have inevitably generated more demand for aftermarket parts. In addition, the region's demanding climate necessitates an increased need to regularly replace auto parts, such as tires and batteries. BMI reports that there are over 200 auto parts dealers in Saudi Arabia. Frost & Sullivan estimates that demand for aftermarket parts in Saudi Arabia could grow to \$5.5 billion by 2020.

Sales of commercial vehicles in Saudi Arabia are also expected to increase slightly. Frost & Sullivan estimates that there are approximately 750,000 trucks and buses currently in use in Saudi Arabia. This is expected to increase to 1.2 million units by 2020. Therefore, demand for aftermarket parts for these vehicles is also expected to grow, reaching an estimated \$3.65 billion by 2020. Isuzu and Mitsubishi are estimated to have a 70 percent market share of the light commercial vehicle market.

In 2014, Saudi Arabia established corporate average fuel economy standards (CAFE) similar to the standards in the United States to reduce domestic oil consumption. The standards, implemented in 2016, aim to improve fuel economy in Saudi Arabia for total road transportation by 2025. The regulations are applicable until the end of 2020. Given the relatively large size of families in Saudi Arabia, these changes are not expected to significantly impact exports of larger American-made SUVs and light trucks, as well as their aftermarket parts. However, engine sizes are expected to decrease, and more fuel-efficient vehicles will be offered to comply with

the standards. For example, Toyota just launched the Prius in Saudi Arabia.

In an effort to diversify the domestic economy by moving away from dependence on petroleum and to generate jobs for its young and growing population, the Saudi government is advocating for the development of a domestic automotive industry and has encouraged global vehicle manufacturers to establish local manufacturing. Currently, there is some limited local production and assembly of filters, radiators, batteries, hydraulic oils, lubricants, exhaust systems and converters. Also, Isuzu, Daimler, Volvo and MAN are assembling trucks on a small scale in Saudi Arabia. As automotive sales in the Middle East and North Africa grow, there is increased interest within the region to have global automakers establish local production.

Challenges and Barriers to Automotive Parts Exports

Saudi Arabia's industrial standards and conformity assessments are the most significant trade barriers affecting U.S. manufacturers. The Saudi Arabia Standards Organization (SASO) has issued numerous industry standards and regulations affecting the automotive industry. As with other imports, SASO mandates that a Certificate of Conformity is needed for the importation of auto aftermarket parts. Shipments arriving without a Certificate of Conformity will be rejected at the Saudi port of entry. In addition, labeling and marking requirements are also compulsory for any products exported to Saudi Arabia. For example, the country of origin must be marked on all imported products.

U.S. auto parts suppliers have expressed difficulties with understanding Saudi's import requirements and with complying with the burdensome documentation and certification necessary for importing parts. In addition, U.S. exporters have also experienced customs clearance delays and enforcement inconsistencies.

The Saudi Arabian automotive market is highly competitive. The large number of global automakers selling in the market, as well as the market's growth, has aftermarket suppliers from around the globe competing for sales. In addition, currency exchange rates can obviously affect U.S. automakers' and suppliers' price competitiveness. Suppliers to Japanese and Korean vehicles have the greatest

potential for volume sales, as these vehicles are estimated to account for almost 70 percent of the existing car sales.

Most used parts are banned from being imported into Saudi Arabia, including tires, but reconditioned engine and transmission parts are exempt if they comply with certified standards. The current ban applies to the import of auto parts over five years old as well as autos and light trucks (under five tons) over five years old.

Intellectual property protection has steadily increased in the Kingdom and anti-counterfeiting laws exist. In addition, the Saudi government has made efforts to stop counterfeit products from entering the country. The continued availability of counterfeit aftermarket parts, however, remains a concern for U.S. automotive companies.

Opportunities for U.S. Companies

Currently, there are relatively few barriers to exporting automotive products to Saudi Arabia beyond the conformity requirements previously mentioned. Since there is currently negligible automotive-related production in Saudi Arabia, auto-specific protective barriers do not exist. In addition, auto sales growth, favorable demographics and disposable income levels, and low import tariffs and fuel prices contribute to good export potential for aftermarket parts to Saudi Arabia. The tariff for radiators and filters is 12 percent and is 5 percent for all other spare parts. There is no VAT or other taxes added to the sales price.

U.S. vehicle exports to Saudi Arabia are currently supported by Saudi Arabia's acceptance of vehicles

produced to U.S. standards. Relatively few homologation changes are needed prior to export. Saudi Arabia currently is the fifth largest destination for U.S. exports of new passenger cars (by units) and the ninth largest destination for used vehicles (by units), which presents an opportunity for increased exports of U.S. aftermarket parts for those vehicles. U.S. exports to Saudi Arabia of new passenger vehicles and light trucks totaled almost 92,000 units with a value of \$3.1 billion in 2015. In addition, 15,500 used vehicles, totaling \$256 million, were exported from the United States to Saudi Arabia in 2015. Finally, the country was the fifth largest destination for U.S. exports of medium-duty and heavy-duty trucks.

Aftermarket parts for off-road vehicles and SUVs have excellent potential in Saudi Arabia. SUVs and 4x4 cars are especially popular in Saudi Arabia and there is a high level of interest in off-road and desert driving. Larger vehicles are popular in order to accommodate large families, and the Detroit Three excel in this competitive segment, particularly the larger SUV market. In addition, the recently implemented CAFE standards and higher gas prices in Saudi Arabia are likely to generate interest and demand for products related to increased fuel efficiency.

Given Saudi's high disposable income levels and an interest in modified/luxury vehicles, there is great demand for specialty performance and appearance products. U.S. companies command a leading position in the supply of transmissions, tuning and high performance parts and kits, steering, suspension, and brake components and parts.

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Thailand

Type: Large Market; Small Share

Thailand ranks 21st for U.S. exports of automotive parts, and it is also a global production hub for the major automotive companies throughout Southeast Asia.

Original
Equipment
Rank

27

Aftermarket
Rank

20

Overview of the Automotive Parts Market in Thailand

In 2015, Thailand went through a downturn in the automotive sector with domestic auto sales decreasing 37 percent. As the primary hub for exports throughout the Association of Southeast Asian Nations (ASEAN), Thai passenger car exports grew by 23 percent in the first 9 months of 2015. U.S. automotive parts exports to Thailand have continued to grow, chiefly because of the need to service existing vehicles and trucks as well as supplying parts for export from Thailand to other ASEAN markets.

The majority of Thailand's automotive parts imports are from Japan, which supplies Thailand with over half of its auto parts. China is Thailand's second largest supplier. The United States is in sixth place.

Figure 12: 2015 Thailand Automotive Market

Sales (units)	750,000
U.S. Auto Parts Exports to Thailand	\$337,484,183
Total Thai Auto Parts Imports	\$10,477,259,064
Total Domestic Vehicle Production	1,938,542
Vehicles in Operation	16,096,755
U.S. Auto Parts Export Growth 2009-2015	+284%

Challenges and Barriers to U.S. Automotive Parts Exports

Domestic sales of vehicles decreased sharply in 2014 and 2015 because of political strife, and some automakers and suppliers are adopting a "wait and see" attitude towards additional investment until the situation subsides. On the other hand, Thai passenger car exports increased 23 percent the first 9 months of 2015. Both Mercedes and Nissan have recently started local production.

U.S. automotive manufacturers currently control a very small share of the market, less than 2 percent. With the downturn in Thailand's economy and domestic vehicle sales, Ford and GM's sales declined over 45 percent in 2015. Most households and businesses have put their spending on hold while they seek clarity on the political situation. Commercial vehicles have also taken a hit because of the drop in tourism numbers. The outlook for the domestic market is projected to remain flat to a slight increase.

High tariffs in the automotive sector remain an impediment to accessing the Thai auto market. Ad valorem tariffs can be as high as 80 percent for imports that compete with domestically produced automobiles and parts. In addition, excise taxes on automobiles in Thailand are based on various vehicle characteristics, such as engine size, weight and wheelbase. The tax calculation remains complex and heavily favors domestically manufactured vehicles. Excise taxes on passenger vehicles range from 30 to 50 percent, while pickup trucks, mostly produced in Thailand, are taxed at a rate of 3 percent. Small

passenger cars using E-20 gasoline and “eco” cars face reduced excise taxes of 25 percent and 17 percent, respectively.

Opportunities for U.S. Companies

Despite the recent decrease in domestic vehicle sales, Thailand is still an export hub in Southeast Asia with the most advanced production facilities in all of Southeast Asia. Thai exports of automotive components will do well for two major reasons: 1) a weakening of the Thai baht has increased competitiveness of auto component exports, and 2) auto component manufacturers still rely on Thailand as an optimal base for manufacturing in the region because of the high skill level of the workforce and available technology. However, Japanese automakers are well entrenched in Southeast Asia, which will impact U.S. automotive parts suppliers hoping to increase market share in Thailand.

Thailand’s auto component industry will remain a bright spot for the auto sector as exports of components to regional markets will continue to grow. With 2,400 auto suppliers, there are significant economies of scale. For the first nine months of 2014, the value of auto component exports from Thailand grew 11 percent year-on-year to \$12.9 billion.

As the ASEAN Economic Community (AEC) moved towards implementation in 2015, we saw a greater potential for free trade in the region. While Japan already has an Economic Partnership Agreement with ASEAN, which removes most duties in the auto sector trade between them, the AEC will allow its member countries to negotiate effectively as a trading block with other trading partners to lower tariffs and boost trade in key sectors such as automotive.

Furthermore, the onset of AEC will see inter-country tariffs between ASEAN countries removed, which would then allow automakers to take advantage of several markets from one hub. This trend would further attract auto sector investment in Thailand because new investment will benefit from the strengths of the country and because of the clustering effects of nearby markets.

In 2007, Thailand announced an investment promotion scheme for Eco-Car manufacturing,

whereby maximum incentives were offered for integrated car assembly and key parts manufacturing projects. Under the incentive program, projects, which must have a minimum investment value of approximately \$144 million, were offered a corporate income tax exemption of eight years, regardless of the projects’ location in the country, along with duty-free importation of machinery. Ten automakers have applied for the second phase of the eco-car scheme: Toyota, Suzuki, Honda, Nissan, Mitsubishi, Ford, Mazda, General Motor Company, Volkswagen and MG.

A new excise tax effective January 2016 will greatly affect domestic demand. All new cars will have to pay a tax based on carbon emissions. This tax will help strengthen Thailand as a center for the manufacturing and exporting of eco cars.

Thailand’s aim is to eventually increase car production to 3 million units and further strengthen its presence in ASEAN. It hopes to rival North America and Europe in the production of eco-cars.

Companies are also looking to Thailand as a hub for their vehicle maintenance network in Southeast Asia. For example, Toyota has been working with affiliate companies, Denso and Aisin Seiki, to open auto repair shops in Thailand and Indonesia since 2014. Both countries have large domestic vehicle fleets (20 million for Indonesia and 15 million for Thailand), which make the after-sales market very attractive. These vehicles will require regular servicing and maintenance. There are other vehicle-servicing opportunities in the frontier markets, such as Burma and Cambodia.

The presence of more than 690 Tier 1 and 1,700 Tier 2 and 3 suppliers lends support to vehicle production and further encourages investment from other component manufacturers, which enjoy lower costs for being close to their suppliers and customers. Furthermore, a greater number of recent auto industry investments have been gravitating towards higher value-added projects. As Thailand slowly moves up the value-chain of production, more high-tech investments are expected.

Automotive Electronics

Innovation in electronic systems is driving the automotive parts industry in Asia. Most of the

automotive electronics used in cars produced in Thailand are imported from Malaysia and Japan. Because of the current limited number of automotive electronics producers in Thailand, there are a number of good opportunities for U.S. suppliers. These include electronic fuel injection systems, substrates for catalytic converters, CVTs, electronic stability controls and regenerative braking systems, among numerous other products. Makers of high-technology auto parts can locate anywhere and still receive maximum incentives and tax breaks.

NGV Vehicles

The Ministry of Energy supports fuel-efficient transportation through a natural gas vehicle (NGV) initiative. This initiative includes the introduction of over 10,000 natural gas-powered taxicabs, natural gas subsidization through PTT Public Company Ltd., a reduced import duty on NGV tanks from 17 percent to 10 percent, and a reduced import duty on NGV

control system parts and components from 35 to 10 percent.

Eco-Car Parts

Eco-car parts continue to receive incentives to promote the growth of the eco-car market locally and abroad. The incentives will be applied exclusively to materials that cannot be produced locally. Opportunities exist especially in electric vehicle batteries.

E85

The Ministry of Finance is offering three-year exemptions on import duties of foreign auto parts used to make vehicles E85-ready (85 percent ethanol, 15 percent gasoline). The Ministry has also reduced the excise tax on cars using E85 to 22, 27 and 32 percent, depending on engine size.

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Colombia

Type: Medium Growing Market; High Share

Colombia is ranked the 21st best market for OE parts and the 15th best market for aftermarket products. In 2015, \$285 million in U.S. auto parts were exported to Colombia, down from \$338 million in 2014. While Colombia has a fairly large automotive market, it is subject to extremely high competitive pressures. Most U.S. parts firms have open access to the Colombian market and face zero or declining tariffs; most other major automotive producing countries, however, have equivalent access. U.S. products do enjoy reputations for high quality, and suppliers can develop the necessary relationships to secure sales.

Original
Equipment
Rank

21

Aftermarket
Rank

15

Overview of the Automotive Parts Market in Colombia

Colombia is the second most populous country in South America and has a per capita GDP of \$11,100. It is one of the larger automotive markets in South America with approximately 285,000 vehicles sold in 2015. The country sits behind only Brazil and Argentina in South American vehicle production. Most Colombian production is complete knockdown (CKD) kit assembly and, therefore, reliant on component imports. GM, Renault and Daimler are among the handful of firms with local assembly operations. Like much of the region, vehicle ownership levels are relatively low with roughly 53 passenger cars per 1,000 people. Thus, there is significant space for growth.

The U.S. has a trade agreement with Colombia, providing tariff free market access for most automotive parts. Likewise, Colombia has negotiated agreements with a number of countries and, with its location, may be able to serve as a production center for the region. However, many of Colombia's FTAs are with other countries with strong automotive sectors, so competition is high. That competition is expected to increase with the recent FTA with the EU. GM has been investing in Colombia, where Chevrolet has almost a 24 percent market share. Mazda has made moves to close its local factory and meet local demand via imports from its Mexican operations.

The Colombian government is working to address the increased competition for assembly operations wrought by its trade agreements and the lowering of import tariffs on automotive parts. This action will further reduce the competitive benefits U.S. companies gained from the U.S.-Colombia FTA. Analysts expect respectable growth in near-term Colombian automotive sales, but it is very likely that many of the vehicles sold will be built outside of the Colombian market.

There are over 50 brands and 270 models present in the Colombian market. Chevrolet is the largest seller followed by Renault and Hyundai. KIA and Nissan have been gaining market share, as have Chinese manufacturers. Colombia has been a major player in the regional automotive market.

Figure 13: 2015 Colombia Automotive Market

Sales (units)	164,867
U.S. Auto Parts Exports to Colombia	\$284,916,706
Total Colombian Auto Parts Imports	\$1,960,201,729
Total Domestic Vehicle Production	94,109
Vehicles in Operation	5,809,457
U.S. Auto Parts Export Growth 2009-2015	+77%

The top parts imported into Colombia were concentrated in tires (12 percent), chassis (2 percent) and filters (2 percent). Colombia does not allow the importing of used vehicles or parts. The country is formulating policies to allow the importing of remanufactured products to meet commitments under its FTA with the United States. Those commitments can be found under Chapter Four, Rules of Origin and Origin Procedures, Annex 4.18 of the agreement.

Challenges and Barriers to Automotive Parts Exports

Auto manufacturers in Colombia are facing an extremely competitive market due to the country's many recent FTAs with countries home to large automotive manufacturing sectors, including the United States, Mexico, Korea and recently the EU. With further FTAs under negotiation, including one with China, the Colombian assemblers will have a hard time maintaining market share. Local assemblers are hampered by minimal economies of scale with the additional headwinds caused by poor local transportation infrastructure. Mazda recently decided to close its production facility in the country due to the high cost of production and low volumes.

Opportunities for U.S. Companies

Research firm BBVA forecast in 2013 that Colombia's vehicle stock will be double 2010 levels in 2020, equating to 7.9 percent annual growth. Roughly 40 percent of the vehicles on Colombian roads were assembled locally while the remaining 60 percent of vehicles were imported from the United States, Korea, Mexico, India, Japan, Ecuador and China.

Among 106 countries competing for sales in the Colombia automotive parts market, the United States, Brazil, Japan and China have the highest market shares. The high import percentage represents good opportunities for all imported parts and accessories but especially for U.S. products,

which enjoy name recognition and quality reputations. In addition, many of the models offered in Colombia are also sold in the United States, including many GM vehicles, so most parts are available for export from American-based manufacturers.

Through its multiple FTAs, Colombia has access to a market of 34 million vehicles (including U.S., Canada, Mexico, EU, Korea, etc.). The Colombian government is trying to encourage the adoption of Colombia as a platform for the assembly of vehicles and parts for the Colombian and regional markets. With the high competition and low economies of scale in its home market, it will be difficult for Colombia to achieve this end. The effort is further hindered in the short term by the ongoing economic problems in Venezuela and Ecuador.

However, many of the vehicles on Colombian roads are older, leading to premature vehicle wear. Combined with lower wages that make vehicle repair economical over a longer vehicle service life, there is a high demand for aftermarket repair parts.

Colombia has made some moves toward electrification of its vehicle fleet, including by deploying electric taxis in Bogota. Global sales of electric vehicles, however, are mainly in regions such as Norway and California, where purchase incentives reduce currently higher purchase prices for these vehicles. Without significant Colombian incentives, EVs are unlikely to sell in significant numbers in the near term.

The Colombian government is making significant efforts to expand the number of flex-fuel vehicles in its fleet. The vehicles receive tax benefits and incentives, and there is a VAT exemption on fuel. These incentives and the low cost of flex-fuel vehicle technologies (roughly \$100 per vehicle) should enable significant opportunities for related products.

Addendum: Resources for U.S. Exporters

The U.S. Government has numerous resources available to help U.S. exporters: from additional market research, to guides to export financing, to overseas trade missions, to staff around the country and the world. A few key resources are highlighted below. For additional information about services from the International Trade Administration (ITA), please visit www.export.gov.

Country Commercial Guides

<http://export.gov/ccg/>

Written by U.S. Embassy trade experts worldwide, the *Country Commercial Guides* provide an excellent starting point for what you need to know about exporting and doing business in a foreign market. The reports include sections addressing: market overview, challenges, opportunities, and entry strategies; political environment; selling U.S. products and services; trade regulations, customs, and standards; and much more.

Basic Guide to Exporting

<http://export.gov/basicguide/>

A Basic Guide to Exporting addresses virtually every issue a company looking to export might face. Numerous sections, charts, lists and definitions throughout the book's 19 chapters provide in-depth information and solid advice about the key activities and issues relevant to any prospective exporter.

Trade Finance Guide: A Quick Reference for U.S. Exporters

<http://www.export.gov/tradefinanceguide/index.asp>

Trade Finance Guide: A Quick Reference for U.S. Exporters is designed to help U.S. companies, especially small and medium-sized enterprises, learn the basics of trade finance so that they can turn their export opportunities into actual sales and achieve the ultimate goal of getting paid on time for those sales. Concise, two-page chapters offer the basics of numerous financing techniques, from open accounts to forfaiting and government assisted foreign-buyer financing.

Market Development Cooperator Program (MDCP)

<http://trade.gov/mdcp/>

ITA's Market Development Cooperator Program (MDCP) provides technical and financial assistance to trade associations and other organizations to promote U.S. exports with the aim of creating jobs

for American workers. ITA's financial contribution is met on a two-to-one basis by the MDCP partner, including with "in-kind" contributions.

U.S. automotive parts companies are benefiting from the MDCP. The Specialty Equipment Market Association (SEMA) is one MDCP award recipient, and our partnership has already resulted in millions of dollars of increased U.S. exports of auto aftermarket specialty parts to China and the Middle East, as well as other international markets. In addition, the Auto Care Association (ACA) is a recent recipient of an MDCP award, and we are partnering with them to increase U.S. exports of auto aftermarket parts to Latin America. Below are upcoming SEMA and ACA MDCP business development missions:

- May 17-19, 2016 – Automotive Trade Mission to Peru (ACA)
- May 25-29, 2016 – SEMA Australia Business Development Conference
- June 21-22, and 23-24, 2016 – Automotive Trade Mission to Guatemala and optional stop in El Salvador (ACA)
- September 2016 – SEMA China Business Development Conference

Certified Trade Fairs

http://www.export.gov/eac/show_short_trade_events.asp?CountryName=null&StateName=null&IndustryName=null&TypeName=International%20Trade%20Fair&StartDate=null&EndDate=null

The Department of Commerce's trade fair certification program endorses overseas trade shows that are reliable venues and good markets for U.S. firms to sell their products and services abroad. These shows serve as vital access vehicles for U.S.

firms to enter and expand into foreign markets. The certified show/U.S. pavilion ensures a high-quality, multi-faceted opportunity for American companies to successfully market overseas. Among other benefits, certified trade fairs provide U.S. exhibitors with help facilitating contacts, market information, counseling and other services to enhance their marketing efforts.

- April 13-17, 2016 - Expo INA PAACE Automechanika Mexico
- April 25-29, 2016 – Hannover Messe 2016
- May 8-10, 2016 – Automechanika Dubai
- June 15-17, 2016 – Latin Auto Parts Expo 2016
- September 13-17, 2016 – Automechanika Frankfurt
- November 30-December 3, 2016 – Automechanika Shanghai

The Advocacy Center

<http://www.export.gov/advocacy/>

The Advocacy Center coordinates U.S. government interagency advocacy efforts on behalf of U.S. exporters that are bidding on public-sector contracts with overseas governments and government agencies. The Advocacy Center helps to ensure that sales of U.S. products and services have the best possible chance competing abroad. Advocacy assistance is wide and varied but often involves companies that want the U.S. Government to communicate a message to foreign governments or

government-owned corporations on behalf of their commercial interest, typically in a competitive bid contest.

U.S. Commercial Service

<http://www.export.gov/usoffices/index.asp>

With offices throughout the United States and in U.S. Embassies and consulates in nearly 80 countries, the U.S. Commercial Service utilizes its global network of trade professionals to connect U.S. companies with international buyers worldwide. Whether looking to make their first export sale or expand to additional international markets, companies will find the expertise they need to tap into lucrative opportunities and increase their bottom line. This includes trade counseling, actionable market intelligence, business matchmaking, and commercial diplomacy.

Automotive & Transportation Team

<http://www.export.gov/industry/auto/>

The Automotive & Transportation team is comprised of specialists, located throughout the United States at Export Assistance Centers and in American Embassies and Consulates worldwide, dedicated to helping auto parts companies export their products overseas. The team's website provides American companies supplying automotive, truck, and motorcycle-related parts, service, and manufacturing/testing equipment with up-to-date information to help U.S. companies compete internationally.

Appendix 1: OE and Aftermarket Rankings

Country	OE Rank	OE Score	Country	Aftermarket Rank	Aftermarket Score
Canada	1	0.577	Canada	1	0.737
Mexico	2	0.495	Mexico	2	0.586
China	3	0.468	China	3	0.297
Japan	4	0.233	Hong Kong	4	0.257
Germany	5	0.217	Singapore	5	0.250
Korea	6	0.156	Chile	6	0.238
Belgium	7	0.127	Peru	7	0.230
Hong Kong	8	0.126	Belgium	8	0.222
Singapore	9	0.122	Netherlands	9	0.212
France	10	0.121	Germany	10	0.210
Netherlands	11	0.118	United Arab Emirates	11	0.206
Chile	12	0.116	Australia	12	0.204
Spain	13	0.111	Saudi Arabia	13	0.190
Peru	14	0.109	Sweden	14	0.187
United Kingdom	15	0.106	Colombia	15	0.173
Sweden	16	0.105	Korea	16	0.168
Australia	17	0.103	Japan	17	0.165
India	18	0.103	France	18	0.164
Brazil	19	0.101	United Kingdom	19	0.158
Russia	20	0.099	Thailand	20	0.140
Colombia	21	0.095	Poland	21	0.138
Poland	22	0.093	Venezuela	22	0.134
Italy	23	0.087	Italy	23	0.132
United Arab Emirates	24	0.087	South Africa	24	0.126
Saudi Arabia	25	0.084	Spain	25	0.125
Turkey	26	0.070	Russia	26	0.113
Thailand	27	0.066	India	27	0.109
Venezuela	28	0.066	Turkey	28	0.109
South Africa	29	0.064	Brazil	29	0.096
Argentina	30	0.044	Argentina	30	0.068

Appendix 2: Automotive Parts Codes Included in This Study

3819000000, 3820000000, 4009120020, 4009220020, 4009320020, 4009420020, 4009500020, 4011100010, 4011100050, 4011101000, 4011105000, 4011200005, 4011200010, 4011200015, 4011200020, 4011200025, 4011200030, 4011200035, 4011200050, 4011201005, 4011201015, 4011201025, 4011201035, 4011205010, 4011205020, 4011205030, 4011205050, 4012105020, 4012106000, 4012110000, 4012120000, 4012190000, 4012200000, 4013100010, 4013100020, 4013900000, 4016995010, 6813100000, 6813200000, 6813810000, 6813890000, 6813900000, 7007110000, 7007211000, 7007215000, 7009100000, 7320100000, 7320201000, 8301200000, 8302103000, 8302300000, 8407342000, 8407342030, 8407342090, 8408202000, 8409914000, 8409994000, 8413301000, 8413309000, 8413911000, 8413919010, 8414308030, 8414593000, 8414596040, 8414598040, 8415200000, 8415830040, 8421230000, 8421310000, 8421394000, 8425490000, 8426910000, 8431100090, 8482101000, 8482105044, 8482105048, 8482200020, 8482200030, 8482200040, 8482200060, 8482200070, 8482200080, 8482400000, 8482500000, 8483101020, 8483103010, 8507100050, 8507100060, 8507904000, 8507904050, 8511100000, 8511200000, 8511300040, 8511300080, 8511400000, 8511500000, 8511802000, 8511806000, 8511906020, 8511908000, 8512202000, 8512204000, 8512300000, 8512300030, 8512300050, 8512402000, 8512404000, 8512902000, 8512905000, 8512908000, 8517120020, 8519812000, 8525201000, 8525206000, 8525209020, 8525209050, 8525601010, 8527190000, 8527210000, 8527290000, 8531800038, 8531809038, 8536410005, 8539100020, 8539100040, 8544300000, 8707100020, 8707100040, 8707905020, 8707905040, 8707905060, 8707905080, 8708100010, 8708100050, 8708210000, 8708290010, 8708290025, 8708290050, 8708290060, 8708295025, 8708295070, 8708295170, 8708300010, 8708300050, 8708310000, 8708390000, 8708401000, 8708401110, 8708401150, 8708402000, 8708403500, 8708406000, 8708408000, 8708500050, 8708504110, 8708504150, 8708507200, 8708600050, 8708700050, 8708800050, 8708805000, 8708807000, 8708915000, 8708918000, 8708925000, 8708928000, 8708935000, 8708945000, 8708948000, 8708950000, 8708990045, 8708990050, 8708990070, 8708990090, 8708990095, 8708995800, 8708996100, 8708998015, 8708998030, 8708998075, 8708998115, 8708998130, 8708998175, 8716900000, 8716905000, 9029100000, 9029205000, 9029900000, 9104000000, 9401200000, 9401901000, 9401901010, 9401901080, 9403901000

Appendix 3: U.S. Exports of Automotive Parts, 2009 - 2015

U.S. Exports of Automotive Parts, 2009-2015 (in USD Millions)							
Regions	2009	2010	2011	2012	2013	2014	2015
.WORLD	\$42,861	\$58,345	\$67,833	\$75,006	\$77,599	\$81,149	\$80,852
.APEC	\$35,525	\$49,046	\$57,164	\$64,342	\$67,063	\$69,262	\$68,041
.ASEAN	\$481	\$658	\$806	\$996	\$993	\$850	\$817
.EU27	\$3,562	\$4,692	\$5,308	\$5,012	\$5,214	\$6,311	\$7,162
.FTA_COUNTRIES	\$33,830	\$46,505	\$53,996	\$60,918	\$62,654	\$64,190	\$63,561
.GCC	\$648	\$725	\$819	\$898	\$968	\$1,140	\$1,174
.MERCOSUR	\$1,414	\$1,779	\$2,073	\$2,124	\$1,838	\$1,686	\$1,518
.NAFTA	\$31,640	\$43,353	\$49,892	\$56,179	\$58,365	\$59,783	\$59,429
.TPP	\$33,860	\$46,689	\$53,891	\$60,899	\$62,468	\$63,907	\$63,320
Country	2009	2010	2011	2012	2013	2014	2015
Mexico	\$12,089	\$17,456	\$21,475	\$24,341	\$26,585	\$29,118	\$30,059
Canada	\$19,552	\$25,897	\$28,417	\$31,838	\$31,780	\$30,664	\$29,370
China	\$939	\$1,286	\$1,541	\$1,594	\$2,288	\$2,589	\$2,389
Germany	\$1,245	\$1,551	\$1,711	\$1,636	\$1,721	\$1,819	\$1,960
Japan	\$835	\$1,310	\$1,439	\$1,488	\$1,344	\$1,429	\$1,510
United Kingdom	\$597	\$922	\$1,116	\$1,062	\$952	\$1,383	\$1,447
Australia	\$687	\$1,085	\$1,392	\$1,935	\$1,488	\$1,437	\$1,292
Brazil	\$554	\$941	\$1,080	\$1,011	\$1,087	\$1,070	\$1,039
Korea	\$303	\$491	\$808	\$707	\$798	\$914	\$926
Italy	\$140	\$193	\$247	\$264	\$334	\$509	\$810
Netherlands	\$202	\$232	\$281	\$230	\$352	\$567	\$797
United Arab Emirates	\$247	\$306	\$394	\$501	\$544	\$681	\$692
Hong Kong	\$122	\$147	\$250	\$277	\$397	\$820	\$519
Belgium	\$318	\$448	\$552	\$519	\$425	\$487	\$501
France	\$461	\$586	\$514	\$469	\$476	\$476	\$454
Chile	\$289	\$409	\$508	\$565	\$562	\$542	\$448
Spain	\$113	\$151	\$157	\$177	\$253	\$300	\$428
South Africa	\$183	\$256	\$348	\$355	\$317	\$359	\$419
Russia	\$53	\$95	\$261	\$288	\$494	\$547	\$386
Saudi Arabia	\$274	\$273	\$291	\$286	\$314	\$337	\$355
Thailand	\$88	\$127	\$168	\$327	\$376	\$278	\$337
Singapore	\$254	\$347	\$423	\$435	\$377	\$348	\$292
Colombia	\$161	\$225	\$270	\$288	\$299	\$338	\$285
India	\$133	\$214	\$280	\$308	\$201	\$237	\$262
Argentina	\$174	\$172	\$183	\$127	\$185	\$240	\$238
Venezuela	\$673	\$654	\$789	\$970	\$552	\$364	\$231
Peru	\$97	\$115	\$158	\$210	\$225	\$238	\$215
Turkey	\$63	\$49	\$98	\$98	\$107	\$155	\$209
Poland	\$56	\$71	\$134	\$128	\$141	\$164	\$203
Egypt	\$45	\$80	\$64	\$81	\$98	\$184	\$183
Sweden	\$111	\$182	\$184	\$149	\$149	\$140	\$127
Guatemala	\$84	\$98	\$106	\$111	\$95	\$95	\$116
Hungary	\$44	\$54	\$51	\$59	\$91	\$91	\$115
Dominican Republic	\$53	\$87	\$95	\$125	\$100	\$108	\$110
Benin	\$24	\$57	\$54	\$55	\$94	\$128	\$108

Source: United States Department of Commerce, Bureau of the Census, Foreign Trade Division

Appendix 4: Citations

ⁱ Australia assumed no domestic production and zero projected production.

ⁱⁱ <http://www.searchautoparts.com/aftermarket-business/international-news/mexico-still-thriving-market-automotive-aftermarket>

ⁱⁱⁱ <http://www.businessweek.com/articles/2014-08-28/koreas-carmakers-flee-to-mexico>

^{iv} <http://www.acea.be/news/article/eu-south-korea-fta>

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