

STATE OF THE U.S. AUTOMOTIVE INDUSTRY

2017

INVESTMENT, INNOVATION, JOBS, EXPORTS,
AND AMERICA'S ECONOMIC COMPETITIVENESS

AAPC

AMERICAN AUTOMOTIVE POLICY COUNCIL

OCTOBER 2017

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ACKNOWLEDGEMENTS

This report, the fourth of its kind from the American Automotive Policy Council, is meant to serve as a resource for policymakers, researchers, and media interested in the state of automotive manufacturing in America and what leadership in this industry means for our nation's economic competitiveness.

The bulk of figures presented here are derived from simple comparisons of each automaker's production, sales, employment, and parts purchases in the U.S. and abroad. These figures are obtained from each automaker's respective annual reports and corporate websites, as well as reports produced by several of the industry's trade groups. For more information about how automakers contribute to America's economy and our global competitiveness, visit our website at www.americanautocouncil.org or the website of the Alliance of Automotive Manufacturers at www.autoalliance.org. For information on America's automotive parts suppliers and their contribution to America's economy, we rely on analysis produced by the Motor & Equipment Manufacturers Association (www.mema.org).

Most of the critical analysis cited in the report has been produced by the Center for Automotive Research (CAR), a nonprofit organization focused on a wide variety of important trends related to the automobile industry and society at the international, federal, state, and local levels. CAR's Sustainability & Economic Development Strategies (SEDS) group focuses on the intersection of industry and the public sector. Its Automotive Communities Partnership helps state and local officials develop public policies that sustain auto communities. We rely heavily on CAR's "job multiplier" analysis; sales, production, and employment forecasts; estimates of automaker spending on research and development and capital investment; and analysis of the reach and nature of a typical plant's supply chain. More information about CAR, SEDS, and the Automotive Communities Partnership is available at www.cargroup.org.

For data on corporate research and development, we rely on the European Commission's Joint Research Centre's 2016 EU Industrial R&D Investment Scoreboard, which contains economic and financial data for the world's top 2,500 companies, ranked by their investments in research and development. The rankings also include data on employment, revenue, and capital investment. The data are drawn from each company's financial statements. The rankings and related materials are available at <http://iri.jrc.ec.europa.eu/scoreboard16.html>.

INTRODUCTION

This report examines the current state of the U.S. automotive sector and its share of America's manufacturing production, capital investment, innovation, and jobs.

We make five points:

1. Automakers contribute a great deal to America's economy, but FCA US, Ford, and General Motors contribute more than others.¹
2. Automakers are doing their share to make America more competitive.
3. Every state is an "auto state."
4. Their investments are contributing to the revival of manufacturing in America.
5. In an industry as capital intensive and competitive as autos, public policy matters.

In making these points, we explain how production, investment, and employment have rebounded since the financial crisis and are likely to grow through 2017. As part of this, we examine how highly efficient manufacturers, like those in the U.S., can benefit from the industry's shift toward centralized production and global model platforms.

We also compare the economic contributions of America's automakers – FCA US, Ford, and General Motors – with those of their competitors. While most car buyers appreciate just how many U.S. workers FCA US, Ford, and General Motors employ, this report explains why so much of their global workforce is based here.

Finally, we examine how the highly competitive nature of the industry – and the enormous fixed costs that go into producing cars and trucks – combine to give public policy decisions an enormous impact on which automakers grow and where auto jobs are created.

The long-term success of any American automotive facility, whether an assembly plant or research lab, depends, in part, on how international public policies, including those relating to currency manipulation and automotive safety standards, affect an automaker's ability to compete internationally. AAPC and its members are optimistic about the future of auto manufacturing in America and all of the research, design, finance, marketing, and other related jobs that this industry generates.

EXECUTIVE SUMMARY

Automakers drive the U.S. economy.

Automakers and their suppliers are America's largest manufacturing sector, responsible for 3% of America's GDP.ⁱⁱ No other manufacturing sector generates as many American jobs.ⁱⁱⁱ

They are also America's largest exporters. In fact, over the past five years, automakers have exported more than \$690 billion in vehicles and parts – approximately \$76 billion more than the next largest exporter (aerospace).^{iv}

Not only are they America's largest exporters, they also buy hundreds of billions of dollars worth of American steel, glass, rubber, iron, and semiconductors each year. They are also among America's largest investors in R&D. The auto sector ranks third out of the forty largest industries, on a global basis, in R&D spending.^v

FCA US, Ford, and General Motors are in the driver's seat.

FCA US, Ford, and General Motors produce more of their vehicles, buy more of their parts, and conduct more of their R&D in the U.S. than their competitors. As a result, they employ nearly two out of three of America's autoworkers and operate three out of five of America's auto assembly plants.

Perhaps the best way to appreciate the scale of FCA US, Ford, and General Motors's investment in the U.S. is to consider what would happen if foreign automakers matched their U.S. production and parts purchases rates. The answer? To match FCA US, Ford, and General Motors's U.S. production rate last year, their competitors would have had to assemble more than 2.2 million more cars and trucks here in the U.S. Lined up bumper-to-bumper, those cars would stretch more than 6,700 miles.^{vi} To match FCA US, Ford, and General Motors's domestic content rate, they would have had to buy another 1.5 million more cars'-worth-of-parts here.^{vii}

Automakers are investing to make America more competitive.

Over the past five years alone, FCA US, Ford, and General Motors have announced investments of more than \$35 billion in their U.S. assembly, engine and transmission plants, R&D labs, headquarters, administrative offices, and other infrastructure that connects and supports them.^{viii}

Globally, FCA, Ford, and General Motors, together, invest more than \$18 billion in R&D every year.^{ix} Each alone spends more on R&D than some of the world's most famous technology companies.^x

Every state is an “auto state.”

Last year, FCA US, Ford, and General Motors produced 6.6 million vehicles in the U.S., with the help of more than 245,000 employees, working at more than 220 assembly plants, manufacturing facilities, research labs, distribution centers, and other facilities, located in 32 states across 115 Congressional Districts. They work with more than 10,150 dealerships, which employ another 609,000 U.S. workers.

Nationwide, FCA US, Ford, and General Motors’s thousands of auto suppliers employ more than 871,000 U.S. workers.

Automakers’ investments are contributing to the revival of manufacturing in America.

U.S. auto sales have increased by more than 67% since the 2009 financial crisis (from 10.4 million to 17.5 million last year). CAR projects sales will exceed 17 million vehicles per year through 2022. Meanwhile, U.S. auto production has more than doubled during that same period (from 5.6 million vehicles in 2009 to 12.2 million vehicles in 2016). U.S. auto production is expected to exceed 12 million vehicles per year through 2019 – and reach 13 million by 2020.^{xi}

Automaker and auto supplier employment in the U.S. increased by nearly one-half from 2011 through 2016, adding nearly 130,000 U.S. jobs. FCA US, Ford, and General Motors account for the majority of that job growth.^{xii}

An industry-wide move toward global model platforms has helped automakers centralize production in high functioning markets, like the U.S., which can now export the same body frame or major component to assembly facilities around the world.^{xiii}

In a globally competitive auto industry, public policy matters.

Because the auto industry is so competitive, the profit margin on each vehicle is comparatively small. Because producing cars and trucks is so capital-intensive, automakers must maintain scale to remain cost-competitive. For these reasons, international public policies, including those relating to currency manipulation and automotive safety standards and their effects on international trade, have an enormous impact on each automaker’s competitive status.

AUTOMAKERS CONTRIBUTE A GREAT DEAL TO AMERICA'S ECONOMY, BUT FCA US, FORD, AND GENERAL MOTORS CONTRIBUTE MORE THAN OTHERS.

Scale of the auto industry

Last year, Americans bought more than 17.5 million cars and trucks. Over 12.2 million cars and trucks were produced at one of America's 46 automotive assembly plants. Lined up end-to-end, the cars and trucks assembled in the U.S. would stretch 36,700 miles, enough to extend from the Statue of Liberty to the Golden Gate Bridge twelve and a half times.^{xiv}

A typical auto plant requires between \$1 and \$2 billion in start-up capital investment and employs 2,000 to 3,000 workers. Each assembly plant job supports nearly 7 other jobs at suppliers and in the surrounding community.^{xv} While plant output varies, a single plant producing 200,000 vehicles each year can contribute nearly \$6 billion to America's gross domestic product.^{xvi}

Each vehicle these plants assemble contains 8,000 to 12,000 different components (and as many as 15,000 individual parts).^{xvii} More than 5,600 suppliers produce auto parts in the U.S.^{xviii} Together, they employ more than 871,000 U.S. workers.^{xix}

The components in a typical car or truck contain more than 3,000 pounds of iron, steel, rubber, and glass. Because of the size of each vehicle – and the number of vehicles made each year – automakers are also among the largest buyers of those American raw materials.^{xx}

Designing each of those 15,000 parts and integrating them into a single vehicle is an enormous engineering challenge. Automakers and suppliers spent more than \$20 billion on R&D in the U.S. last year – about \$1,150 per vehicle sold here.^{xxi}

Distributing, marketing, selling, and servicing those vehicles employs hundreds of thousands of other U.S. workers. FCA US, Ford, and General Motors alone rely on more than 10,150 dealerships, which employ approximately 609,000 U.S. workers.

Automakers as job multipliers

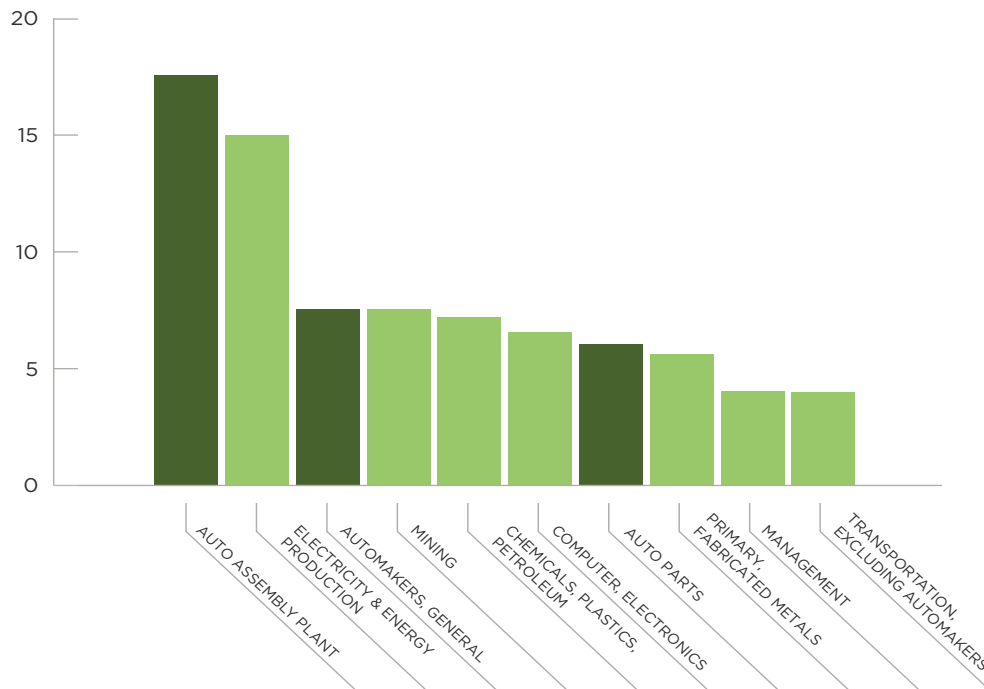
One way to measure an industry's economic contribution is to consider the number of workers it employs through its own operations, its suppliers, and the other local businesses it supports.

Economists refer to this as a sector's "job multiplier." Generally speaking, a sector's multiplier grows relative to its supply chain - the number and costs of the inputs that go into its products. Because the auto supply chain is so large, automaker jobs have the largest multiplier.

Among the leading sources on job multipliers in the U.S. is CAR, which examines how jobs at each step of the automotive value chain (from R&D to suppliers, assembly plants, and dealerships) support other jobs in the community.

CAR uses its own Regional Economic Impact Model (REMI), customized using proprietary company data on employment and compensation (by region), as well as publicly available data on capital investments. The model generates estimates of the economic contribution associated with the manufacturing operations it is testing. CAR's REMI model has been used by automakers, their trade groups, and policymakers for more than 20 years.^{xxii}

INDUSTRIES WITH THE TOP 10 HIGHEST JOB MULTIPLIERS



FCA US, Ford, and General Motors production rate

One way to measure an automaker's investment in the U.S. is to compare its U.S. production to its U.S. sales. Last year, FCA US, Ford, and General Motors produced 6.6 million vehicles in the U.S.

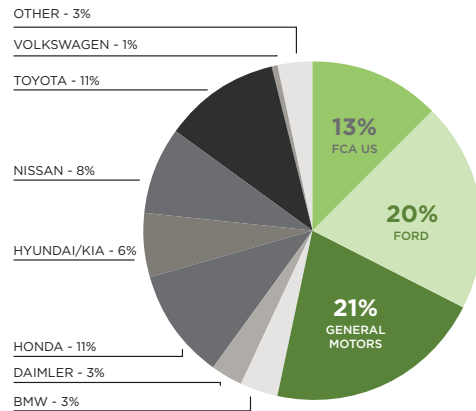
That same year, FCA US, Ford, and General Motors sold 7.9 million vehicles here. In other words, their 2016 U.S. production represented 82% of their 2016 U.S. sales.

By comparison, foreign automakers' U.S. production represented only 58% of their sales here.^{XXIII}

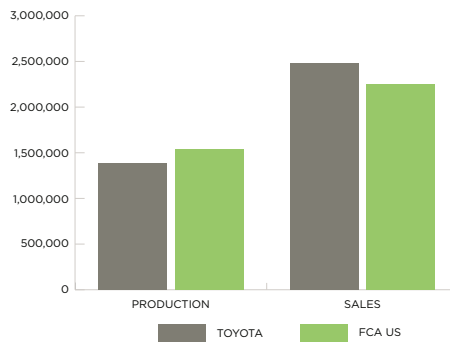
As a result, Ford produced over 1 million more cars and trucks in the U.S. last year than Toyota or Honda, over three times as many vehicles as Hyundai-Kia, nearly six times more than BMW, and nearly 33 times more than VW. Similarly, FCA US assembled 160,000 more vehicles in the U.S. in 2016 than Toyota.

To produce more vehicles, automakers need more plants. General Motors operates as many plants as Toyota, Honda, Nissan, and Subaru, combined. Similarly, FCA US operates as many assembly plants as BMW, Daimler, Hyundai-Kia, and VW, combined.

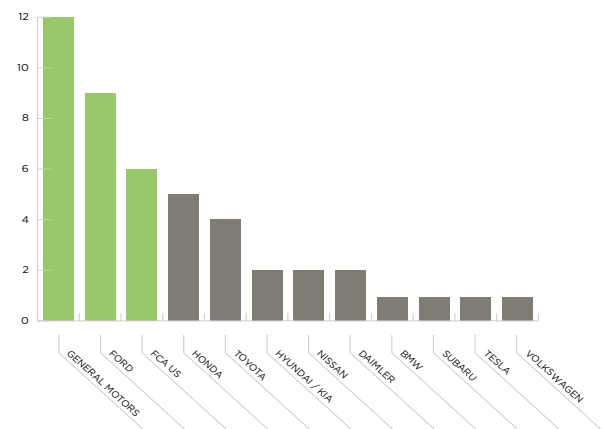
OEMs' SHARE OF U.S. PRODUCTION (2016)



FCA US SELLS FEWER VEHICLES IN THE U.S. THAN TOYOTA, BUT PRODUCES MORE VEHICLES HERE (2016)



TOTAL U.S. ASSEMBLY PLANTS BY OEM

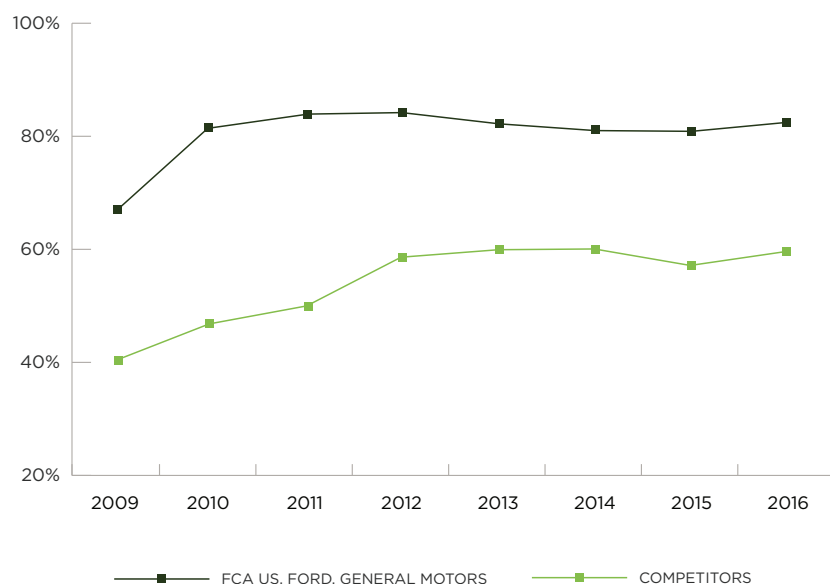


The difference: Eight new U.S. assembly plants producing a line of new cars 6,700 miles long

Because the auto industry is so big, the difference between FCA US, Ford, and General Motors's 83% sales-weighted U.S. production rate and their competitors' 63% sales-weighted U.S. production rate represents hundreds of thousands of jobs and billions in capital investment. In order to match FCA US, Ford, and General Motors's sales-weighted U.S. production rate last year, foreign automakers would have needed to assemble more than 2.2 million more vehicles here.^{xxiv}

To build 2.2 million more vehicles, foreign automakers would have to build eight plants, each employing approximately 3,000 U.S. workers and supporting tens of thousands additional U.S. jobs.^{xxv}

U.S. PRODUCTION AS A PERCENTAGE OF U.S. SALES (2009-2016, SALES-WEIGHTED)

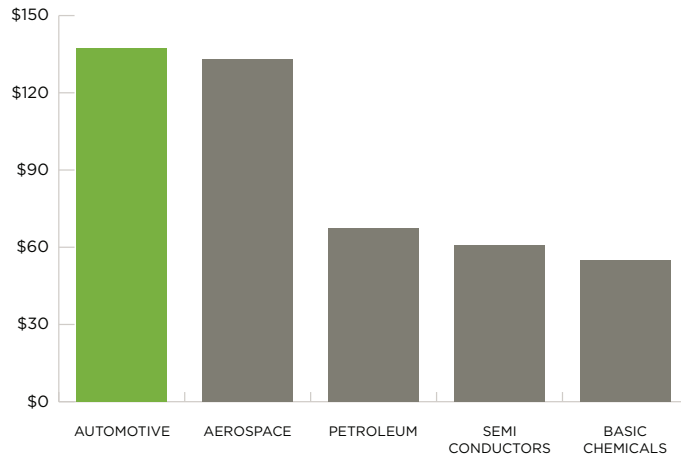


3 out of 5 auto assembly plants are FCA US/Ford/General Motors.

America's biggest exporters

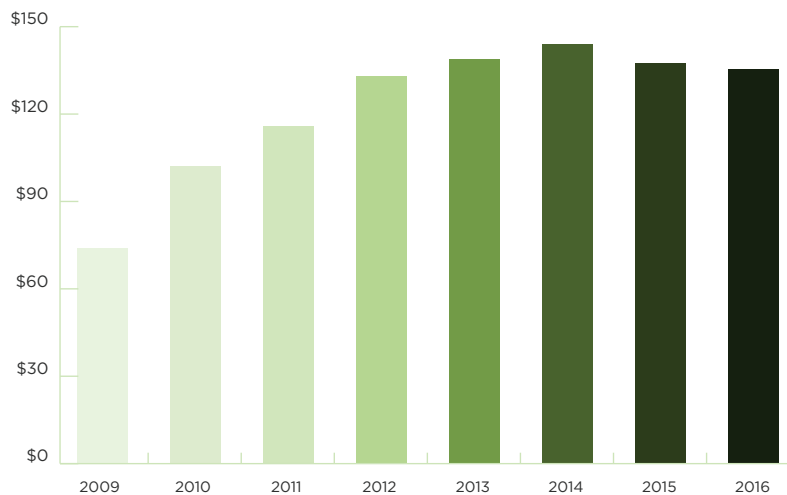
Automakers and their suppliers are America's largest exporters, beating the next best-performing industry by more than \$76 billion over the past five years.^{xxvi}

TOP 5 U.S. EXPORTERS, IN BILLIONS (2016)



In 2016, FCA US, Ford, and General Motors exported more than 1 million American-made vehicles to more than 100 different foreign markets.^{xxvii}

AUTOMAKER AND SUPPLIER EXPORTS, IN BILLIONS



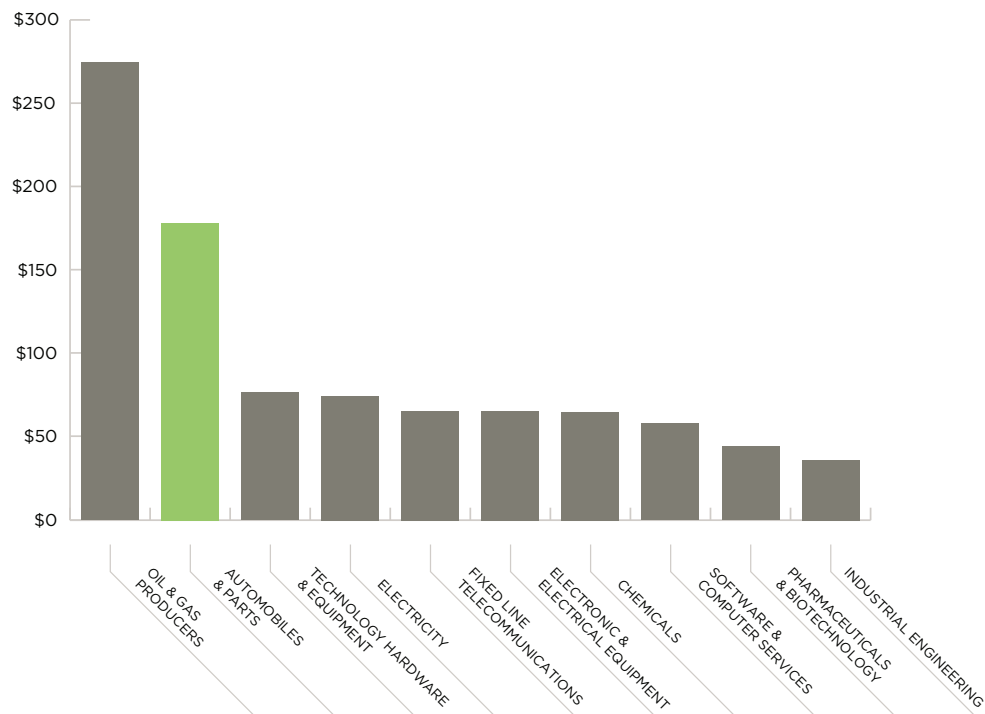
AUTOMAKERS ARE INVESTING TO MAKE AMERICA MORE COMPETITIVE

Capital investment, global

Automakers assemble approximately 85 million new cars and light trucks each year, worldwide. Building new plants and maintaining existing ones requires hundreds of billions of dollars of investment each year.

A recent study by the European Commission examined the capital investment (plants and equipment) of 2,500 of the world's leading companies. The study found that automakers and their suppliers spent more on capital investment than technology hardware producers, electrical utilities, telecommunications companies, electronic and electrical manufacturers, chemical manufacturers, software and computer services companies, and pharmaceuticals and biotechnology.^{xxviii}

TOP 10 INDUSTRIES FOR CAPITAL INVESTMENT, IN BILLIONS (2015)

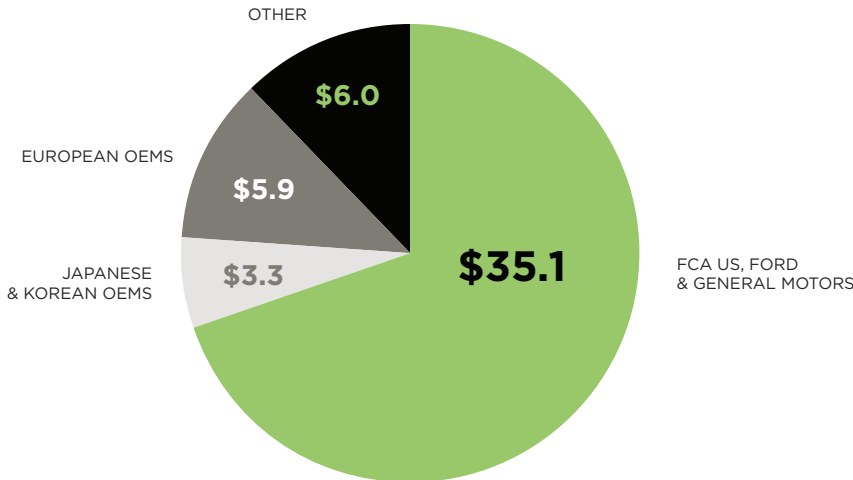


FCA US, Ford, and General Motors capital investments in the U.S.

Over the past five years alone, domestic and foreign automakers have announced investments of \$50.3 billion in their U.S. assembly, engine and transmission plants, R&D labs, headquarters, administrative offices, and other facilities.^{xxix}

FCA US, Ford, and General Motors made more than \$35 billion of those \$50.3 billion (about 70%) in investments. Their announced investments in U.S. facilities are 10 times greater than all Japanese and Korean automakers combined. Together, Toyota, Honda, Nissan, Isuzu, Subaru, Suzuki, Mazda, Mitsubishi, and Hyundai-Kia announced only \$3.3 billion during this same five-year period. American automakers' investments are six times greater than the combined investments of the three major European automakers competing in the U.S. (BMW, Daimler, and VW). Together, they invested only \$5.9 billion over the past five years.

ANNOUNCED U.S. CAPITAL INVESTMENT, IN BILLIONS (2012-2016)



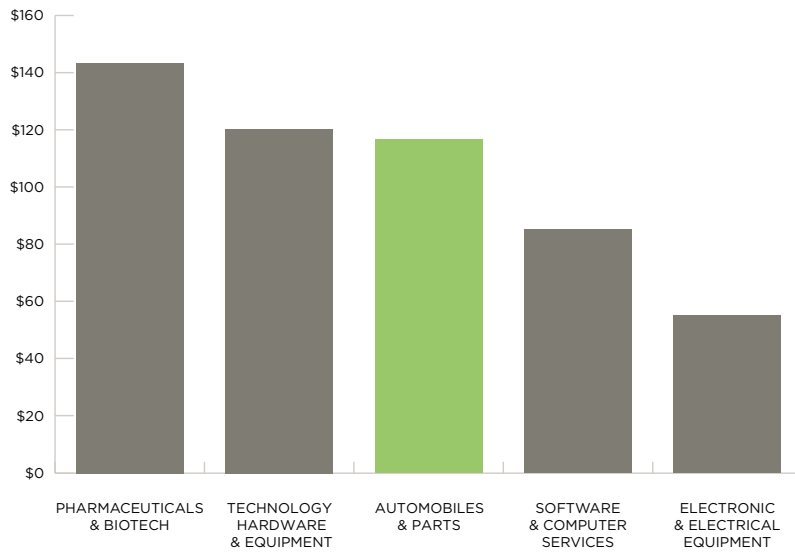
Building a new plant costs between \$1 and \$2 billion. Expanding a plant to allow for multiple platform production, or to take advantage of new process improvements, can cost several hundred million dollars. Both investments create jobs and help maintain America's competitive advantage, but a new plant will generate hundreds of headlines, while existing plant improvements tend to go unnoticed.

FCA US, Ford, and General Motors operate 27 assembly plants nationwide. They also operate more than 198 other manufacturing facilities, research labs, distribution centers, and other facilities, located in 32 states across 115 Congressional Districts.

Research & development

Designing and producing autos is a massive engineering challenge, which is why automakers and their suppliers invest approximately \$115 billion in R&D each year – more than software, electronics, chemicals, aerospace, defense, and oil and gas producers.^{xxx}

TOP 5 INDUSTRIES FOR RESEARCH & DEVELOPMENT, IN BILLIONS (2015)



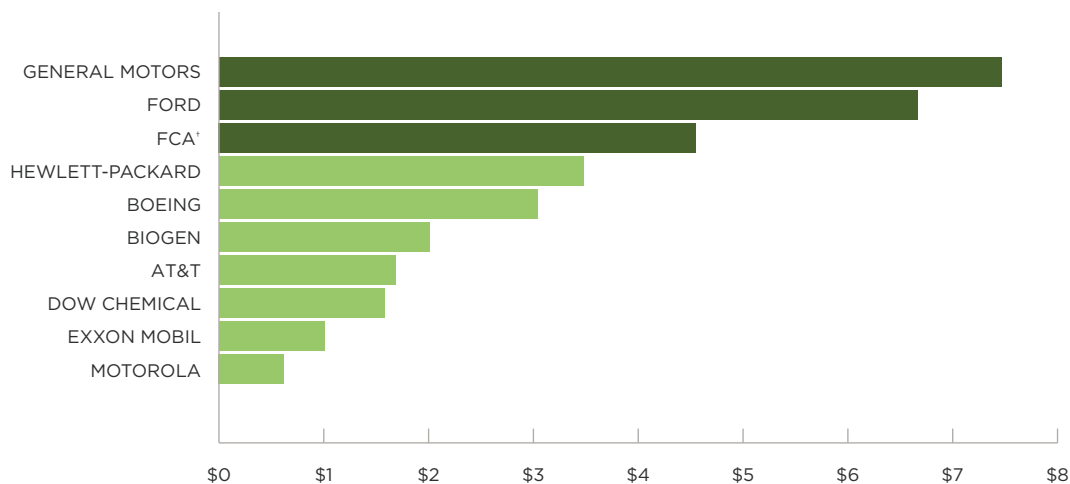
In the U.S., automakers and their suppliers invested approximately \$20 billion last year developing alternative fuels, advanced powertrains, new materials, and better sensors. That represents approximately \$1,150 of R&D for each car sold last year, on average.

To appreciate the scale and significance of auto R&D, consider several findings from CAR’s recent report, “Just How High-Tech is the Automotive Industry?” For example: a new smart phone contains one microprocessor, while a new car or truck contains about 60. These microprocessors manage 100 or more sensors located throughout the vehicle, connected by as much as a mile of wiring. Just as important, a microprocessor in a smart phone is expected to last about three years, while autos are expected to last 12 years or more.^{xxxI}

Over the past decade, automaker R&D has driven braking technology from anti-lock brakes (which help a driver brake faster) to electronic stability control (which keeps a vehicle moving safely when the driver has lost control), to experimental automated emergency steering systems (which control braking, steering, and throttle functions).^{xxxII}

Meanwhile, research into the use of new materials, better joining (welding, fasteners, adhesives), and fabrication could reduce a vehicle’s body weight by 10% to 20% by 2020.^{xxxIII}

GENERAL MOTORS, FORD, AND FCA’S ANNUAL R&D VS. OTHER LEADING INNOVATORS, IN BILLIONS (2015)^{xxxIV}



* This report includes references to both FCA US LLC (FCA US) and Fiat Chrysler Automobiles N.V. (FCA). FCA US is the American subsidiary of its global parent company, FCA.

Automaker jobs

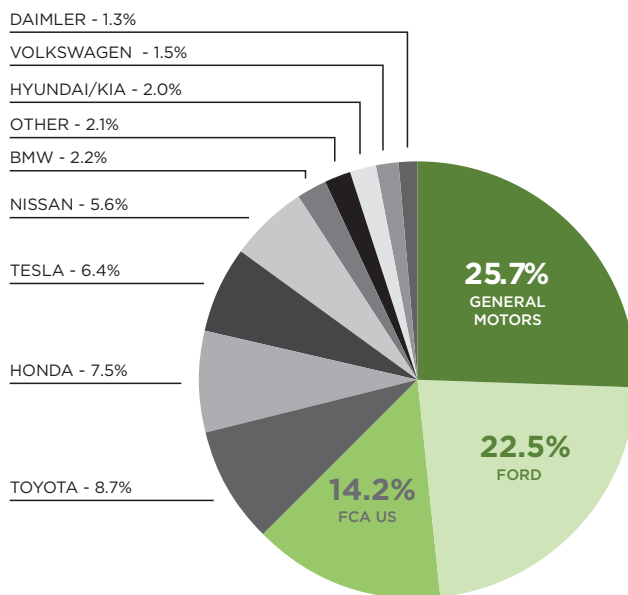
Automakers, their suppliers, their dealerships, and the local businesses that support them are responsible for more than 7.25 million U.S. jobs. No manufacturing sector employs more U.S. workers.^{xxxv}

FCA US, Ford, and General Motors employment

Together, the 15 major automakers competing in the U.S. directly employ about 393,000 U.S. workers. FCA US, Ford, and General Motors employ more than 245,000 of these U.S. workers.^{xxxvi}

The fact that FCA US, Ford, and General Motors account for 62% of U.S. auto jobs is remarkable, because they account for only 45% of U.S. market share.

U.S. EMPLOYMENT (YE 2016)



JOBS
FCA US/Ford/
General Motors employ
nearly 2 out of 3 of
America's autoworkers,
translating to 245,000
jobs.

The reason for this disparity is simple. FCA US, Ford, and General Motors produce more of their vehicles here, conduct more of their research here, and buy more of their parts here. As a result, they have based five and a half times more of their global workforce in the U.S. than their competitors.

To appreciate just how much having an automaker's global headquarters in your country matters, consider VW. VW employs about 6,000 U.S. workers (1% of its total workforce). At Ford, 53% of its workforce is based here, and that includes tens of thousands of high paying engineering, finance, marketing, and other management jobs.

EVERY STATE IS AN “AUTO STATE”

The auto supply chain

More than 5,600 auto parts suppliers operate in the U.S.^{xxxvii} Together, they employ more than 871,000 U.S. workers.^{xxxviii}

Approximately two-thirds of every vehicle's parts content is produced by suppliers. For every worker employed by an automaker, two and a half other workers are employed by parts suppliers.

Many supplier jobs are in R&D. In fact, suppliers account for approximately 40% of the auto R&D conducted in the U.S. each year.^{xxxix}

Auto suppliers are the biggest reason why every state is an “auto state.” For example, 220 U.S. auto suppliers manufacture parts for hybrid, plug-in hybrid, and electric battery vehicle components. They operate across 23 different states.^{xl}

A state that hosts one or more assembly plants can support more than 100 different suppliers. For example, Texas and California host 106 and 160, respectively.

FCA US, Ford, and General Motors's national footprint

For their part, FCA US, Ford, and General Motors operate more than 200 assembly plants, manufacturing facilities, research labs, distribution centers, and other facilities, directly employing more than 245,000 U.S. workers. These facilities are located in 32 states across 115 Congressional Districts. FCA US's, Ford's, and General Motors's 10,150 auto dealerships employ more than 609,000 additional U.S. workers.

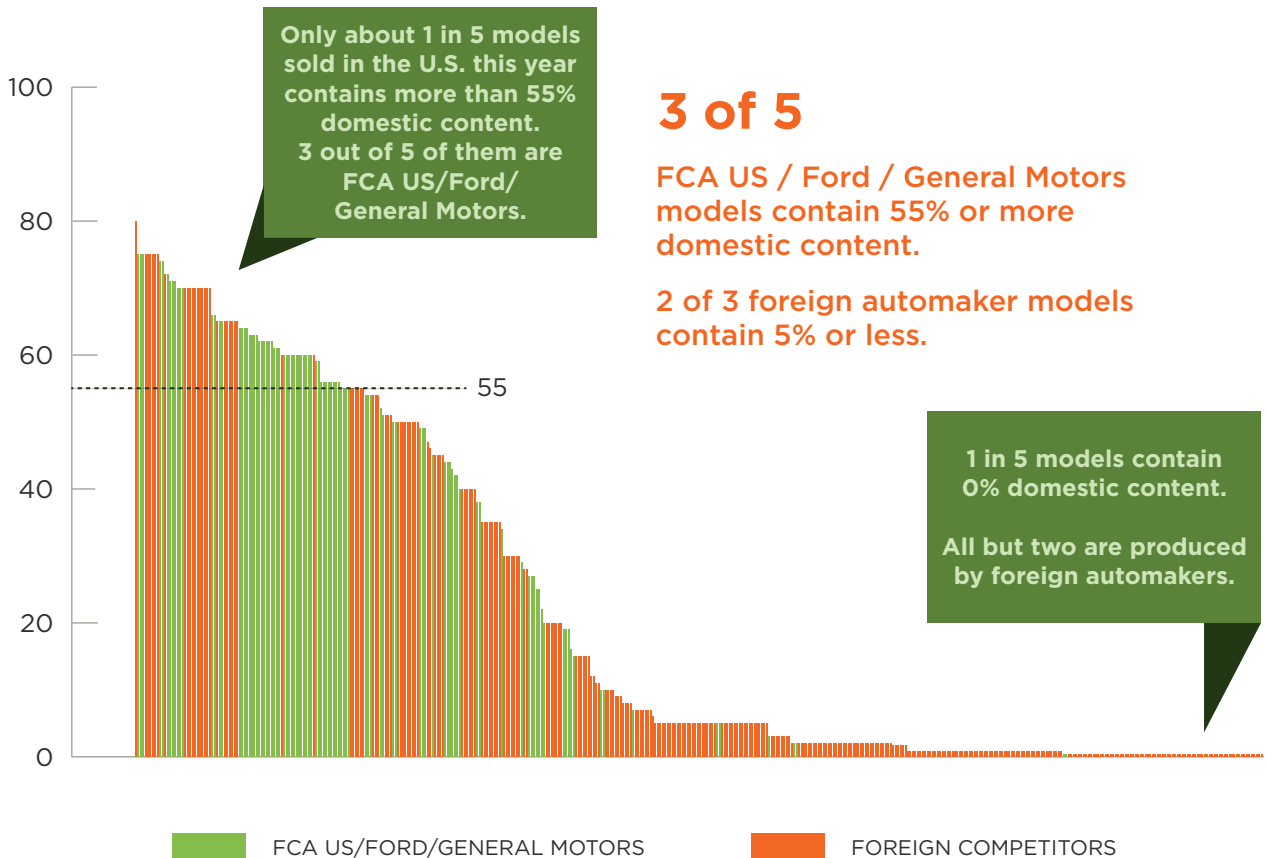
A steep curve on “domestic content”

Automakers sell more than 400 different models in the U.S. Those models contain anywhere from 80% to 0% “domestic content” (American- or Canadian-made parts, as defined by the American Automotive Labeling Act (AALA)).

While American auto suppliers produce hundreds of billions of dollars worth of parts each year, they are used in a comparatively small portion of American vehicles. Only one in five models contains more than 55% domestic content. More than half of them contain 10% or less domestic content.

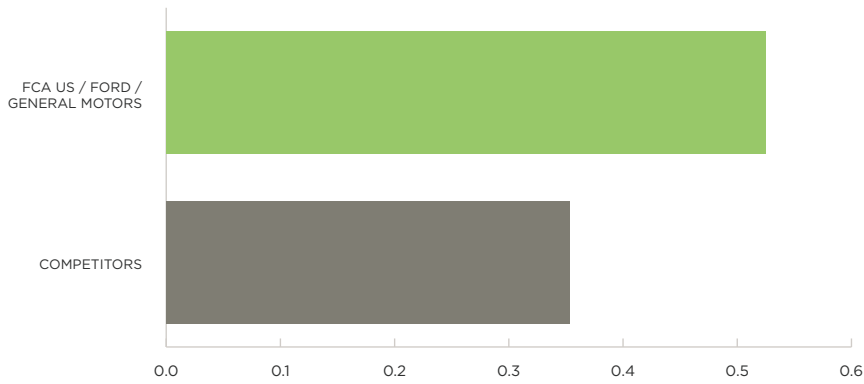
From a domestic content perspective, cars and trucks offer a steep curve. FCA US, Ford, and General Motors dominate the top. Three out of five of their models contain 55% or more domestic content. By comparison, two out of three of their competitors’ models contain 5% or less domestic content. Some foreign manufacturers score better than others. For example, Honda’s domestic content matches its domestic competitors, while even the U.S. assembled models from BMW contain 35% or less domestic content.

2017 AALA SCORES BY MAKE AND MODEL



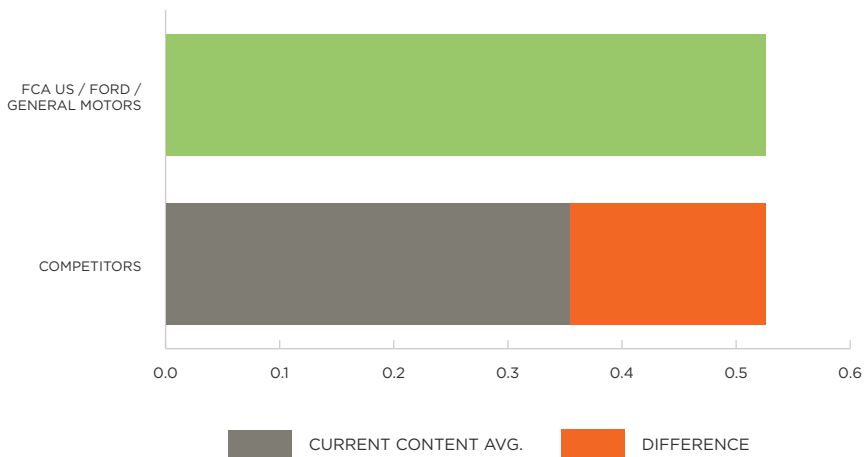
The difference: Dozens of new U.S. supplier plants producing 1.5 million cars'-worth-of-parts

SALES-WEIGHTED AALA AVERAGE (2017 MODEL YEAR)



To appreciate the scale of this difference in domestic content, consider what would happen if foreign automakers matched FCA US, Ford, and General Motors's record. FCA US, Ford, and General Motors's fleets contain 53% domestic content (on a sales-weighted basis). Using this same calculation, foreign automaker fleets contain only 35% domestic content. If foreign automakers increased their use of domestic content to match FCA US, Ford, and General Motors's content rate (from 35 to 53%), they would need to insource the equivalent of more than 1.5 million cars'-worth-of-parts.

TO MATCH FCA US/FORD/GM PARTS PURCHASES LAST YEAR, COMPETITORS WOULD HAVE HAD TO PURCHASE 1.5 MILLION VEHICLES'-WORTH-OF-DOMESTIC-PARTS



OUR INVESTMENTS ARE CONTRIBUTING TO THE REVIVAL OF MANUFACTURING ACROSS AMERICA

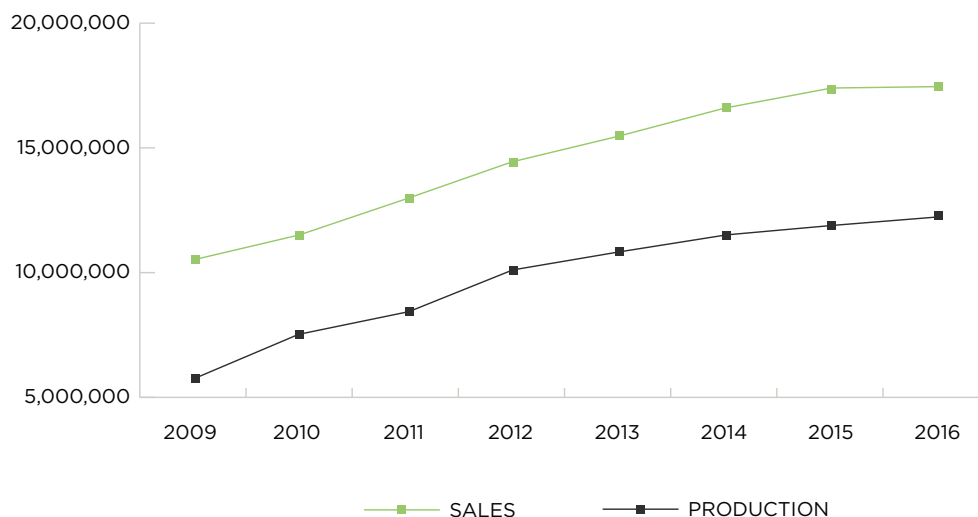
Auto sales, production, and employment rebound

The auto sector was hit hard by the recession and the resulting credit crunch. As auto sales rebounded, they contributed greatly to the ongoing recovery. Approximately 10% of economic growth from the second quarter of 2009 to 2013 was produced by the auto sector.

U.S. auto sales have increased by more than 67% since the financial crisis (from 10.4 million in 2009 to 17.5 million last year). CAR projects sales will exceed 17 million vehicles per year through 2022.^{xli}

During that same period, U.S. auto production has more than doubled (from 5.6 million vehicles produced in 2009 to 12.2 million vehicles last year). U.S. auto production is expected to exceed 12 million vehicles per year through 2019 - and reach 13 million by 2020.^{xlii}

REBOUND IN U.S. SALES AND PRODUCTION (2009-2016)



Automakers are operating second shifts at most of their plants, and some have added third shifts. As a result, automotive employment increased by nearly one-half from 2011 through 2016. CAR predicts automotive employment will increase by 10.8% from 2013 to 2018, a compound average growth rate of 2.1 percent.^{xliii}

Surprisingly, U.S. auto sales increased by double digits from 2010 through 2015, even though GDP has grown by less than 3% each year. Historically, only a GDP growth rate of 4% or more would support sales increases of this kind.^{xliv}

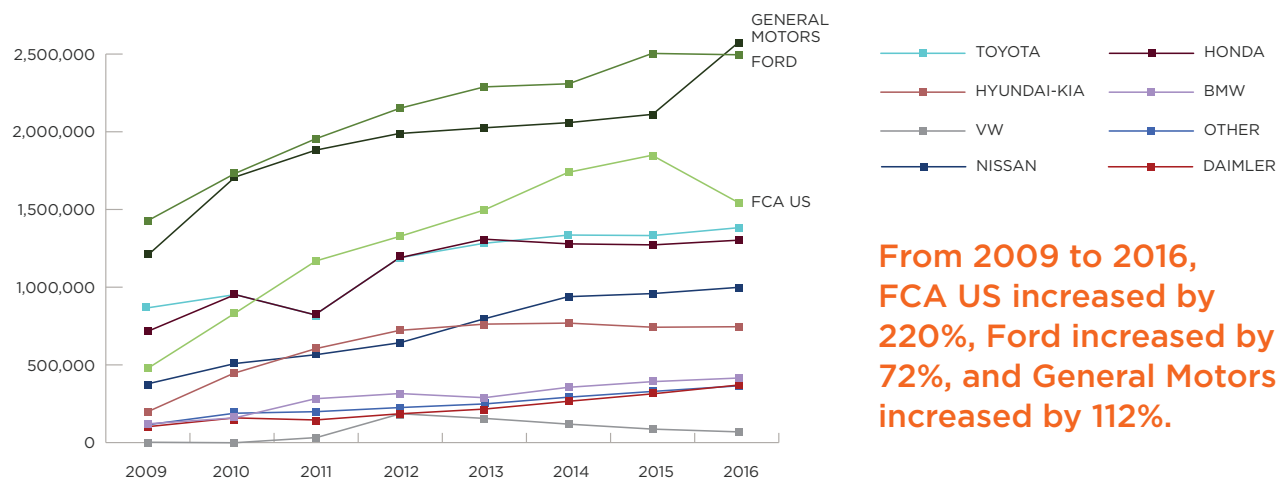
Increased production in the U.S.

As the economy recovered, FCA US, Ford, and General Motors dramatically increased their U.S. production of vehicles, while foreign automakers also invested here.

Throughout the automotive industry, automakers are reducing their research, development, and production costs by building their models from a smaller number of body platforms. They are also centralizing production of those platforms. In such cases, more efficient and innovative markets, like the U.S., can gain volume, by exporting the same body frame or major component to assembly facilities around the world.^{xlv}

Moreover, as new platform hubs grow, foreign auto suppliers may build new plants in the U.S. to serve them. Nine out of 10 of the world's largest automakers and 46 of the world's top 50 global automotive suppliers have opened R&D facilities in Michigan alone.^{xlvi}

TOTAL U.S. PRODUCTION (2009-2016)



From 2009 to 2016, FCA US increased by 220%, Ford increased by 72%, and General Motors increased by 112%.

IN AN INDUSTRY AS COMPETITIVE AND CAPITAL-INTENSIVE AS AUTOS, PUBLIC POLICY MATTERS

The long-term success of any American automotive facility, whether an assembly plant or research lab, depends, in part, on how international public policies, including those relating to currency manipulation and automotive safety standards, affect an automaker's ability to compete internationally.

INTERNATIONAL SAFETY STANDARDS

Motor vehicles built to U.S. Federal Motor Vehicle Safety Standards (FMVSS) and the equivalent European regulations, known as Economic Commission for Europe (ECE) standards, both lead to the highest levels of safety performance and outcomes. If a manufacturer builds to applicable FMVSS or ECE standards it should be able to sell that product worldwide.

When other countries accept both of these equally robust sets of standards, they encourage a more efficient and competitive automotive industry by:

- Reducing numbers of prototypes needed for testing;
- Eliminating redundant testing and calibration that have no added safety benefit;
- Reducing record keeping, data process and oversight resources;
- Reducing administration/retrofitting costs for consumers relocating between countries; and
- Moving transportation of automobiles and auto parts across international borders more efficiently.

The European Commission is already actively promoting the use of ECE automotive safety standards around the world, including through its free trade agreements. To help ensure that FMVSS are also accepted internationally we have proposed that the U.S.:

- Proactively seek acceptance of FMVSS regulations worldwide;
- Explicitly include acceptance of U.S. automotive safety standards in all U.S. free trade agreements, including the modernized NAFTA;
- Strongly and swiftly address regulations that emerge in individual countries/regions that act as technical barriers to U.S. auto exports; and
- Continuing to pursue regulatory convergence between the U.S. and the European Union by building on the momentum created by the Transatlantic Trade and Investment Partnership (TTIP) negotiations.

This is intended to match the vigor with which the EU has been pursuing its standards globally on behalf of its vehicle industries, and is not in any way intended to supplant the acceptance of ECE safety standards. In fact, as noted above, we recommend countries accept vehicles certified to both FMVSS and ECE regulations.

By ensuring that vehicles certified to FMVSS are also accepted worldwide, our nation will reinforce the globally competitive export platform, boosting the U.S. economy and the new jobs it can create through growing exports.

CURRENCY MANIPULATION

Currency exchange rates can be as important a determinant of trade outcomes as the quality of a particular good or service traded. Some governments manipulate their currency's value in order to provide an unfair competitive trade advantage to their industries. In fact, currency manipulation can and often does have a much larger impact on trade than any of the tariff or non-tariff barriers that are the usual focus of U.S. free trade agreement negotiations.

The U.S. and the international economic system have been ineffective at addressing the use of currency manipulation by its trade partners. The International Monetary Fund (IMF) has clear rules against competitive devaluations, but it has no enforcement mechanism. The World Trade Organization (WTO) agreements include provisions on currency exchange rates; however, these rules are untested. Inaction to address this distortion has led to the U.S. suffering much larger trade deficits and job losses than it otherwise would have. Some have estimated that this inaction has led to the loss of up to 5 million American jobs. According to a recent publication by leading international economists, currency manipulation by several U.S. trade partners was the main cause of historically high trade imbalances in the 2000s.

In 2016, Congress passed the Trade Facilitation and Trade Enforcement Act of 2015 (the Customs Act) that established broad requirements to identify and address the problem of currency manipulation, which AAPC supported. In an effort to meet the requirements of the Customs Act, the U.S. Department of Treasury modified the Semiannual Report on International Economic and Exchange Rate Policies. Although the enhanced report is a helpful step in the right direction, we believe it is essential to include even stronger and enforceable currency manipulation disciplines with countries that the United States grants preferential access as a party to a free trade agreement (FTA) with the United States.

AAPC has worked with leading international economists, including Fred Bergsten and Joseph Gagnon of the Peterson Institute, to develop strong and enforceable currency manipulation rules, based on IMF principles, which could be used to identify and counter trade partners that use currency manipulation. The result is an objective three-part test for inclusion in new or updated U.S. FTAs, which supplements the above-referenced Customs Act:

- Did the foreign country have a current account surplus over the six-month period in question?
- Did it add to its foreign exchange reserves over that same six-month period?
- Are its foreign exchange reserves more than sufficient, (i.e., greater than three months' normal imports)?

A country that the U.S. has partnered with in an FTA would be considered to be manipulating its currency if it is found to meet all three criteria. The United States would then be eligible to take swift action, such as revoking the duty-free trade, in an effort to compel the trade partner to stop using this unfair trade practice.

SOURCES

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- ^{iv} United States Department of Commerce, International Trade Administration (2017).
- ^v Motor & Equipment Manufacturers Association, *Driving the Future* (2017).
- ^{vi} Result calculated by multiplying foreign automakers' 2016 U.S. sales by American automakers' 2016 U.S. production as a percent of sales rate.
- ^{vii} Result calculated by multiplying foreign automakers' 2016 U.S. sales by American automakers' sales-weighted domestic content average for the 2017 model year.
- ^{viii} CAR analysis (2014).
- ^{ix} This report includes references to both FCA US LLC (FCA US) and Fiat Chrysler Automobiles N.V. (FCA). FCA US is the American subsidiary of its global parent company, FCA.
- ^x European Commission Joint Research Centre, *2016 EU Industrial R&D Scoreboard*.
- ^{xi} CAR, *U.S. Light Vehicle Sales and Production Forecast*. Chen, Yen and Kristin Diczek (June 2017).
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- ^{xiii} For a more complete examination of this trend, see *CAR's Economic Contribution of the Ford Motor Company Michigan Assembly Plant to Michigan Economy*.
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- ^{xviii} CAR, *The Effect on the U.S. Economy of the Successful Restructuring of General Motors*. McAlinden, Sean P., and Debra M. Menk (2013). Page 4.
- ^{xix} Motor & Equipment Manufacturers Association, *Driving the Future* (2017).
- ^{xx} National Science Board, *2016 Science and Engineering Indicators* (February 2016).
- ^{xxi} The National Science Foundation (NSF) estimates U.S. auto industry R&D totaled \$13.2 billion in 2012. Since that time, global auto R&D has increased by 9.9% each year. Assuming U.S. automotive research matched the global rate, baseline auto research totaled \$19.2 billion in 2016. New entrants into the automotive industry (including Apple, Google, Lyft, Tesla, and hundreds of start-ups) represent billions more in auto R&D.
- ^{xxii} CAR, *The Potential Effects of the 2017-2025 EPA/NHTSA GHG/Fuel Economy Mandates on the U.S. Economy*.

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- McAlinden, Sean P., Yen Chen, Michael Schultz, and David J. Andrea (September 2016).
- xxiii In 2016, foreign automakers sold 9,599,301 cars and trucks in the U.S. and produced 5,605,520 cars and trucks here, for a U.S. production rate of 58%.
- xxiv To match FCA US, Ford, and General Motors's 83% sales-weighted U.S. production rate, foreign automakers would have had to produce 2,212,042 more cars and trucks here (moving from 5,605,520 out of 9,599,301 sold, to 7,899,102 out of 9,599,301 sold).
- xxv Assuming each plant produced 300,000 vehicles, it would require 7.37 plants to produce 2,212,042 vehicles. Plants capable of producing 300,000 vehicles per year employ 3,000 to 4,000 workers. New plants require \$1 to \$2 billion in capital investment.
- xxvi United States Department of Commerce, International Trade Administration (2017).
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- xxxiv This report includes references to both FCA US LLC (FCA US) and Fiat Chrysler Automobiles N.V. (FCA). FCA US is the American subsidiary of its global parent company, FCA.
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- xxxvi Automaker employment (both in the U.S. and globally) is obtained from their respective annual reports and corporate websites, as well as reports from the trade groups they support. FCA data is used for their global employment, while FCA US data is used for their U.S. employment.
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- xxxviii Motor & Equipment Manufacturers Association, *Driving the Future* (2017).
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- ^{XLV} CAR, *Economic Contribution of the Ford Motor Company Michigan Assembly Plant to the Michigan Economy*. Hill, Kim, Bernard Swiecki, Deb Menk, Joshua Cregger, and Michael Schultz (March 2013).
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