

**The Contributions of Japanese-Brand
Automakers to the United States Economy:
Updated Study⁺**

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⁺ Updated using end-of-year 2018 data.

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^{**} All statements, findings, and conclusions in this report are those of the author and do not necessarily reflect those of the Japan Automobile Manufacturers Association.

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Executive Summary

Over the last four decades, the Japanese-brand automotive industry has been a major contributor in shaping U.S. manufacturing and has generated and supported millions of U.S. jobs. As of late 2018, Japanese-brand automakers directly employed more than 93,000 workers while their dealer network employed more than 400,000 workers. The consistent *growth* of Japanese-brand automakers' U.S.-based employment is even more notable. In *every* year since our original 2011 study, direct and indirect employment supported by Japanese-brand automobile producers and dealers has grown. For instance, **since 2011 Japanese-brand automobile producers and dealers increased their direct employment by 28.8% and 27%, respectively.** The total number of jobs generated by Japanese-brand automobile companies and their dealership networks has grown by 26.2% since 2011. **Today more than 1.61 million U.S. jobs are supported by the Japanese-brand automobile companies' U.S. production facilities, R&D/design centers, headquarters, sales/distribution and dealer networks – an increase of more than 335,000 jobs since our original study in 2011.**

⁺ Updated using end-of-year 2018 data.

The key findings of this report are as follows:

- **Automobile Production-Driven Employment**
 - Japanese-brand automobile companies directly employ over 93,000 U.S. manufacturing, R&D/design, and other (e.g. headquarters, sales, etc.) workers.
 - Another 250,000 U.S. workers are employed in intermediate goods and parts industries (“automotive supplier network”) that supply the Japanese-brand automakers’ U.S. vehicle production and other facilities.
 - An additional 441,000 U.S. jobs are supported by direct and intermediate employment (often referred to as “spin-off” employment).
 - All told, **more than 784,000 U.S. jobs are generated by the Japanese-brand automobile companies’ U.S. production facilities, R&D centers and headquarters.**

- **Dealer Network-Driven Employment**
 - Approximately 400,000 U.S. workers are directly employed in the Japanese-brand automobile companies’ dealer network.
 - Another 130,000 U.S. workers are employed in intermediate goods industries associated with the Japanese-brand automakers’ dealer network.
 - An additional 300,000 U.S. spin-off jobs are supported by direct and intermediate dealership employment.
 - All told, **more than 830,000 U.S. jobs are generated by the Japanese-brand automobile companies’ dealer network.**

- In total, the **Japanese-brand automobile companies’ U.S. facilities and dealer networks contribute to more than 1.61 million private sector U.S. jobs.** The Japanese-brand automobile companies remain among the largest job creators in the United States.

I. Introduction

This study updates previous reports on the economic contribution of the Japanese-brand automotive industry to the U.S. economy. Earlier studies estimated the employment and economic impact for years 2011 through 2017; this report revises those estimates using 2018 data.

The analysis shows the continued growth and significance of the Japanese-brand automotive industry in the United States. This report affirms the findings of the previous studies – namely, that the Japanese-brand automotive companies are an important source of U.S. jobs and job growth. In 2018 more than 1.61 million American jobs were rooted either directly or indirectly in the Japanese-brand automotive companies' U.S. operations.

II. Value of the Japanese-Brand Automakers to the U.S. Economy

The economic performance of the automotive industry, as well as manufacturing more broadly, is important for the continued development and growth of both the national economy and also regional economies. Manufacturing and automotive industry trends have long been important indicators of the state of the economy, with periods of growth in automotive manufacturing closely linked to periods of growth in the U.S. economy as a whole. Given the size of the Japanese-brand automobile producers, their performance and growth are important indicators for the overall U.S. economy.

Using modeling techniques described in prior work and discussed in the appendix, estimates are derived from the economic contributions associated with the Japanese-brand automakers in the United States.¹ The estimates include both

¹ Thomas J. Prusa, "The Contribution of the Japanese-Brand Automotive Industry to the United States Economy," May 6, 2013; Kim Hill, Debra Maranger Menk, Joshua Cregger, and Michael Schultz, "Contribution of the Automotive Industry to the Economies of All Fifty States and the United States," Center for Automotive Research, January 2015.

direct employment, intermediate jobs at parts suppliers and other upstream firms, and spin-off jobs that result from the industry's direct and intermediate activity. The results are presented in three parts: the contributions of Japanese-brand automotive manufacturing, those associated with Japanese-brand new vehicle retail activities, and a combination of the two to represent the total impact of the Japanese-brand automakers in the United States.

A) Vehicle Manufacturer Activities

Summary estimates of the employment contributions of Japanese-brand automotive manufacturing to the private sector of the U.S. economy for 2018 are shown in Table 1.² Both blue-collar and white-collar workers employed by the manufacturing firms are included in direct employment. The direct employees of automakers include researchers, engineers, managers and administrative support, as well as workers on the assembly lines. According to data collected by the Japan Automobile Manufacturers Association, 93,599 workers were employed in Japanese-brand U.S. automotive manufacturing and related operations (Table 1).^{3,4}

Beyond those direct employees working in assembly, stamping, welding, painting, engine, and parts plants, R&D centers and headquarters, there are many more workers in intermediate and spin-off jobs that are supported through automotive production activities. The intermediate employment category captures the jobs necessary to satisfy demands for the materials and services needed to design, produce, distribute, and sell motor vehicles and is sometimes referred to as the “automotive supplier network.” Intermediate employment (suppliers of goods and services) from these automotive manufacturing activities is estimated to be

² Employment represents the total number of private sector jobs, including the self-employed.

³ Automakers' contribution employment data to this study included Hino, Honda, Isuzu, Mazda, Mitsubishi, Nissan, Subaru, and Toyota.

⁴ As of December 31, 2018.

250,000 jobs, primarily in the industries necessary to produce automobiles – parts manufacturing, primary metal manufacturing, fabricated metal products manufacturing, and plastics and rubber products manufacturing.⁵ The sum of direct and intermediate jobs equals 343,599 private sector jobs.

Table 1 also reports the total spin-off jobs effect, also known as the expenditure-induced effect (spending from the people who work in the direct and intermediate jobs). The estimate of the expenditure-induced effect is 441,000 jobs which, when added to the 343,599 direct plus intermediate jobs, equals 784,599 total jobs.

Table 1: Private Sector Employment Contributions of Japanese-Brand Automobile Manufacturing in the United States, 2018

		2011-2018	
		<u>Change</u>	<u>Pct Change</u>
Employment			
Total (Direct + Intermediate)	343,599	+69,576	+25.4%
<i>Direct</i>	93,599	+20,926	+28.8%
<i>Intermediate</i>	250,000	+48,650	+24.2%
Spin-off	441,000	+89,684	+25.5%
Grand Total (Direct + Intermediate + Spin-off)	784,599	+159,260	+25.5%

* numbers may not add due to rounding

B) Automobile Dealerships

Table 2 reports the estimated employment contributions by Japanese-brand new vehicle dealer operations for 2018. Employment estimates are broken out by direct employment (people employed directly by dealerships); intermediate employment (people employed by those who provide goods and services, excepting inventory, to

⁵ Estimates of intermediate and spin-off employment are rounded to the nearest thousand; income and tax receipt numbers are also rounded. Sub-totals may not sum to total due to rounding.

dealerships); and spin-off employment (expenditure-induced employment resulting from spending by direct and intermediate employees).

Japanese-brand automotive dealerships directly employed (for new vehicle sales) 400,861 workers. As can be seen in Table 2 there are 130,000 intermediate jobs that support direct employment in the industry (suppliers of goods and services, not including motor vehicle inventory). Thus, the total employment (direct and intermediate) generated by Japanese-brand automotive dealerships is 530,861 workers.

The spin-off employment associated with spending by the people who work in the direct and intermediate jobs adds another 300,000 jobs, bringing the total jobs associated with Japanese-brand new motor vehicle retail operations in the United States (direct plus intermediate plus spin-off) to more than 830,000 jobs.

Table 2: Private Sector Employment Contributions of Japanese-Brand New Vehicle Dealers (Retail) in the United States, 2018

		2011-2018	
		<u>Change</u>	<u>Pct Change</u>
Employment			
Total (Direct + Intermediate)	530,861	+112,779	+27.0%
<i>Direct</i>	400,861	+85,278	+27.0%
<i>Intermediate</i>	130,000	+27,501	+26.8%
Spin-off	300,000	+63,469	+26.8%
Grand Total (Direct + Intermediate + Spin-off)	830,861	+176,249	+26.9%

** numbers may not add due to rounding*

C) Total Contribution

Combining the estimates for Japanese-brand automotive production with the estimates for Japanese-brand vehicle dealer operations yields the “bottom line” for

the Japanese-brand automakers as a whole. These results for the total U.S. private sector contributions from Japanese-brand automaker activities are shown in Table 3.

The Japanese-brand automobile manufacturers and their dealer networks directly employ more than 494,000 employees –over 93,000 in the production and distribution of their U.S.-built automobiles and over 400,000 in their new dealer vehicle networks. In turn, these 494,000 direct jobs support another 380,000 intermediate jobs (such as auto parts, raw and fabricated steel, etc.). All told, over 874,000 direct and intermediate jobs are rooted in the Japanese-brand automobile companies’ U.S. production and sales.

Table 3 also reports the total spin-off jobs effect, which includes the expenditure-induced effect (spending from the people who work in the direct and intermediate jobs). The estimate of the expenditure-induced effect is 741,000 jobs. By combining this figure with the direct plus intermediate jobs, this study estimates the Japanese-brand automobile companies have a total employment effect of 1,615,460 jobs.

Table 3: Private Sector Employment Contributions of Japanese-Brand Automobile Activity, 2018

	<u>Production</u>	<u>New Vehicle Dealers</u>	<u>Total</u>
Employment			
Total (Direct + Intermediate)	343,599	530,861	874,460
<i>Direct</i>	93,599	400,861	494,460
<i>Intermediate</i>	250,000	130,000	380,000
Spin-off	441,000	300,000	741,000
Grand Total (Direct + Intermediate + Spin-off)	784,599	830,861	1,615,460

* numbers may not add due to rounding

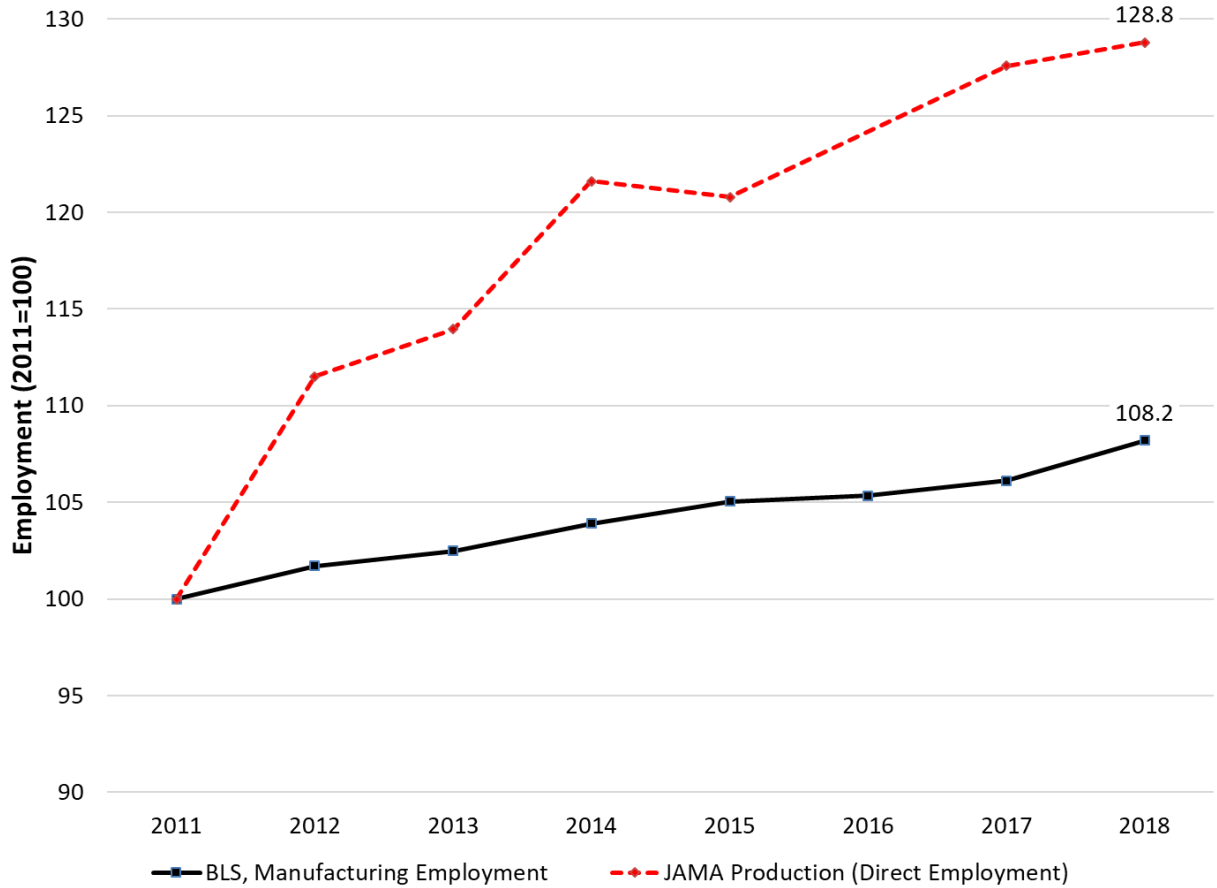
III. Concluding Comments

This study highlights the continued economic importance of the Japanese-brand automakers' U.S.-based production. Consistent with the findings of our previous studies, we again find that Japanese-brand automakers' economic contributions grew in 2018: today more than 1.61 million U.S. jobs are tied to Japanese-brand automakers.

The steady and robust job growth by the Japan Automobile Manufacturers Association (JAMA) member companies – both direct employment and also the overall employment tied to JAMA members' activity – is quite remarkable, especially when compared with broad job trends in the overall economy. In Figure 1 we plot the production workers directly employed by Japanese-brand automobile companies in the U.S. (e.g., manufacturing, R&D/design, headquarters, sales, etc.). For comparison, we also plot total manufacturing employment (as reported by the U.S. Government).⁶ We normalize both data series so the value for 2011 is 100. As seen, direct employment by Japanese-brand automobile companies has grown by more than 28.8% since 2011. By contrast, overall U.S. manufacturing employment has increased 8.2% over the same period. The visual evidence is quite clear: Japanese-brand automakers are leading U.S. manufacturing employment growth and strengthening the country's automotive production base.

⁶ All Manufacturing employees, Bureau of Labor Statistics, <http://data.bls.gov/>.

Figure 1: Growth in Direct Production Employment

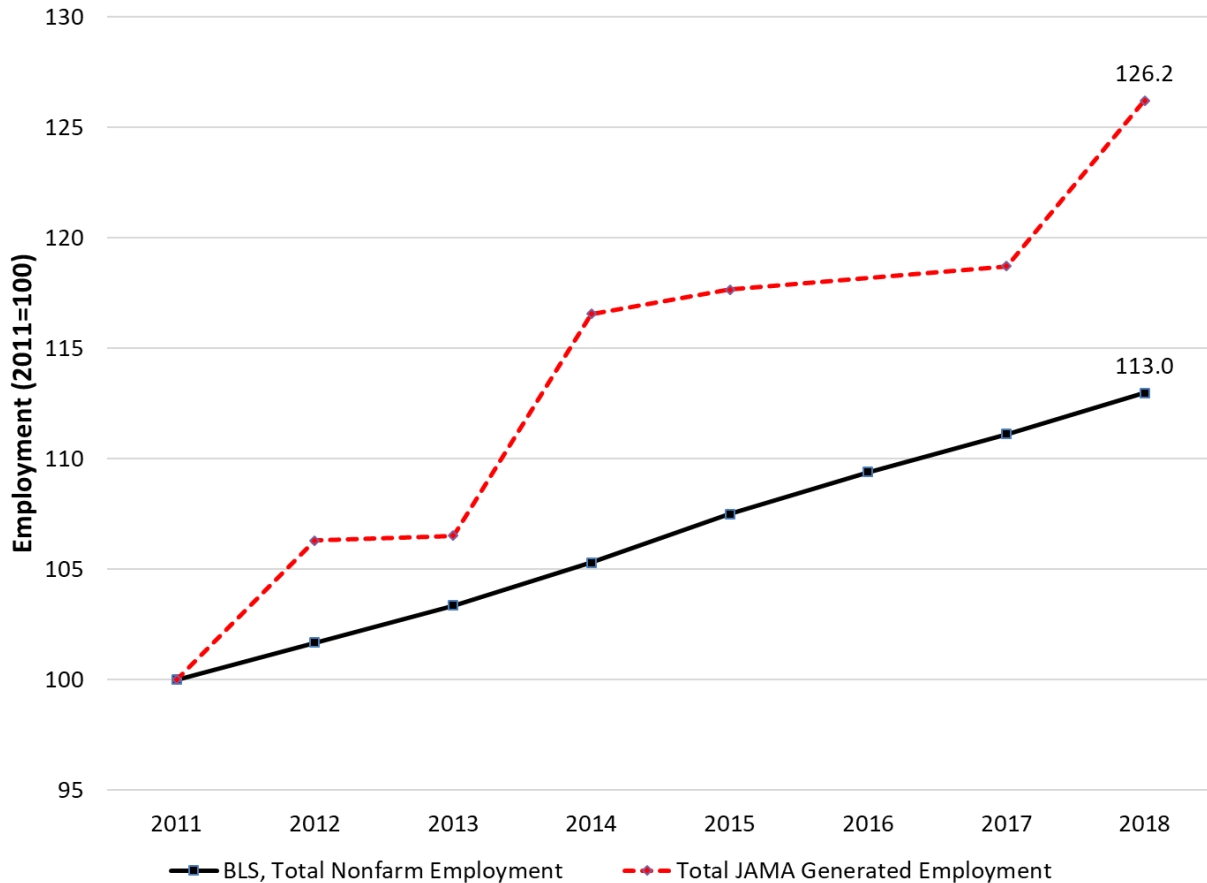


An important lesson from this series of “contributions” studies is that Japanese-brand automobile companies’ activity in the U.S. goes far beyond the factory floor. Most obviously, there is the direct employment in automobile dealerships. As described above, there are also thousands of intermediate and spin-off jobs generated by Japanese-brand automobile companies’ activities in the U.S. In Figure 2 we plot total employment and compare it with the trend in overall U.S. employment.⁷ We again normalize both data series so the value for 2011 is 100. As seen, we see that the growth in overall jobs related to JAMA member company activity exceeds the growth in overall U.S. employment. Since 2011 total

⁷ Total nonfarm employees, Bureau of Labor Statistics, <http://data.bls.gov/>.

employment generated by Japanese-brand automobile companies' activities has grown by nearly 27% whereas overall U.S. employment has grown by about 13%.

Figure 2: Growth in Total Employment



In every respect the last eight years have been a very strong period for both the Japanese-brand automobile companies and also the overall U.S. economy. As the comparison with the BLS official employment statistics has shown, Japanese-brand automobile companies are playing a leading role in the growth of the U.S. economy.

Exhibit – Contributions of Japanese-Brand Automakers to the United States Economy

This study provides estimates of the economic contribution associated with the Japanese-branded automakers in the United States. The estimates include both direct employment, intermediate jobs at parts suppliers and other upstream firms, and spin-off jobs that result from the industry's direct and intermediate activity.

The study is based on economic modeling techniques developed by CAR in conjunction with data from CAR, *Ward's Automotive*, the National Automobile Dealers Association, the Japan Automobile Manufacturers Association and other public sources. Data for new vehicle dealerships is sourced from the National Automobile Dealers Association and the Japan Automobile Manufacturers Association; the dealership employment data is used to estimate the impact of the Japanese-branded automakers' U.S. new dealer networks.

One challenge of this study is the automobile industry has deep upstream and downstream connections. The economic implications of the automotive industry's activities extend beyond people directly employed in the industry, due to the complex manufacturing supply network with many tiers of suppliers across a wide array of industries. A few of the more obvious industries supported by automotive manufacturing include motor vehicle parts, primary and fabricated metal, plastics, and rubber products. Outside of manufacturing, the automotive industry supports jobs in professional and technical services, administration and services, wholesale and retail trade, transportation and warehousing, finance and insurance, and management of companies.

The Center for Automobile Research (CAR) was the primary force behind the economic modeling approach used in this paper. CAR has spent more than two decades developing and refining models to measure the economic impact of automobile production and automobile sales. To estimate the total employment provided by parts suppliers, motor vehicle assemblers and new vehicle dealership

operations, CAR developed a state-level model with over 150 related industrial sectors. The state-level impacts are aggregated to produce an estimate for the national economy.

As is standard in these type of input-output macro models, trade and production flows across industries are calibrated to allow one to calculate direct and indirect employment effects. For example, the model's inputs include measures of how much plastic, rubber, steel, aluminum, electronic components, etc. are used per vehicle. In addition, the model is calibrated to include measures of employment in each of the related industries. Changes in automobile production will trigger changes in demand for the various inputs and workers.

Employment estimates are broken out by direct employment (people employed directly by automotive companies), intermediate employment (people employed by suppliers to the motor vehicle industry), and spin-off employment (expenditure-induced employment resulting from spending by direct and intermediate employees).

Employment was classified into detailed job categories for the model — motor vehicle and motor vehicle parts manufacturing; management of companies; professional, scientific and technical services; securities, commodity contracts and investments; warehousing and storage; administrative services, facilities and support services and wholesale trade.

The direct employees of automakers include researchers, engineers, managers and administrative support, as well as workers on the assembly lines. Because the actual manufacturing of parts and assembly of vehicles draws on a deep supply chain for components and materials, manufacturing jobs have a large upstream and downstream employment effects.

Our intermediate employment measure includes jobs in numerous manufacturing and non-manufacturing industries. Manufacturing is divided into durable goods and

non-durable goods and includes items such as parts manufacturing, primary metal manufacturing, fabricated metal products manufacturing, and plastics & rubber products manufacturing. Non-manufacturing industries include administration and services, finance and insurance, management, professional and technical services, retail and wholesale trade, and transportation and warehousing.

The intermediate category captures the employment necessary to satisfy manufacturers' demands for the materials and services needed to design, produce and sell motor vehicles. This is often referred to as the automotive supplier network. This supply network consists of Tier 1 suppliers who supply parts and services directly to vehicle assemblers along with the lower-tier suppliers who supply the basic materials and services to the Tier 1 group. Some of these companies supply basic commodities and can be several steps removed from the vehicle design and manufacturing process and serve multiple industries.

Spin-off jobs associated with motor vehicle and parts manufacturing operations. These are expenditure-induced jobs, created as a result of spending by the people employed in the direct and intermediate categories. Said differently, when employees use their paychecks to purchase goods (for example: electronics equipment, clothing, food, and even new automobiles), employment is created to supply their demands.

New auto dealerships also have large economic effects. Similar in spirit to the input-output model derived for automobile production, the economic model captures the interconnections from new auto sales throughout the economy. As with auto production, the job impact includes direct, intermediate, and spin-off jobs.

Categories related to intermediate and spin-off jobs include office administrative & business support services; facilities support services; accounting, tax preparation, bookkeeping, and payroll services; advertising and related services; architectural, engineering, and related services; computer systems design and related services;

legal services; finance, insurance; transportation and warehousing; truck transportation; and warehousing and storage.