The Economic Impact of the Auto Care Industry

Methodology and Documentation

Prepared for

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Executive Summary

The *Economic Impact of the Auto Care Industry* estimates the economic contributions made by the auto care industry to the U.S. economy in 2024. John Dunham & Associates (JDA) conducted this research, which was funded by the Auto Care Association. This work uses standard econometric models first developed by the U.S. Forest Service, and now maintained by IMPLAN, Inc.[1] Data comes from industry sources, government publications and DataAxle.

The study defines the auto care industry as: automotive parts and accessories manufacturers; automotive parts distributors, jobbers, and wholesalers; automotive parts retailers; automotive specialty stores; and repair shops including independent repair shops, franchise repair shops, tire shops, oil and lube shops, auto body shops, and auto glass shops. Additionally, auto parts sales for gas stations, hardware stores, warehouse stores, and other general merchandise stores are taken into account. Not included in the study are car dealerships or the repair operations in car dealerships, car washes and detailers, and car rental firms. The study measures the number of jobs in this sector, the wages paid to employees, total economic output, and federal and state business taxes generated.

Industries are linked to each other when one industry buys from another in order to conduct business, whether that be manufacturing aftermarket automotive parts, wholesaling to service shops, or running an auto part retail store. Each industry in turn makes purchases from a different mix of other industries, and so on. Employees in all industries extend the economic impact when they spend their earnings. Thus, economic activity started by the auto care industry generates output (and jobs) in hundreds of other industries, often in states far removed from the original economic activity. The impact of supplier firms, and the induced impact of the re-spending by employees of industry and supplier firms, is calculated using an input/output model of the United States. The study calculates the impact on a national, state, congressional district, state legislative district, and county basis.

The study also estimates taxes paid by the industry and its employees. Federal taxes include industry-specific excise and sales taxes, business and personal income taxes, FICA, and unemployment insurance. Direct retail taxes include license fees and applicable gross receipt taxes. The auto care industry pays real estate and personal property taxes, business income taxes, and other business levies that vary in each state and municipality. All entities engaged in business activity generated by the industry pay similar taxes.

The auto care industry is a dynamic part of the U.S. economy, accounting for about $1,959.62 billion in total economic output equivalent to roughly 6.67 percent of GDP.[2] Parts manufacturers, product wholesalers and retailers, and repair and maintenance shops directly employ approximately 2.49 million Americans in 2024. These workers earned over $188.76 billion in wages and benefits. When supplier and induced impacts are taken into account, the industry is responsible for 6.94 million jobs in the United States and $517.58 billion in wages; as well as $230.89 billion in federal, state and local taxes; not including state and local sales and excise taxes imposed on auto care parts, accessories, and service.

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[1] IMPLAN® model, 2022 Data, using inputs provided by the user and IMPLAN Group LLC, IMPLAN System (2025), 16905 Northcross Dr., Suite 120, Huntersville, NC 28078, www.IMPLAN.com. The 2024 Auto Care Industry Model uses 2022 input/output accounts.

[2] Based on GDP of $29,374.91 billion. See: Table 3, *Gross Domestic Product, Third Quarter 2024 (Advance Estimate)*, News Release, US Department of Commerce, Bureau of Economic Analysis, January 29, 2025, online at: https://www.bea.gov/news/2024/gross-domestic-product-third-quarter-2024-advance-estimate

Summary Results

The Economic Impact of the Auto Care Industry measures the impact of the auto care industry, as defined by the manufacturing, wholesaling, retailing, and servicing of automotive parts and accessories, on the entire economy of the United States. The industry contributes about $1.96 trillion in economic output equal to about 6.67 percent of GDP and, through its production and distribution linkages, impacts firms in 523 sectors of the US economy.[3]

Manufacturers include companies that produce automotive parts and automotive accessories (e.g. chrome parts, replacement components, etc.). All told, approximately 3,746 firms employ 487,646 people in manufacturing operations, sales, packaging, and direct distribution.[4]

Once automotive products have been produced, they must be distributed to stores throughout the country by jobbers, distributors, and wholesalers. Domestic wholesalers distribute auto parts and accessories across the US that are produced domestically and imported products produced abroad. All told, approximately 176,408 individuals are employed in the auto parts and accessories wholesaling sector of the economy.

Finally, the auto care industry includes thousands of retailers that directly sell products to the consumer, and automotive service shops that sell and install these products for the public. These include a wide range of retailers including auto supply stores, auto and truck equipment and parts retailers, general automotive repair shops, tire repair shops, and various other automotive repair shops. For the retail stores segment, only the percentage of employees involved in the sale of auto care parts and accessories are included. JDA estimates that there are 1.82 million people employed in the sales and service of auto care parts and accessories in retail shops and who service automobiles in independent repair shops in the United States.

Although the number of manufacturing jobs in the auto care industry has gone down since the 2021 iteration of this study, miles traveled by American drivers has continued to increase. According to the U.S. Department of Transportation, in August 2024, 274.9 billion miles were traveled by drivers. In fact, the total mileage for 2024 is estimated at 3.3 trillion, and 7.5 percent increase over 2021 As more drivers continue to log miles, the auto care industry becomes more relevant in the care and upkeep of those vehicles.[5]

Other firms are related to the auto care industry as suppliers. These firms produce and sell a broad range of items including metals, chemicals, rubber, packaging, machinery, plastics, and other materials needed to produce, wholesale or retail auto care parts and accessories. In addition, supplier firms provide a broad range of services, including personnel services, financial services, advertising services, consulting services or transportation services. Finally, a number of people are employed in government enterprises responsible for the regulation of the auto care industry. All told, the auto care industry is responsible for 1.98 million supplier jobs. These firms generate about $723.78 billion in economic activity.

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[3] Economic sectors based on IMPLAN sectors. The 2024 Auto Care Industry Model uses 2022 input/output accounts.

[4] Throughout this study the term “firms” means facilities. One firm, such as Bridgestone might operate dozens of facilities. This portion of the study is based on facility data.

[5] Office of Highway Policy Information, Traffic Volume Trends, August 2024, U.S. Department of Transportation, Federal Highway Administration. Available online at: https://www.fhwa.dot.gov/policyinformation/travel_monitoring/24augtvt/

An economic analysis of the auto care industry will also take additional linkages into account. While it is inappropriate to claim that suppliers to the supplier firms are part of the industry being analyzed,[6] the spending by employees of the industry, and those of supplier firms whose jobs are directly dependent on the auto care industry, should surely be included. This spending on everything from housing, to food, to educational services and medical care makes up what is traditionally called the "induced impact" or multiplier effect of the auto care industry. In other words, this spending, and the jobs it creates are induced by the manufacturing, distribution, sale, and installation of automotive parts and accessories. The induced impact of the industry generates $525.75 billion in output, and creates 2.48 million jobs, for a multiplier of 0.74.[7]

An important part of an impact analysis is the calculation of the contribution of the industry to the public finances of the community. In the case of the auto care industry, the traditional direct taxes paid by the firms and their employees provide $230.89 billion in revenues to the federal, state and local governments. These figures do not include state and local sales taxes paid on auto care goods and service purchases.

Table 1 – Economic Contribution of the Auto Care Industry

	Direct	Supplier	Induced	Total
Jobs	2,485,539	1,975,953	2,482,836	6,944,328
Wages	$188,761,527,000	$166,298,102,700	$162,517,591,500	$517,577,221,200
Output	$710,093,939,400	$723,776,258,100	$525,748,379,100	$1,959,618,576,600
Taxes				$230,892,110,300

Table 1 presents a summary of the total economic impact of the industry in the United States. All told the auto care industry directly provides jobs to 1 out of every 65 people employed in the country.[8] Summary tables for each state are included in the Output Model, which is discussed in the following section.

Output Model

John Dunham & Associates produced the economic impact study for the Auto Care Association. The analysis consists of a number of parts, each of which will be described in the following sections of this document. These include data, models, calculations and outputs. These components were pieced together into an interactive system that allows the Auto Care Association to examine the links between the various parts of the industry and to produce detailed output documents on an as-needed basis. As such, there is no book – no thick report – outlining the impact of the industry, but rather a system of models and equations that can be continuously queried and updated.

[6] These firms would more appropriately be considered as part of the supplier firm's industries.

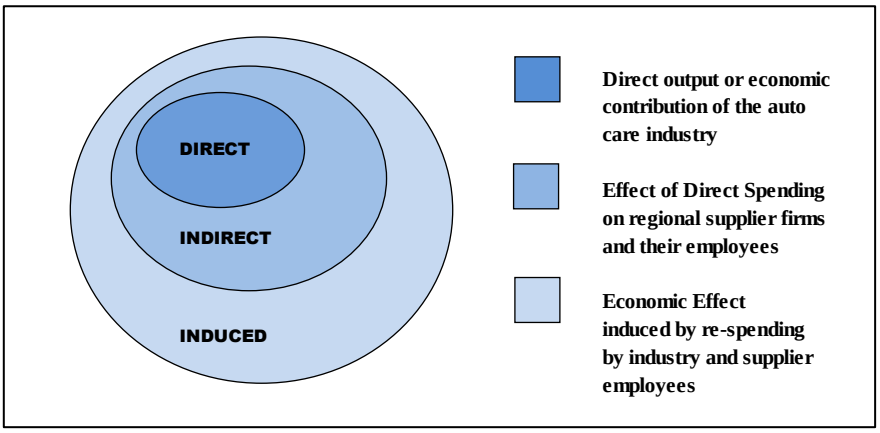
[7] Often economic impact studies present results with very large multipliers – as high as 4 or 5. These studies invariably include the firms supplying the supplier industries as part of the induced impact. John Dunham & Associates believes that this is not an appropriate definition of the induced impact and as such limits this calculation to only the effect of spending by direct and supplier employees.

[8] Based on the labor force as of December 2024. See: States and selected areas: Employment status of the civilian noninstitutional population, January 1976 to date, seasonally adjusted, Bureau of Labor Statistics at: https://www.bls.gov/web/laus/ststdsadata.txt

Economic Impact Modeling – Summary

The Economic Impact Study begins with an accounting of the direct employment in the domestic manufacture of auto care parts and accessories, wholesaling/importing, and retailing sectors. The data come from a variety of government and private sources.

It is sometimes mistakenly thought that initial spending accounts for all of the impact of an economic activity or a product. For example, at first glance it may appear that consumer expenditures for a product are the sum total of the impact on the local economy. However, one economic activity always leads to a ripple effect whereby other sectors and industries benefit from this initial spending. This inter-industry effect of an economic activity can be assessed using multipliers from regional input-output modeling.



The economic activities of events are linked to other industries in the state and national economies. The activities required to manufacture, distribute and sell auto parts and accessories generate the direct effects on the economy. Regional (or indirect) impacts occur when these activities require purchases of goods and services such as sheet metal or electricity from local or regional suppliers, rent on a retail space, or gas for a shipping truck. Additional induced impacts occur when workers involved in direct and indirect activities spend their wages. The ratio between induced jobs and direct jobs is termed the multiplier.

This method of analysis allows the impact of local production activities to be quantified in terms of final demand, earnings, and employment in the states and the nation as a whole.

Once the direct impact of the industry has been calculated, the input-output methodology discussed below is used to calculate the contribution of the supplier sector and of the re-spending in the economy by employees in the industry and its suppliers. This induced impact is the most controversial part of economic impact studies and is often quite inflated. In the case of the Auto Care Association model, only the most conservative estimate of the induced impact has been used.

Model Description and Data

This analysis is based on data provided by DataAxle, the Auto Care Association and the federal government. The analysis utilizes the IMPLAN, Inc. model in order to quantify the economic impact of the auto care industry on the economy of the United States.[9] The model adopts an accounting framework through which the relationships between different inputs and outputs across industries and sectors are computed. This model can show the impact of a given economic decision – such as a factory opening or operating a sports facility – on a pre-defined, geographic region. It is based on the national income accounts generated by the US Department of Commerce, Bureau of Economic Analysis (BEA).[10]

[9] Op. cit. Footnote 2.

[10] RIMS II is a product developed by the U.S. Department of Commerce, Bureau of Economic Analysis as a policy and economic decision analysis tool. IMPLAN was originally developed by the US Forest Service, the Federal Emergency Management Agency and the Bureau of Land Management. It was converted to a user-friendly model by IMPLAN Inc. in 1993.

Every economic impact analysis begins with a description of the industry being examined. In the case of the Auto Care Association model, the auto care industry is defined as the manufacturing, importation/wholesaling, retailing, and servicing of a wide range of automotive parts and accessories, including replacement parts, accessories, automotive oils and grease, appearance products, tires, collision repairs as well as the tools and equipment necessary to make the repair.[11]

The IMPLAN model is designed to run based on the input of specific direct economic factors. It uses a detailed methodology (see IMPLAN Methodology section) to generate estimates of the other direct impacts, tax impacts and supplier and induced impacts based on these entries. In the case of the economic impact of the auto care industry, direct employment in the auto care industry is a base starting point for the analysis. Direct employment is based on data provided to John Dunham & Associates by DataAxle as of September 2024; and from member data provided by the Auto Care Association.[12] This data is gathered at the facility level; therefore, a company with a manufacturing plant, warehouse and sales office would have three facilities, each with separate employment counts. Since the DataAxle data are adjusted on a continual basis, staff from John Dunham & Associates scanned the data for discrepancies. The data from DataAxle was then merged with member data provided by the Auto Care Association. In addition, for cases where employment data for Auto Care Association member firms were available, DataAxle employment figures were replaced with those from Auto Care Association.

Data on the retail and wholesale sectors are all based on employment in each of the retail and wholesale areas (jobbers, distributors, wholesalers, auto parts stores, auto service centers, etc.) obtained from DataAxle. In order to estimate total employment in the auto care retail sector, the total employment at each store type is multiplied by the percent of total sales comprised of automotive parts, accessories, and labor charges. The percentage of sales is derived from data maintained by the US Department of Commerce, Bureau of the Census.[13] Likewise, the percentage of wholesale output that is attributed to auto parts distribution is applied to wholesaler employment to determine the number of these employees supported by the auto care market.[14]

Once the initial direct employment figures have been established, they are entered into a model linked to the IMPLAN database. The IMPLAN data are used to generate estimates of direct wages and output. Wages are derived from data from the U.S. Department of Labor's ES-202 reports that are used by IMPLAN to provide annual average wage and salary establishment counts, employment counts and payrolls at the county level. Since this data only covers payroll employees, it is modified to add information on independent workers, agricultural employees, construction workers, and certain government employees. Data are then adjusted to account for counties where non-disclosure rules apply. Wage data include not only cash wages, but health and life insurance payments, retirement payments and other non-cash compensation. It includes all income paid to workers by employers.

Total output is the value of production by industry in a given state. It is estimated by IMPLAN, Inc. from sources similar to those used by the BEA in its RIMS II series. Where no Census or government surveys

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[11] Excluded from the study are the manufacturing, wholesaling, and retailing of automobiles, as well as repair operations in dealer franchise shops.

[12] DataAxle, is the leading provider of business and consumer data for the top search engines and leading in-car navigation systems in North America. DataAxle gathers data from a variety of sources by sourcing, refining, matching, appending, filtering, and delivering the best quality data. The company verifies its data at the rate of almost 100,000 phone calls per day to ensure absolute accuracy.

[13] 2017 Economic Census, *Retail Trade: Summary Statistics for the U.S., States, and Selected Geographies: 2017*, October 2024, US Department of Commerce, Bureau of the Census, at: https://www.census.gov/data/tables/2017/econ/economic-census/naics-sector-44-45.html and 2017 Economic Census, *Other Services (Except Public Administration): Geographic Area Series: Other Services (except Public Administration): Summary Statistics for the U.S., States, and Selected Geographies: 2017*, October 2024, US Department of Commerce, Bureau of the Census, at: https://www.census.gov/data/tables/2017/econ/economic-census/naics-sector-81.html

[14] 2017 Economic Census, *Wholesale Trade: Product Statistics All Sectors: Products by Industry for the U.S.: 2017*, October 2024, US Department of Commerce, Bureau of the Census, at: https://www.census.gov/data/tables/2017/econ/economic-census/naics-sector-42.html

are available, IMPLAN, Inc. uses models such as the Bureau of Labor Statistics' growth model to estimate the missing output.

The model also includes information on income received by the Federal, state and local governments, and produces estimates for the following taxes at the Federal level: corporate income; payroll, personal income, estate and gift, and excise taxes, customs duties; and fines, fees, etc. State and local tax revenues include estimates of: corporate profits, property, sales, severance, estate and gift and personal income taxes; licenses and fees and certain payroll taxes.

While IMPLAN, Inc. is used to calculate the state level impacts, DataAxle data provide the basis for district and county level estimates. Publicly available data at the county and district level is limited by disclosure restrictions, especially for smaller sectors of the economy. The model therefore uses actual physical location data provided by DataAxle in order to allocate jobs – and the resulting economic activity – by physical address or when that is not available, zip code. For zip codes entirely contained in a single district, jobs are allocated based on the percentage of total sector jobs in each zip code. For zip codes that are broken by districts, allocations are based on the percentage of total jobs physically located in each segment of the zip code. Physical locations are based on either actual address of the facility, or the zip code of the facility, with facilities placed randomly throughout the zip code area. All supplier and indirect jobs are allocated based on the percentage of a state's employment in that sector in each of the districts. Again, these percentages are based on DataAxle data.

IMPLAN Methodology[15]

Francois Quesnay one of the fathers of modern economics, first developed the analytical concept of inter-industry relationships in 1758. The concept was actualized into input-output analysis by Wassily Leontief during the Second World War, an accomplishment for which he received the 1973 Nobel Prize in Economics.

Input-Output analysis is an econometric technique used to examine the relationships within an economy.

It captures all monetary market transactions for consumption in a given period and for a specific geography. The IMPLAN, Inc. model uses data from many different sources – as published government data series, unpublished data, sets of relationships, ratios, or as estimates. The IMPLAN, Inc. gathers this data, converts it into a consistent format, and estimates the missing components.

There are three different levels of data generally available in the United States: Federal, state and county.

Most of the detailed data is available at the county level, and as such there are many issues with disclosure, especially in the case of smaller industries. IMPLAN, Inc. overcomes these disclosure problems by combining a large number of datasets and by estimating those variables that are not found from any of them. The data is then converted into national input-output matrices (Use, Make, By-products, Absorption and Market Shares) as well as national tables for deflators, regional purchase coefficients and margins.

The IMPLAN Make matrix represents the production of commodities by industry. The Bureau of Economic Analysis (BEA) Benchmark I/O Study of the US Make Table forms the bases of the IMPLAN model. The Benchmark Make Table is updated to current year prices, and rearranged into the IMPLAN sector format. The IMPLAN Use matrix is based on estimates of final demand, value-added by sector and total industry and commodity output data as provided by government statistics or estimated by IMPLAN.

[15] This section is paraphrased from IMPLAN Professional: Users Guide, Analysis Guide, Data Guide, Version 2.0, MIG, Inc., June 2000.

The BEA Benchmark Use Table is then bridged to the IMPLAN sectors. Once the re-sectoring is complete, the Use Tables can be updated based on the other data and model calculations of interstate and international trade.

In the IMPLAN, Inc. model, as with any input-output framework, all expenditures are in terms of producer prices. This allocates all expenditures to the industries that produce goods and services. As a result, all data not received in producer prices is converted using margins which are derived from the BEA Input-Output model. Margins represent the difference between producer and consumer prices. As such, the margins for any good add to one. If, for example, 10 percent of the consumer price of auto parts is from the purchase of aluminum, then the aluminum margin would be 0.1.

Deflators, which account for relative price changes during different time periods, are derived from the Bureau of Labor Statistics (BLS) Growth Model. The 224 sector BLS model is mapped to the 544 sectors of the IMPLAN, Inc. model. Where data are missing, deflators from BEA's Survey of Current Businesses are used.

Finally, the Regional Purchase Coefficients (RPCs) – essential to the IMPLAN, Inc. model – must be derived. IMPLAN, Inc. is derived from a national model, which represents the "average" condition for a particular industry. Since national production functions do not necessarily represent particular regional differences, adjustments need to be made. Regional trade flows are estimated based on the Multi-Regional Input-Output Accounts, a cross-sectional database with consistent cross interstate trade flows developed in 1977. These data are updated and bridged to the 544 sector IMPLAN, Inc. model.

Once the databases and matrices are created, they go through an extensive validation process. IMPLAN, Inc. builds separate state and county models and evaluates them, checking to ensure that no ratios are outside of recognized bounds. The final datasets and matrices are not released before extensive testing takes place.

Changes in Methodology

While both the 2021 and 2024 iterations of this study employed similar methodologies, the 2024 study includes several adjustments. A key difference between the two studies lies in how certain data were collected. In 2021, due to constraints in time and data availability—exacerbated by the challenges of the COVID year—facility and employment values for the retail and service sectors were supplemented using facility-level data. In contrast, the 2024 study prioritizes consistency by sourcing both employment and facility data for the retail, wholesale, and service sectors *entirely* from location data. Data for manufacturing sectors were still gathered at the facility level through manual research. Additionally, since 2021, IMPLAN, Inc. has updated the multipliers used in its input-output models. These updates account for the changes in inflation since 2021, as well as other economic effects, which ensure the data is as accurate as possible.

About John Dunham & Associates

John Dunham & Associates (JDA) is a leading economic consulting firm specializing in the economics of fast-moving issues. JDA is an expert at translating complex economic concepts into clear, easily understandable messages for a wide range of audiences. JDA's clients have included a wide variety of businesses and organizations, including some of the largest Fortune 500 companies in America, such as:

- Altria
- Diageo
- Feld Entertainment
- Forbes Media
- MolsonCoors
- Verizon
- Wegmans Stores

John Dunham is a professional economist with nearly 40 years of experience. He holds a Master of Arts degree in Economics from the New School for Social Research as well as a Master of Business Administration from Columbia University. He also has a professional certificate in Logistics from New York University. Mr. Dunham has worked as a manager and an analyst in both the public and private sectors. He has experience in conducting cost-benefit modeling, industry analysis, transportation analysis, economic research, and tax and fiscal analysis. As a senior economist for Philip Morris, he developed tax analysis programs, increased cost-center productivity, and created economic research operations. He has presented testimony on economic and technical issues in federal court and before federal and state agencies.

Prior to Phillip Morris John was an economist with the Port Authority of New York and New Jersey, the Philadelphia Regional Port Authority, and the City of New York's Department of Ports & Trade.