The 2022 Economic Impact Study of the RV Industry

Methodology

Prepared for

Recreation Vehicle Industry Association
1896 Preston White Drive
Reston, VA 20221

By

John Dunham & Associates

May 26, 2022

The Economic Impact Study of the RV Industry

Executive Summary

The Economic Impact Study of the RV Industry estimates the economic contributions made by the recreational vehicle industry to the U.S. economy in 2022. John Dunham & Associates (JDA) conducted this research, which was funded by the Recreation Vehicle Industry Association (RVIA). This work used standard econometric models first developed by the U.S. Forest Service, and now maintained by IMPLAN, Inc. Data came from the RVIA and its partner organizations, industry sources, the Federal Government and Data Axle.

The study defines the RV industry as all firms involved in the manufacture, sale, rental, repair, storage, and service of recreational vehicles. The RV aftermarket industry is also included, as well as the financing and insurance of RV purchases.[1] Lastly, the study also estimates the economic impact of RV travel, destinations, and other use occasions.

Industries are linked to each other when one industry buys from another to produce its own products. 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 RV industry generates output (and jobs) in hundreds of other industries, often in sectors and states far removed from the original economic activity. The impact of indirect firms, and the "induced impact" of the re-spending by employees of industry and indirect firms, is calculated using an input/output model of the United States. The study calculates the impact on a national basis, by state and by Congressional District.

"Economic output" is a general measurement of the economic contribution of an industry. Output differs depending on the industry being measured. For industries like manufacturing, economic output represents the value of industry production calculated in terms of producer prices or gross sales. In the case of retail and wholesale industries, output does not represent sales and instead is similar to the accounting measure of gross margin.

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. State and local tax systems vary widely. Direct retail taxes include state and local sales taxes, license fees, and applicable gross receipt taxes. The RV 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 analysis does not include sales taxes, excise taxes, license fees and other duties paid by consumers when they purchase an RV.

The RV industry is a dynamic part of the U.S. economy, accounting for about $140 billion in total economic output or roughly 0.71 percent of GDP.[2] The RV industry directly or indirectly employed approximately 678,114 Americans in 2022. These workers earned over $48 billion in wages and benefits, and paid $14 billion in federal, state and local business taxes.

---

[1] Throughout this study, the term "firms" actually refers to physical locations. One RV manufacturer, for example, may have facilities in 10 or 12 locations throughout the country. Each of these facilities is included in the count.

[2] Based on GDP of $19,731.1 billion. See: *Gross Domestic Product (Second Estimate) and Corporate Profits (Preliminary), First Quarter 2022*. News Release, US Department of Commerce, Bureau of Economic Analysis, May 26, 2022.

Summary Results

The Economic Impact Study of the RV Industry measures the economic impact of RV manufacturers, dealers, rentals, repairers, and storage providers. In addition to these, aftermarket activities are also accounted for, as well as financing and insurance. Lastly, RV tourism, including travel, destinations, and other use occasions are included. The industry contributes about $140 billion in economic output or 0.71 percent of GDP and, through its production and distribution linkages, impacts firms in 525 of the 546 sectors of the US economy.[3]

Other firms are related to the RV industry. These firms provide a broad range of goods and services, including equipment, raw materials, 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 sector. All told, we estimate that the RV industry is responsible for 136,470 indirect jobs. These firms generate about $29.42 billion in economic activity.

An economic analysis of the RV industry will also take additional linkages into account. While it is inappropriate to claim that suppliers to the indirect firms are part of the industry being analyzed,[4] the spending by employees of the industry and those of indirect firms whose jobs are directly dependent on the industry should surely be included. This spending on everything from housing, to food, to entertainment and medical care makes up what is traditionally called the "induced impact" or multiplier effect. In other words, this spending, and the jobs it creates is induced by the RV industry. The induced impact of the sector is estimated to be nearly $39 billion, and generates 211,255 jobs, for a multiplier of 0.55.[5]

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 RV industry, the traditional business taxes paid by the firms and their employees provide $14 billion in revenues to the federal, state and local governments.

Table 1 below presents a summary of the total economic impact of the RV industry in the United States. Summary tables for each state are included in the Output Model, which is discussed in the following section.

Table 1 – Economic Contribution of the RV Industry

	Direct	Indirect	Induced	Total
Jobs (FTE)	330,389	136,470	211,255	678,114
Wages	$19,819,824,000	$10,427,822,900	$17,348,319,900	$47,595,966,800
Economic Impact	$71,124,258,600	$29,417,579,200	$39,416,462,500	$139,958,300,300
Taxes				$13,586,102,600

[3] Economic sectors based on IMPLAN sectors.

[4] These firms would more appropriately be considered as part of the indirect firms' industries.

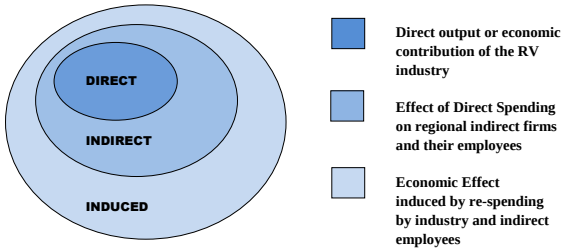
[5] Often economic impact studies present results with very large multipliers – as high as 4 or 5. These studies invariably include the firms supplying the indirect industries as part of the induced impact. John Dunham & Associates believes that this is not an appropriate definition of the induced impact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

Output Model

John Dunham & Associates (JDA) produced the economic impact study for the RVIA. The analysis consists of several components, each of which will be described in the following sections of this document. These include data, models, calculations, and outputs. These components were linked together into an interactive system that allows the RVIA 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.

Economic Impact Modeling – Summary

The Economic Impact Study of the RV Industry begins with an accounting of the direct employment in the RV industry. 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 the RV industry performs such as the manufacturing, sales, rentals, repairs, services, aftermarket sales and services, storage, and financing and insuring of RVs, and RV use related expenditures account for the direct effects on the economy. Regional (or indirect) impacts occur when these activities require purchases of goods and services such as real estate, equipment, or electricity from local or regional suppliers. Additional, induced impacts occur when workers involved in direct and indirect activities spend their wages. The ratio between induced economic and direct impact is termed the multiplier. The framework in the chart above illustrates these linkages.

This method of analysis allows the impact of local 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, in the IMPLAN methodology section, is used to calculate the contribution of the indirect 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 RV industry model, only the most conservative estimate of the induced impact has been used.

Data

Employment in all of the previously listed facets of the RV industry is the base starting point for the analysis. This analysis is based on data provided by multiple industry sources, Data Axle, and the Federal

Government.[6] Facility level data is gathered from industry sources and Data Axle and cross-checked against each other. A description of the specific data sources for each aspect of the industry model follows.

RV Manufacturing/Supplier

RV manufacturers are defined as companies which assemble towable RVs such as travel trailers, truck campers, and park models, and motorized RVs such as motor homes and sport utility RVs. Using data provided by RVIA, RVIA member companies and Data Axle, JDA identified 525 facilities which are classified as manufacturers. Included in this segment are facilities which are assembling RVs as well as facilities which are directly owned by RV manufacturers and are manufacturing components to be used to build RVs. Jobs data were estimated using Ingroup data, company annual reports, and RVIA data. JDA estimated that manufacturers directly employed approximately 60,039 workers in the United States.

RV suppliers are defined as manufacturers of components used to assemble RVs. These include components ranging from nuts and bolts to refrigerators and wood flooring. The economic impact of these companies is estimated using indirect impact data from IMPLAN models and data provided by RVIA supplier members themselves during a survey conducted in early 2022. JDA estimates that supplier companies employed approximately 53,083 workers in the United States.

RV Dealers

RV dealers are defined as companies that sell RVs to the consumer. These companies may be providing other services such as rentals and repairs in addition to selling RVs. Data from the Recreation Vehicle Dealers Association, RVIA and Data Axle was used to identify facilities in the United States which meet the aforementioned definition. Jobs are estimated using data from Data Axle. It is estimated that dealers employed approximated 42,853 workers in the United States.

RV Rentals

The RV rentals sector is defined as companies which rent out RVs to consumers. The operations can range from facilities that are located in or near campgrounds to small family run operations which rent out only a few vehicles. Facilities which were already included in the dealer's sector were excluded in this sector in order to avoid double counting. Data from Data Axle were used to identify facilities which were providing this service. Jobs in this sector were estimated using Data Axle data. It is estimated that approximately 2,421 people are employed in the rentals sector.

RV Service and Repair

The RV service sector is defined as companies with service and repair as their primary function. Included are independent repair shops and mobile services that specialize in RV repair. Companies which were already included in the dealers or rentals sectors were excluded from this sector in order to avoid double counting. Data from Data Axle were used to identify facilities which meet this definition. It is estimated that the service sector provides as many as 7,313 jobs in the United States.

---

[6] Data Axle, is the leading provider of business and consumer data for the top search engines and leading in-car navigation systems in North America. Data Axle 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.

RV Storage

JDA collected data from Data Axle to identify 2,133 RV storage facilities in the USA. This figure includes several different types of storage facilities, including dedicated RV storage facilities, RV and boat storage facilities, general storage facilities that store RVs, and self-storage facilities that accept RVs for storage. Because many facilities are storing many different types of vehicles and objects, not every employee at these locations could be attributed to RV storage alone. JDA estimated that, in 2022, storage accounted for 2,662 jobs at these 2,133 facilities.

RV Aftermarket

The RV Aftermarket is defined as those companies that distribute aftermarket parts and products to the industry. Facility data for the aftermarket portion for the industry was collected from the a RVIA Supplier Member Survey and cross-checked with Data Axle records. JDA identified 195 aftermarket facilities. JDA estimates that, in 2022, these 195 facilities accounted for 5,363 jobs in the United States.

Financing and Insurance

Most RVs are financed, and their operation on public roads requires that they are insured. Therefore, the operations of financing and insuring RVs are an important component of the industry. In order to determine the impact of the finance and insurance sectors, JDA used data on the shipment of recreational vehicles by state from RVIA for 2021. Data on Park models were from the RV Market Report. These data are used to identify the number of RV's by type and by state.[7] Based on these data it was estimated that about 545,700 units were sold in the US during 2021. These figures are broken out by state and multiplied by average prices by type from the RVIA's 2021 survey of Lenders' Experiences to provide estimates of total sales by state.[8] An average sales price per unit was calculated. This same survey provides data on the number of new and used RV loans made as well as the average amount financed. Using these ratios, it is possible to calculate the total amount of RV financing which was estimated to be just over $13.0 billion.

Financing is provided by banks, credit unions, dealers and other financial entities. Using data from the Survey of Lenders' Experiences, the Bureau of Economic Analysis and IMPLAN it was possible to determine that about .082 percent of the output in the relevant sectors came from financing RVs. This percentage was applied to job counts across zips provided by Data Axle, and these were summed to the direct job numbers for the finance sector.

In the case of insurance, a similar methodology was used to calculate the value of all RVs on the road using RVIA shipment data for 12014-2021. These data were annualized and broken across states. They were then discounted across 20 years at the annual CPI across the period. This calculation creates a discounted value to be insured across vehicle type and state.

Data on actual insurance costs is difficult to obtain. The Insurance Information Institute has data on the average cost of automobile insurance across states, and these data were used to create a cost index, where

---

7 *RV Market Report*, Recreational Vehicle Industry Association, November 2021.

8 Prices for Park Models from: Gast, Mike, *Hanging up the keys? Park models could be the answer to high living costs*, RVTravel.com, March 11, 2022, at: https://www.rvtravel.com/park-models-answer-high-home-costs-time-hang-rv-keys-1043/#:~:text=For%20many%2C%20park%20model%20living,park%20model%20for%20about%20%2458%2C000.

the relative cost of RV insurance was assumed to mirror the relative cost of automobile insurance then adjusted to take into account the different prices across RV types.[9]

As with the financing model, the discounted value of insurance as a percentage of total insurance industry output (0.347 percent) was applied to insurance industry job counts across zips provided by Data Axle, and these were summed to the direct job numbers for the insurance sector

RV Owners' Clubs

Using data supplied by the RVIA, and supplemented with data collected by Data Axle, JDA identified 220 RV owners' clubs in the United States. JDA did not include owners' clubs that were officially owned by manufacturers in this section of the analysis, because employment at those owners' clubs is already taken into account in the manufacturing sector of the analysis. JDA estimates that the 220 owners' clubs employed 974 people in 2022.

RV Publications

Using data supplied by the RVIA, and supplemented with data collected by Data Axle, JDA identified 25 RV publications in the United States, ranging from trade publications to campground directories and pricing guides. JDA estimates that the 25 publications employed 235 people in 2022.

RV Associations

Using data supplied by the RVIA, and supplemented with data collected by Data Axle, JDA identified 67 RV association facilities in the United States, ranging from campground associations to dealer associations to general industry associations, and more. JDA estimates that the 67 associations employed 466 people in 2022.

Campgrounds

JDA collected data from numerous sources to compile a list of private, state, and federal campgrounds. Data on federal campgrounds was collected from the Recreational Information Database provided by Recreation.gov, as well as provided directly by the National Park Service (NPS), the United States Forest Service (USFS), and from USCampground.info. Data on state campgrounds was collected from fifty state parks websites. Data on private campgrounds was supplies by the National Association of RV Parks & Campgrounds (ARVC), KOA, and Data Axle. JDA cross-checked the data sources against each other and also researched the specific campground locations to confirm that each location allowed RVs. JDA included all campgrounds that allow RVs, which can range from remote campgrounds with no hookups to large RV resorts. JDA estimates that there are 23,589 RV accessible campgrounds in the United States, and that RV use accounts for 83,408 jobs at these campgrounds.

RV Tourism

Much of the impact of RV tourism is already subsumed into the other sectors of this model. For example, spending at campgrounds is included as part of the Campground sector. But other spending by RV enthusiasts on items like fuel, food, and activities is an important part of the industry's impact on the economy. What makes this impact difficult to determine is that it is spread widely across the country as

[9] *Average Expenditures for Auto Insurance by State*, Insurance Information Institute, at: https://www.iii.org/fact-statistic/facts-statistics-auto-insurance

RV operators drive from location to location. In order to calculate this spread a geographic model was used that spreads impact out around the major destinations and attractions. This was done by overlaying a 100-mile band around each campground, sports arena, major festival and NASCAR track in the country. This distance represented the average distance that people planned to travel to a campground in the US from the 2021 North American Camping Report.[10] Campground bands were weighted by the employment in each campground as a proxy for size. The bands were then aggregated by zip code and indexed across states and an overall index was developed as a function of campgrounds, festivals, tracks, arenas, the number of registered RVs in a state and the number of vacation homes in a state as a proxy for overall tourism.

The index was then applied to overall spending figures for: Scenic and sightseeing transportation, food services and drinking places, automotive repair services, parking, toll highways, travel arrangement and reservation services, motion pictures and performing arts, spectator sports, participant sports, gambling, all other recreation and entertainment, petroleum refineries, industries producing nondurable PCE commodities (excluding petroleum refineries), wholesale trade and transportation services, gasoline service stations and retail trade services (excluding gasoline service stations). Category spending figures were from the US Department of Commerce, Bureau of Economic Analysis Tourism Satellite Accounts for 2020.[11] Individual spending was then allocated across the number of RV tourists derived from the 2021 North American Camping Report and then aggregated by state.

Model Description

The analysis utilizes the IMPLAN model in order to quantify the economic impact of the RV industry on the economy of the United States.[12] 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).[13]

Every economic impact analysis begins with a description of the industry being examined. In the case of the RV industry model, the study defines the industry as all firms involved in the manufacture, sale, repair, storage, and service, the aftermarket industry, the financing and insurance of RV purchases, and RV travel, destinations, and other use occasions.

---

10 *The 2021 North American Camping Report Topline*, prepared for Kampgrounds of America by Cairn Consulting Group, undated, at: http://koa.uberflip.com/i/1362448-2021-north-american-camping-report/0?

11 Data were converted into the following IMPLAN industries: Retail - Food and beverage stores, Retail - Health and personal care stores, Retail - Gasoline stores, Retail - Clothing and clothing accessories stores, Retail - Sporting goods, hobby, musical instrument and book stores, Retail - General merchandise stores, Retail - Miscellaneous store retailers, Retail - Nonstore retailers, Scenic and sightseeing transportation and support activities for transportation, Motion picture and video industries, Performing arts companies, Commercial Sports Except Racing, Racing and Track Operation, Museums, historical sites, zoos, and parks, Amusement parks and arcades, Gambling industries (except casino hotels), Other amusement and recreation industries, Full-service restaurants, Limited-service restaurants, All other food and drinking places, Automotive repair and maintenance, except car washes, Other professional services, Other state government enterprises

12 The model uses the IMPLAN 2020 input-output tables, with dollar values inflated to the 2022-dollar year.

13 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 the Minnesota IMPLAN Group in 1993.

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 indirect and induced impacts based on these entries. In the case of the Economic Impact Study of the RV Industry, employment in all of the previously listed aspects of the industry is the base starting point for the analysis. Facility data for industry facilities were compiled from multiple industry sources and Data Axle, and then individually cleaned and verified by staff members at JDA.[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 from sources similar to those used by the BEA in its RIMS II series. Where no Census or government surveys are available, IMPLAN 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 is used to calculate the state level impacts, physical location data compiled from the multiple aforementioned sources and Census data provide the basis for Congressional District level estimates. The model uses actual physical location data 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 Congressional District, jobs are allocated based on the percentage of total sector jobs in each zip code. For zip codes that are broken by Congressional 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 indirect and induced jobs are allocated based on the percentage of a state's employment in that sector in each of the districts. These percentages are based on Data Axle data.

IMPLAN Methodology[15]

Francoise 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

[14] JDA Staff verified records through google map searches, confirmed names, addresses and mode of business, and removed duplicate and defunct businesses to provide the most accurate portrait of the RV Industry.

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

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 model uses data from many different sources – as published government data series, unpublished data, sets of relationships, ratios, or as estimates. 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 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. 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 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 an RV 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 546 sectors of the IMPLAN model. Where data are missing, deflators from BEA's Survey of Current Businesses are used.

Finally, one of the most important parts of the IMPLAN model, the Regional Purchase Coefficients (RPCs) must be derived. IMPLAN 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 first developed in 1977. These data are updated and bridged to the 546 sector IMPLAN model.

Once the databases and matrices are created, they go through an extensive validation process. IMPLAN 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.