The Economic Impact of the Motorcoach Industry

Methodology and Documentation
Prepared for:

The American Bus Association Foundation

By

John Dunham & Associates

March 2023

Executive Summary:

The 2022 Motorcoach Industry Economic Impact Study estimates the economic contributions made by the motorcoach industry to the U.S. economy in 2022. John Dunham & Associates conducted this research, which was funded by The American Bus Association Foundation (ABAF). This work used standard econometric models first developed by the U.S. Forest Service, and now maintained by IMPLAN Inc.[1] Data came from industry sources, government publications and Data-Axle.[2]

The study defines the motorcoach industry as those firms primarily engaged in transportation of passengers by motorcoach.[3] The study measures the number of jobs in the industry; the wages paid to employees, the value added and total output.

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 motorcoach 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 basis, by state, by Congressional District, by State legislative districts, by County and by Census Place.

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. Motorcoach operators pay 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 motorcoach industry is a dynamic part of the U.S. economy, accounting for about $11.8 billion in output. It employs approximately 94,000 Americans who earned wages and benefits of about $6.0 million. Motorcoach companies maintained a total of 3,713 facilities, stops and stations in the United States and operate approximately 32,600 coaches.

Members of the industry and their employees paid over $1.5 billion in federal, state and local taxes. This does not include state and local sales taxes or excise taxes that may apply for specific additional services purchased by passengers outside of the motorcoach.

Summary Results

The motorcoach industry (as defined in this study) includes those firms primarily engaged in transportation of passengers by motorcoach.[4] The industry reaches into all corners of the United States,

---

[1]   IMPLAN® model, 2021 Data, using inputs provided by the user and IMPLAN Group LLC, IMPLAN System (2023), 16905 Northcross Dr., Suite 120, Huntersville, NC 28078, www.IMPLAN.com.

[2]   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. Data-Axle verifies its data at the rate of almost 100,000 phone calls per day to ensure absolute accuracy.

[3]   NAICS 485210, 486113, 485510. A motorcoach or an over-the-road bus (OTRB), is defined as a vehicle designed for long-distance transportation of passengers, characterized by integral construction with an elevated passenger deck located over a baggage compartment. It is at least 35 feet in length with a capacity of more than 30 passengers. This definition closely matches the definition of an OTRB written into U.S. law, namely "a bus characterized by an elevated passenger deck located over a baggage compartment" (Section 3038 of Public Law 105-178, 49 USC 5310 note). This definition of a motorcoach excludes the typical city transit bus and city sightseeing buses, such as double-decker buses and trolleys.

[4]   NAICS 485210, 486113, 485510. A motorcoach or an over-the-road bus (OTRB), is defined as a vehicle designed for long-distance transportation of passengers, characterized by integral construction with an elevated passenger deck located over a baggage compartment. It is at least 35 feet in length with a capacity of more than 30 passengers. This definition closely matches the definition of an OTRB written into U.S. law, namely "a bus characterized by an elevated passenger deck located over a baggage compartment"

employing 232,360 full-time equivalent workers and generating $13.8 billion in wages. These firms and their activities directly generate $37.6 billion in economic activity nationally.

Table 1
Economic Contribution of the Motorcoach Industry

($ Millions)	Direct	Supplier	Induced	Total
Jobs	55,515	9,923	28,563	94,000
Wages	$3,420.1	$751.7	$1,829.8	$6,001.6
Economic Impact	$4,385.7	$1,890.6	$5,504.4	$11,780.7
Federal Taxes				$1,174.0
State and Local Taxes				$345.7

Other firms are related to the industry as suppliers. These firms produce and sell a broad range of items including motorcoaches, fuel, marketing materials, and all of the merchandise needed to maintain a motorcoach business. 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 industry. All told, we estimate that the industry is responsible for 9,923 supplier jobs. These firms generate about $751.7 million in economic activity.[5]

An economic analysis of the motorcoach industry will also take additional linkages into account. While it is inappropriate to claim that suppliers to the industry's indirect firms are part of the industry being analyzed,[6] the spending by employees of the industry, and that of indirect firms whose jobs are directly dependent on the industry, should be included. This spending - on everything from housing, to food, to education and medical care - makes up what is traditionally called the "induced impact," or multiplier effect, of the motorcoach industry. For 2022, the induced impact of the industry generates 28,560 jobs and $5.5 million in economic impact, for a multiplier of 1.26.[7]

An important part of an impact analysis is the calculation of the contribution of the industry to the public finances of the country. In the case of the motorcoach industry, the direct taxes paid by firms and their employees provide $1.174.0 million to the Federal Government and $345.7 million to state and local governments. These figures do not include state and local sales and excise taxes that are paid by passengers when they purchase products or services outside of motorcoach transportation. These tax revenues have been influenced to a great degree by various subsidy programs and tax breaks that were enacted in response to the effects of the COVID-19 related shutdown of the economy. For more on the effects of the COVID-19 shutdowns see the discussion on page 7 of this methodology.

Table 1 presents a summary of the total economic impact of the motorcoach industry in the United States. Summary tables for the United States, individual states, Congressional Districts, and State legislative districts are included in the output model, which is discussed in the following section.
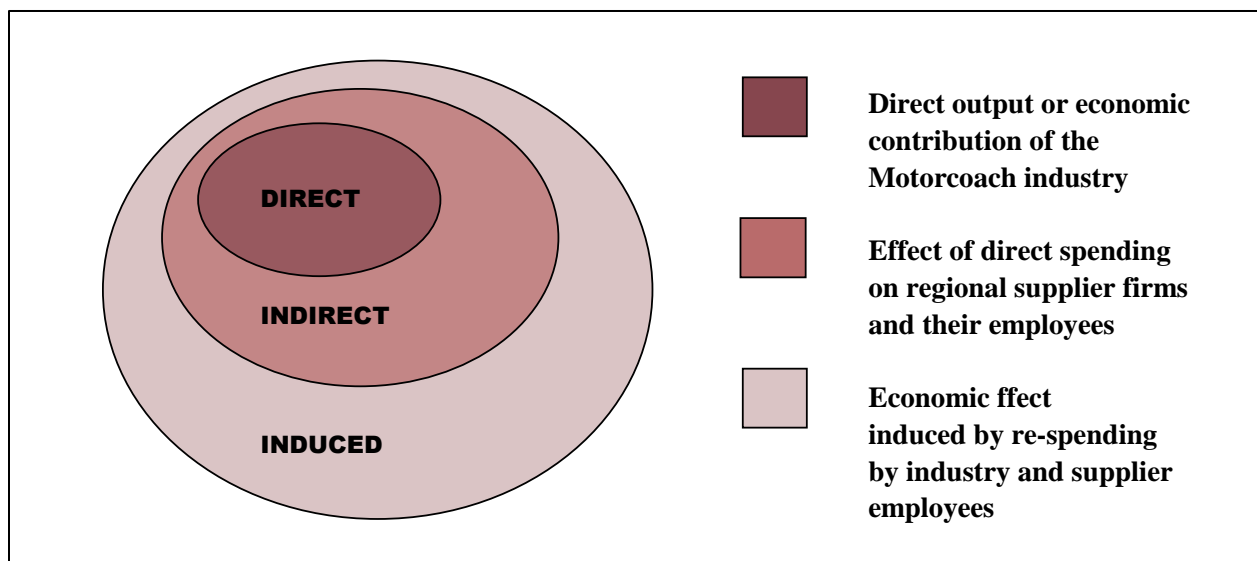
Economic Impact Modeling – Summary

[^] (Section 3038 of Public Law 105-178, 49 USC 5310 note). This definition of a motorcoach excludes the typical city transit bus and city sightseeing buses, such as double-decker buses and trolleys.

[5] Throughout this study, the term "firms" or "companies" means facilities. One firms, such as Greyhound or CoachUSA might operate dozens of facilities. The study is based on facility level data.

[6] These firms would more appropriately be considered as part of the indirect 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 induced 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 only to the effect of spending by direct and indirect employees.

	Direct output or economic contribution of the Motorcoach industry
	Effect of direct spending on regional supplier firms and their employees
	Economic ffect induced by re-spending by industry and supplier employees

The Economic Impact Study begins with an accounting of the direct employment in the motorcoach industry. The data comes 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, a single economic activity leads to a ripple effect wherein 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. Activities related to motorcoach activities represent the direct effects on the economy. Indirect impacts occur when these activities require purchases of goods and services such as advertising services or merchandising material from local or regional indirect firms. Additional induced impacts occur when workers involved in direct and indirect activities spend their wages. The ratio between induced output and direct output 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 indirect sector and of the re-spending in the economy by employees in the industry and its indirect firms. This induced impact is the most controversial part of economic impact studies and is often quite inflated. In the case of this model, only the most conservative estimate of the induced impact has been used.

Model Description and Data

This economic impact analysis was developed by JDA based on data provided by the American Bus Association Foundation, Data-Axle, and Federal and state governments. The analysis utilizes the IMPLAN Group model in order to quantify the economic impact of the motorcoach industry on the economy of the United States, as well as individual states, Congressional Districts, State legislative districts, counties and localities.[8] 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

---

[8]   The model uses 2020 input/output accounts. These were the latest available at the time of the analysis.

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).[9]

Every economic impact analysis begins with a description of the industry being examined. In the case of the motorcoach industry, it is defined as the activities of private sector firms primarily engaged in the transportation of passengers by motorcoach. Public transportation agencies are not included in this analysis, nor are commuter transportation services provided by private firms. Overall, about 1,373 companies in the United States operate a total of just under 32,600 motorcoaches out of 3,713 facilities.

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 this model, direct employment in the industry is a starting point for the analysis. Direct employment is based on data provided to John Dunham & Associates by Data-Axle the American Bus Association Foundation and the US Department of Transportation. The Data-Axle data are as of October 2022, and form the backbone of the analysis. Data-Axle data are recognized nationally as a premier source of micro industry data and 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.

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, 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, Data-Axle data provide the basis for Legislative District level estimates. Publicly available data at the county and Legislative District level is limited by disclosure restrictions, especially for smaller sectors of the economy. Our model therefore uses actual physical location data provided by Data-Axle in order to allocate jobs – and the resulting economic activity – by physical address or when that is not available, zip code. For zips entirely contained in a single congressional district, jobs are allocated based on the percentage of total sector jobs in each zip. For zips that are broken by congressional districts, allocations are based on the percentage of total jobs physically located in each segment of the zip weighted by the miles of highway located in each zip code

---

[9]   The IMPLAN model is based on a series of national input-output accounts known as RIMS II. These data are developed and maintained by the U.S. Department of Commerce, Bureau of Economic Analysis as a policy and economic decision analysis tool.

section. 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.

IMPLAN Methodology[10]

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 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. The Minnesota IMPLAN group 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 are available at the county level, but 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.

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 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 model – 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 developed in 1977. These data are updated and bridged to the 544 sector IMPLAN model.

---

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

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 until extensive testing takes place.

The Effect of COVID-19 on the Model

While the data used in this model are derived from facilities and jobs as of October 2022, the impact figures are subject to the effects of the COVID-19 pandemic, particularly given the challenges experienced by the motorcoach industry and the government-imposed economic shutdown. Since there are lags in all data, the employment figures included in the Data Axle database may not fully reflect post-COVID changes at motorcoach related businesses. Some facilities reported as closed in the Data Axle database may have subsequently opened and are yet to be updated.

In addition, to certain data lags, the IMPLAN input/output tables used in this model are from 2020, the height of the COVID-19 recession. Supplier and induced wages, output and jobs may be impacted to some extent by this; however, the main factor used to calculate these multiplier effects are the direct job numbers entered into the model.

Finally, the effects of COVID-19 and the Federal Government's reaction to the downturn do influence tax revenue calculations. Since taxes in all economic impact studies are calculated based on lagging data (2022 taxes will not be generally paid until 2023), the model includes the effects of the various stimulus packages passed by Congress in 2020 and 2021. Programs such as the Paycheck Protection Program and the stimulus payments to individuals are recorded in the model as negative taxes. While JDA has accounted for this in its own tax modeling, the baseline data will lead to some inconsistencies, such as negative tax rates, in reported 2022 taxes simply because they are based on the 2020 tax year.

Data and Modeling Considerations When Comparing 2022 with Earlier Studies

The last economic impact analysis of the Motorcoach Industry was conducted in 2018, prior to the COVID-19 shutdowns and their devastating impacts on the motorcoach industry. While the methodology and models are similar, the 2022 study will show substantially lower figures, even though it is likely that the industry, particularly the charter and tour portions of the industry, have recovered significantly. The effect of the recovery will be seen in the 2024 numbers.