

**The American Bus Association  
Economic Impact Study**

**Methodology and Documentation**

**Prepared for**

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# The American Bus Association Foundation Economic Impact Study

## Executive Summary:

The American Bus Association Foundation Economic Impact Study estimates the economic contributions made by the motorcoach travel and tourism industry to the U.S. economy in 2009. John Dunham and 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 the Minnesota IMPLAN Group. Data came from industry sources, government publications and Dun and Bradstreet, Inc.

The study defines the motorcoach travel and tourism industry as those firms primarily engaged in transportation of passengers by motorcoach,<sup>1</sup> and those which provide accommodations, food, entertainment and retail opportunities to the tourists and passengers carried on the motorcoaches. The study measures the number of jobs in this 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 travel and tourism 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 and by Congressional District.

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 travel and tourism industry is a dynamic part of the U.S. economy, accounting for about \$112.668 billion in output or nearly 0.8 percent of GDP.<sup>2</sup> The industry directly or indirectly employed approximately 1,057,000 Americans in 2009. These workers earned \$40.6 billion in wages and benefits. Members of the industry and their employees paid \$16.5 billion in direct federal, state and local taxes.

## Summary Results:

The ABA Foundation Economic Impact Study measures the impact of the motorcoach travel and tourism industry, defined as those firms, primarily engaged in transportation of passengers by motorcoach, and those which provide accommodations, food, entertainment and retail opportunities to the tourists and

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<sup>1</sup> SIC 4111, 4131, 4141, 4142 and 4173. See: [http://www.osha.gov/pls/imis/sic\\_manual.display?id=34&tab=group](http://www.osha.gov/pls/imis/sic_manual.display?id=34&tab=group).

<sup>2</sup> Based on a total GDP of \$14,258.7 billion in 2009. See: Gross Domestic Product: Fourth Quarter 2009 (Advance Estimate), US Department of Commerce, Bureau of Economic Analysis, January 29, 2010, at: [www.bea.gov/newsreleases/national/gdp/2010/pdf/gdp4q09\\_adv.pdf](http://www.bea.gov/newsreleases/national/gdp/2010/pdf/gdp4q09_adv.pdf)

passengers carried on the motorcoaches on the entire economy of the United States. The industry contributes about \$112.7 billion in output or about 0.8 percent of GDP and, through its production and distribution linkages, impacts firms in 426 sectors of the US economy. The motorcoach passenger transportation segment includes all privately owned and operated commuter and line operators, motorcoach charterers and interstate and regional motorcoach tour operators. School busses, transit operators and airport shuttles are not included as part of the industry. In addition, firms providing food and lodging, entertainment services (sports franchises, museums, theatres, etc.) and retailing opportunities for day and overnight tour passengers are included as part of the industry.<sup>3</sup> All told, these firms directly employ 608,200 people.

Other firms are related to motorcoach travel and tourism as suppliers. These firms produce and sell a broad range of items including motorcoaches, restaurant supplies, fuel, even marketing materials. In addition, supplier firms provide a broad range of services, including personnel services, financial services, advertising services and consulting services. Finally, a number of people are employed in government enterprises responsible for the regulation of the motorcoach tour and travel industry. All told, we estimate that the industry is directly responsible for 147,400 jobs with supplier firms generating over \$24.5 billion in economic activity.

An economic analysis of the motorcoach travel and tourism 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<sup>4</sup> the spending by employees of the industry, and those of supplier firms whose jobs are directly dependent on motorcoach travel and tourism, should surely be included. This spending on everything from housing, to food, to educational services and medical care<sup>5</sup> makes up what is traditionally called the “induced impact” or multiplier effect of the industry. In other words, this spending, and the jobs it creates is induced by the services provided by the motorcoach travel and tourism industry. We estimate that the induced impact of the industry is nearly \$45.86 billion, and generates 301,160 jobs, for a multiplier of about 0.495.<sup>5</sup>

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 motorcoach travel and tourism industry this contribution consists of the direct taxes paid by the firms as well as those paid by their employees. This equals a total of \$4.775 billion in revenues to the federal, state and local governments.

Table 1 below presents a summary of the total economic impact of the industry in the United States.

**Table 1: Economic Contribution of the Motorcoach Travel and Tourism Industry**

(\$ In Millions)	Direct	Supplier	Induced
Output	\$ 42,282	\$ 24,528	\$ 45,858
Jobs	608,207	147,408	301,165
Wages	\$ 19,011	\$7,808	\$ 13,769
Taxes			\$ 16,499

In addition to the economic impact of motorcoach travel, a large number of people are employed in hotels, restaurants, entertainment venues and retail stores that sell products to tourists and motorcoach

<sup>3</sup> Throughout this study the term “firms” or “companies” means facilities. One firm, such as Greyhound or CoachUSA, might operate dozens of facilities. This study is based on facilities.

<sup>4</sup> These firms would more appropriately be considered as part of the supplier firms’ industries.

<sup>5</sup> Often economic impact studies present results with very large multipliers – as high as 5. These studies invariably include the firms supplying the supplier industries as part of the induced impact. John Dunham and 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.

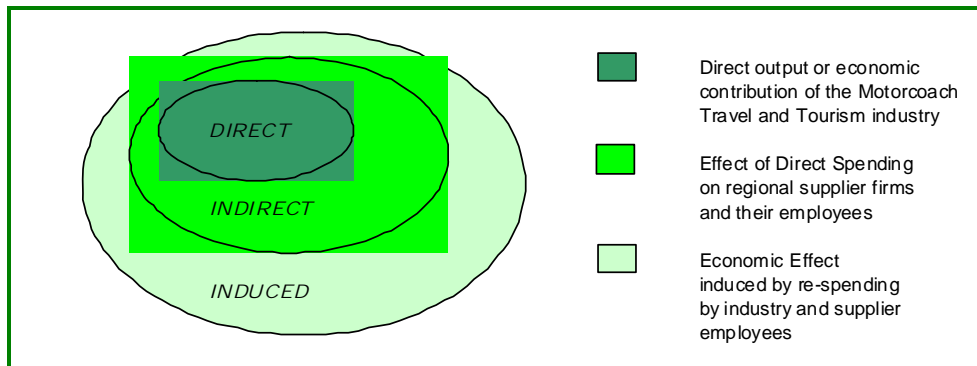
passengers. This study measures the direct impact of these activities, as well as supplier and induced effects

**Output Model:**

John Dunham and Associates, Inc. produced the Economic Impact study for the ABAF. 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 linked together into an interactive system that allows the ABAF 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 begins with an accounting of the direct employment in the motorcoach travel and tourism sector including both coach operators and tour companies, hotels and motels, eating and



drinking places, retailers and providers of various forms of entertainment. 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 carry a tourist, from driving a motorcoach, to providing mechanical services to the bus, to organizing the tour, to acting in a regional theater generate the direct effects on the economy. Regional (or indirect) impacts occur when these activities require purchases of goods and services such as fuel, foodstuffs or guide services 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 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 ABAF 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 D & B, Inc., surveys of motorcoach and tour operators and Destination Marketing Organizations (DMO), and state and federal governments. The analysis utilizes the Minnesota IMPLAN Group Model in order to quantify the economic impact of the motorcoach travel and tourism industry on the economy of the United States. 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 the opening of a regional theater 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).<sup>6</sup>

Every economic impact analysis begins with a description of the industry being examined. In the case of the ABAF model, the motorcoach travel and tourism industry is defined as those private sector firms, primarily engaged in transportation of passengers by motorcoach, and those which provide accommodations, food, entertainment and retail opportunities to the tourists and passengers carried on the motorcoaches. Public transportation agencies are not included in this analysis.

The IMPLAN Group 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 American Bus Association Foundation Economic Impact Model, the direct employment in the motorcoach travel and tourism industry is a base starting point for the analysis. Direct employment for motorcoach carriers, hotels, eating and drinking places, entertainment venues and retail stores is based directly on data provided to John Dunham and Associates by Dun & Bradstreet, Inc. as of November 2009. Dun & Bradstreet data is recognized nationally as a premier source of micro industry data. The D&B database contains information on over 15 million businesses in the United States.<sup>7</sup> It is used extensively for credit reporting, and according to the vendor, encompasses about 98 percent of all business enterprises in the country. This data is gathered at the facility level; therefore, a company with a bus depot, warehouse and sales office would have three facilities, each with separate employment counts. Since the D&B data are adjusted on a continual basis, staff from John Dunham and Associates scanned the data for discrepancies.

Per tourist spending for non-line, non-commuting service (the group tour market) was derived from a comprehensive survey of motorcoach operators throughout the country. This survey was used to determine average day-trip and multi-day-trip costs per passenger, and an allocation of revenues across the entertainment, lodging, eating and drinking and tour operations sectors. Average spending by passengers not accounted for in the group-tour price was derived from the Regional Tourism Satellite Accounts maintained by the US Department of Commerce, Bureau of Economic Analysis.

Once total passenger numbers and spending were developed, they were allocated across states (as motorcoach tours travel between regions and states). The allocation model was based on relative shares

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<sup>6</sup> 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.

<sup>7</sup> The D&B information database updates over 1 million times a day, over 350 million payment experiences are processed annually, and over 110 million phone calls are made to businesses. In addition, D&B uses a patented matching technology and over 2,000 information computer validations to ensure a high standard of data quality.

of hotel rooms per capita, total tourism numbers reported by state travel and tourism authorities, per capita retail employment and a variable based on the physical location of non-line motorcoach employment. Direct job numbers for motorcoach lines and commuter bus service was derived from the physical employment location as reported to Dun and Bradstreet.

Once the initial direct employment figures were established, they were 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, Dun and Bradstreet data provide the basis for Congressional District level estimates. Publicly available data at the county and Congressional District level is limited by disclosure restrictions, especially for smaller sectors of the economy like can manufacturing. The model therefore uses actual physical location data provided by Dun and Bradstreet 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. 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 Dun and Bradstreet data. As with the direct job allocation model, direct line- and commuter-service motorcoach jobs are based on the physical location as reported to Dun & Bradstreet. Tourist based jobs (including group motorcoach jobs, hotel, amusement and retail jobs) are allocated to Congressional Districts based on the relative weighting of hotel and retail jobs per capita in each individual state.

### **IMPLAN Methodology:<sup>8</sup>**

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

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<sup>8</sup> 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. 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 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 motorcoach travel is from the purchase of maintenance services, then the maintenance service 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 440 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 developed in 1977. These data are updated and bridged to the 440 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.