

**Presidents' Forum of the Distilled Spirits Industry
Economic Impact Study**

**Methodology and Documentation
Prepared for:**



OF THE DISTILLED SPIRITS INDUSTRY

By



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The Winning Side of Economics

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Executive Summary:

The 2017 Presidents' Forum of the Distilled Spirits Industry Economic Impact Study estimates the economic contributions made by the independent distilled spirits industry to the U.S. economy in 2017. The industry includes the independent distillers (manufacturers) that are members of the Presidents' Forum, as well as wholesalers and retail establishments that market their products. John Dunham & Associates (JDA) conducted this research, which was funded by the Presidents' Forum, a group of leading independent distillers, importers, and marketers that accounts for approximately 55 percent of all distilled spirits sales in the United States. This work used standard econometric models first developed by the U.S. Forest Service, and now maintained by IMPLAN Group, LLC. Data came from members of the Presidents' Forum, additional industry sources, government publications, and Infogroup.¹

The study measures various factors of the independent distilled spirits industry: the number of jobs, the wages paid to employees, the value added, and total output. In addition, it assesses the economic impact of the suppliers that support the independent distilled spirits industry, as well as those industries supported by the induced spending of both the direct and supplier industries.

Every industry makes purchases from a mix of different industries—thus, an economic activity within one industry always extends beyond its origins. Economic activity started by the independent distilled spirits industry generates output (and jobs) in hundreds of other industries, often in states far removed from the site of the original economic activity. The impact of supplier firms and the “induced impact” of the re-spending by employees of industry and supplier firms are calculated using an input-output model of the United States, a method that will be further clarified in a later section. The study calculates the impact on various geographic levels: National, 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, on the other hand, vary widely. Direct retail taxes include state and local sales taxes, license fees, and applicable gross receipt taxes. Retailers 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 independent distilled spirits industry is a dynamic part of the U.S. economy, accounting for approximately \$77.63 billion in total economic output or around 0.41 percent of GDP.² It employs about 495,710 Americans who earn wages and benefits of about \$22.29 billion.

¹ Infogroup is the leading provider of business and consumer data for the top search engines and leading in-car navigation systems in North America. Infogroup gathers data from a variety of sources, by sourcing, refining, matching, appending, filtering, and delivering the best quality data. Infogroup verifies its data at the rate of almost 100,000 phone calls per day to ensure absolute accuracy.

² Gross domestic product (GDP) is the value of the goods and services produced by the nation's economy less the value of the goods and services used up in production. GDP is also equal to the sum of personal consumption expenditures, gross private domestic investment, net exports of goods and services, and government consumption expenditures and gross investment. *National Income and Product Accounts Gross Domestic Product: Second Quarter 2017 (Advance Estimate), and Annual Update*, US Department of Commerce, Bureau of Economic Analysis, July 28, 2017, www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm. The current US GDP is \$19.2267 trillion.

Members of the industry and their employees pay \$15.39 billion in federal, state and local taxes. In addition, consumers of the products produced by Presidents’ Forum members pay a total of \$8.02 billion in Federal, state and local excise and sales taxes.

Summary Results:

The independent distilled spirits industry includes independent distillers (manufacturers), wholesalers that handle their products, as well as retail establishments that sell them (for example liquor stores, warehouse clubs and supercenters, restaurants, and concert venues.) The industry reaches into all corners of the United States, employing 274,708 people and generating \$9.36 billion in wages, and \$33.65 billion in national economic activity.

Table 1 – Economic Contribution of the Independent Distilled Spirits Industry

	Direct	Supplier	Induced	Total
Jobs	274,708	89,524	131,478	495,710
Wages	\$9,360,528,800	\$5,991,407,300	\$6,934,381,000	\$22,286,317,100
Economic Impact	\$33,652,205,600	\$21,637,713,000	\$22,338,495,400	\$77,628,414,000
State and Local Taxes				\$9,188,827,400
Federal Taxes				\$6,205,280,100

Other firms are related to the independent distilled spirits industry as suppliers. These supplier firms produce and sell a broad range of items such as glass containers, plastic bottles, and grains. They also provide various services, including personnel services, financial services, advertising services, consulting services, and transportation services. All taken into account, we estimate that the industry is responsible for 89,524 supplier jobs. These firms generate about \$21.64 billion in economic activity.

An economic impact analysis of the independent distilled spirits industry also takes additional linkages into account. While it is inappropriate to claim that suppliers to the industry are part of the impact being analyzed,³ the spending by employees of the industry, and those of supplier firms whose jobs are directly dependent on the independent distilled spirits 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 distilled spirits industry. For 2017, the induced impact of the industry generates 131,478 jobs and \$22.34 billion in economic impact, for a multiplier of 0.66.⁴

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 independent distilled spirits industry, the direct taxes paid by firms and their employees provide \$6.21 billion to the federal government and \$9.19 billion to state and local governments. In addition, consumers pay \$8.0 billion in federal, state, and local taxes (like sales and excise taxes) levied on the sale of these products.

Table 1 presents a summary of the total economic impact of the independent distilled spirits industry in the United States. Summary tables for the United States, individual states, and

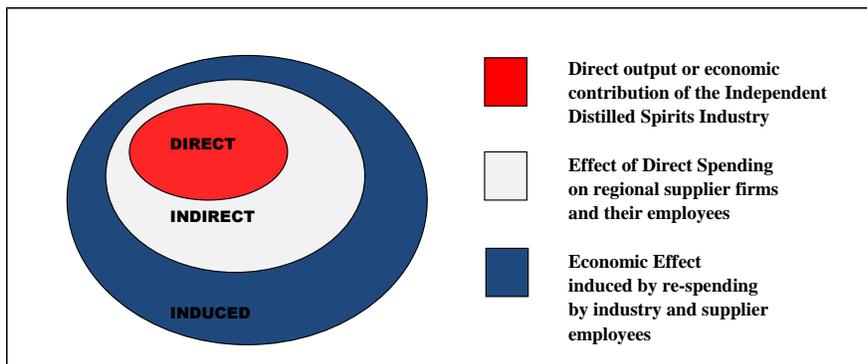
³ These firms would more appropriately be considered as part of the indirect firm’s industries.

⁴ 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.

congressional districts are included in the output model, which is discussed in the following section.

Economic Impact Modeling – Summary:

The Economic Impact Study begins with an accounting of the direct employment in the distilled spirits 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, a single economic activity leads to a ripple effect that benefits other sectors and industries through 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 the independent distilled spirits industry 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 supplier 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 supplier sector and of the re-spending in the economy by employees in the industry and its supplier firms. This induced impact is the most controversial part of economic impact studies and is often quite inflated. In the case of the Presidents' Forum 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 Presidents' Forum, Infogroup, and other industry sources. The analysis utilizes the IMPLAN Group, LLC's model in order to quantify the economic impact of the independent distilled spirits industry on the economy of the United States, as well as individual states and congressional districts.⁵ 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-

⁵ The model uses 2014 input/output accounts.

defined, geographic region. It is based on the national income accounts generated by the US Department of Commerce, Bureau of Economic Analysis (BEA).⁶

Every economic impact analysis begins with a description of the industry being examined. In the case of the independent distilled spirits industry, the definition consists of three components, which are the following economic sectors:

- ❖ Independent distilled spirits manufacturers that are members of the Presidents' Forum
- ❖ Wholesalers: Includes firms involved in the distribution and storage of member produced or imported distilled spirits
- ❖ Retailers: Includes firms involved in the sale of distilled spirits. This sector includes retail establishments (e.g. liquor stores, warehouse clubs and supercenters, restaurants and bars)

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 indirect and induced impacts based on these entries. In the case of the Presidents' Forum model, direct employment in the independent distilled spirits industry is a starting point for the analysis. Direct employment is based on data provided to John Dunham & Associates by Infogroup, Presidents' Forum, and other industry sources as of July 2017.

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 (those eligible for unemployment insurance), they are modified to add information on those who are not, such as: independent workers, agricultural employees, and construction workers. 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 as well. They include 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 as well as licenses, fees, and certain payroll taxes.

⁶ 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.

While IMPLAN is used to calculate the state level impacts, Infogroup data provide the basis for congressional district level estimates. Publicly available data at the congressional district level are limited by disclosure restrictions, especially for smaller sectors of the economy. Our model therefore uses actual physical location data provided by Infogroup in order to allocate jobs – and the resulting economic activity – by physical address or when that is not available, by 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 into multiple 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—in the latter case, facilities are placed randomly throughout the ZIP code area. All 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 Infogroup data.

IMPLAN Methodology⁷

Input-output analysis, for which Wassily Leontief received the 1973 Nobel Prize in Economics for, 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 them 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 estimating variables that are not found in the merged data. The data are 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 are converted using margins derived from the BEA Input-Output model. Margins represent the difference between producer and consumer prices. As such, the margins for any good add up to one.

⁷ This section is paraphrased from IMPLAN Professional: Users Guide, Analysis Guide, Data Guide, Version 2.0, MIG, Inc., June 2000.

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 536 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 536 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 until extensive testing takes place.