

ECONOMIC IMPACT STUDY

FLEXIBLE PACKAGING INDUSTRY

2025 EXECUTIVE SUMMARY



FPA

Flexible Packaging
Association

www.FlexPack.org

Data Source: John Dunham & Associates

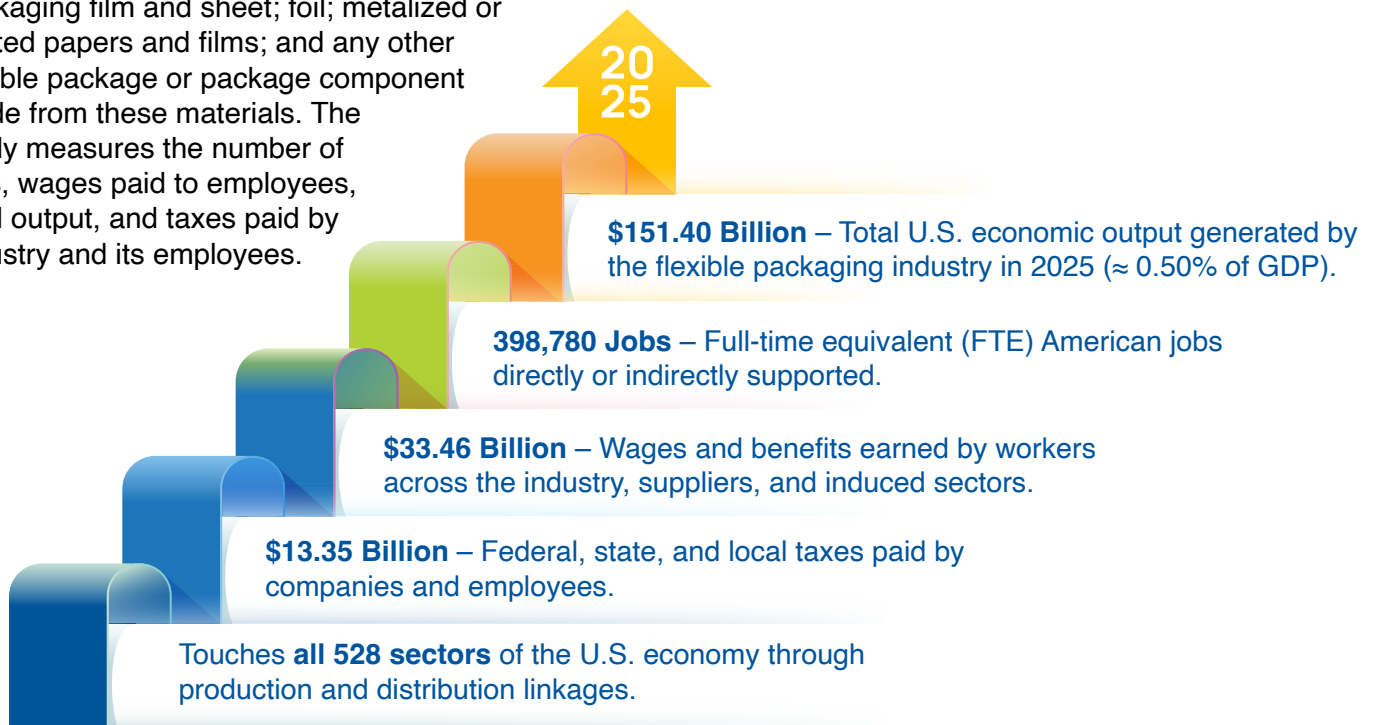
U.S. FLEXIBLE PACKAGING INDUSTRY ECONOMIC IMPACT

EXECUTIVE SUMMARY

The *2025 Flexible Packaging Industry Economic Impact Study* estimates the economic contributions made by the flexible packaging industry to the U.S. economy in 2025. John Dunham & Associates conducted this research, which was funded by the Flexible Packaging Association (FPA). This work used standard econometric models first developed by the U.S. Forest Service and now maintained by the IMPLAN Group LLC. Data came from FPA, industry sources, government publications, and DataAxle®, a data-based solutions company. .

The study defines the flexible packaging industry as firms that produce packages or package components made from paper, plastic, foil, metalized or coated paper and film, or any combination of these materials, the shape of which can be readily changed. This includes products such as paper and plastic bags and pouches; plastic-foil and coated paper bags; plastic packaging film and sheet; foil; metalized or coated papers and films; and any other flexible package or package component made from these materials. The study measures the number of jobs, wages paid to employees, total output, and taxes paid by industry and its employees.

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 flexible packaging 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 supplier firms, and the induced impact created by employees spending their earnings, is calculated using an input/output model of the United States. The study calculates the impact of the industry for the direct, supplier and induced sectors (jobs, wages, and economic output) at the national, state and congressional district level.



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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, payroll 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 flexible packaging 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 flexible packaging industry is a dynamic part of the U.S. economy, accounting for about \$151.40 billion in total economic output or roughly 0.50 percent of GDP.¹ Flexible packaging products manufacturers directly or indirectly supported approximately 398,780 full-time equivalent (FTE) American jobs in 2025. These workers earned over \$33.46 billion in wages and benefits. Companies in the industry, and their employees, paid \$13.35 billion in direct federal, state and local taxes, not including state and local sales taxes imposed on flexible packaging products. To learn more about the new study and access federal and state-specific economic impact data, visit www.flexpack.org/economic-impact.

¹ Based on 2025 current-dollar GDP of \$30,331 billion. See: Gross Domestic Product, 2nd Quarter 2025 (Advance Estimate); U.S. Department of Commerce, Bureau of Economic Analysis, July 30, 2025

ECONOMIC CONTRIBUTION OF THE FLEXIBLE PACKAGING INDUSTRY

	Direct	Supplier	Induced	Total
Jobs	98,420	155,520	144,840	398,780
Wages	\$8,738,501,200	\$14,744,048,700	\$9,976,438,400	\$33,458,988,300
Output	\$51,532,740,600	\$68,772,769,200	\$31,090,018,400	\$151,395,528,200
Taxes				\$13,345,118,500

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SUMMARY OF FINDINGS

The *2025 Economic Impact of the Flexible Packaging Industry Study* measures the impact of the flexible packaging industry, defined as the production of any package or part of a package made from paper, plastic, foil, metalized or coated paper and film, or any combination of these materials, the shape of which can be readily changed, on the entire economy of the United States. The industry contributes about \$151.40 billion in economic output, or 0.50 percent of GDP and, through its production and distribution linkages, impacts firms in all 528 sectors of the U.S. economy.²

Other firms are related to the flexible packaging industry as suppliers. These firms produce, sell and provide a broad range of items and services including raw material, tools or machinery used in the production process, transportation, warehousing, logistics or sales. In addition, supplier firms provide a broad range of services, including personnel services, financial services, advertising services, or consulting services. Finally, a number of people are employed in government enterprises responsible for the regulation of the flexible packaging industry. All told, we estimate that the flexible packaging industry is responsible for 155,520 FTE supplier jobs, generating about \$68.77 billion in economic activity.

An economic analysis of the flexible packaging 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,³ daily spending by

employees of the flexible packaging industry, and those of supplier firms whose jobs are directly dependent on flexible packaging product sales and production, should surely be included. This spending on everything from housing to food, educational services and medical care makes up what is traditionally called the “induced impact” or multiplier effect of the flexible packaging industry. In other words, this flow of money, and the jobs it creates, is induced by the production and distribution of paper and plastic bags and pouches; plastic-foil and coated paper bags; plastic packaging film and sheet; foil; metalized or coated papers and films and other related products included in the definition of the flexible packaging industry. Based on the analysis, the induced impact of the industry is nearly \$31.09 billion, and generates 144,840 jobs, for a multiplier of 0.60.⁴

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 flexible packaging industry, the traditional direct taxes paid by the firms and their employees provide nearly \$13.35 billion in revenues to the federal, state and local governments. These figures do not include state and local sales taxes paid on flexible packaging goods purchases themselves.

Table 1 on page 3 presents a summary of the total economic impact of the flexible packaging industry in the United States. Summary tables for each state are included in the Output Model, which is discussed in the following section.

² Economic sectors are based on IMPLAN sectors.

³ These firms would more appropriately be considered as part of the supplier firms’ 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 supplier industries as part of the induced impact. John Dunham & Associates believes that this is not an appropriate definition of the induced impact and as such limits this calculation to only the effect of spending by direct and supplier employees.

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TOTAL INDUSTRY

ECONOMIC IMPACT OF THE FLEXIBLE PACKAGING INDUSTRY, 2025

	Industry Jobs	Total Jobs	Industry Wages	Total Wages	Industry Output	Total Output
Alabama	719	3,464	\$57,988,100	\$289,425,400	\$355,312,800	\$1,673,248,800
Alaska	-	85	-	\$11,726,100	-	\$68,136,100
Arizona	538	2,842	\$39,611,300	\$238,340,400	\$281,957,600	\$1,090,449,300
Arkansas	1,348	4,978	\$96,021,200	\$363,254,900	\$681,330,000	\$1,666,030,300
California	6,502	28,138	\$564,936,300	\$2,472,871,200	\$3,357,712,500	\$10,233,720,300
Colorado	139	1,284	\$10,446,700	\$109,954,100	\$70,488,600	\$674,828,300
Connecticut	752	3,201	\$91,111,400	\$309,513,500	\$437,302,300	\$1,326,699,400
Delaware	87	483	\$8,372,400	\$55,458,200	\$46,720,800.00	\$387,850,600
District of Columbia	-	50	-	\$4,583,800	-	\$45,711,200
Florida	2,178	10,599	\$196,852,700	\$817,165,900	\$1,167,380,200	\$3,396,699,600
Georgia	4,354	17,480	\$353,422,700	\$1,353,122,500	\$2,344,157,600	\$5,801,166,000
Hawaii	30	190	\$1,865,000	\$13,483,600	\$14,152,700	\$90,796,900
Idaho	348	1,437	\$24,365,200	\$108,189,300	\$177,253,800	\$503,432,700
Illinois	7,250	28,676	\$740,070,600	\$2,513,282,200	\$3,869,564,000	\$9,977,862,600
Indiana	5,840	20,871	\$497,289,400	\$1,674,830,300	\$2,949,477,000	\$6,985,367,700
Iowa	1,782	6,432	\$170,937,900	\$541,923,700	\$946,842,700	\$2,489,591,300
Kansas	1,463	5,283	\$106,222,500	\$405,299,500	\$726,019,200	\$1,727,627,800
Kentucky	2,642	9,911	\$227,049,000	\$794,244,400	\$1,373,208,600	\$3,545,964,700
Louisiana	1,296	5,455	\$94,217,300	\$478,931,200	\$681,807,400	\$3,737,728,300
Maine	78	478	\$7,806,700	\$39,289,500	\$41,820,200	\$204,965,100
Maryland	660	2,645	\$57,289,800	\$212,191,700	\$351,019,000	\$909,116,000
Massachusetts	1,692	6,775	\$170,349,700	\$641,792,100	\$844,524,900	\$2,563,996,600
Michigan	2,373	10,709	\$212,840,400	\$897,745,100	\$1,191,455,300	\$4,241,693,100
Minnesota	1,371	6,012	\$117,677,900	\$511,616,100	\$688,106,400	\$2,282,904,900
Mississippi	224	1,248	\$18,671,300	\$99,550,400	\$112,263,800	\$686,622,200
Missouri	1,769	7,121	\$148,560,100	\$565,806,000	\$937,303,500	\$2,452,846,700

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	Industry Jobs	Total Jobs	Industry Wages	Total Wages	Industry Output	Total Output
Montana	-	180	-	\$12,915,100	-	\$130,126,800
Nebraska	165	952	\$12,870,900	\$92,481,600	\$80,251,200	\$565,246,300
Nevada	427	1,794	\$31,274,200	\$138,231,000	\$207,701,600	\$606,570,300
New Hampshire	149	733	\$12,252,300	\$60,723,800	\$71,082,700	\$294,975,100
New Jersey	2,312	9,091	\$204,998,900	\$782,970,400	\$1,191,801,300	\$3,391,088,700
New Mexico	75	432	\$3,459,800	\$38,893,600	\$37,791,000	\$186,348,400
New York	4,092	15,586	\$385,960,900	\$1,464,553,900	\$2,417,227,700	\$5,988,649,200
North Carolina	4,559	18,124	\$460,003,600	\$1,520,226,900	\$2,443,119,100	\$6,087,684,200
North Dakota	-	180	-	\$20,694,200	-	\$173,927,600
Ohio	5,753	23,535	\$497,949,500	\$1,906,778,400	\$2,969,818,000	\$8,162,172,800
Oklahoma	1,691	6,387	\$127,251,200	\$488,357,400	\$864,953,900	\$2,218,059,500
Oregon	397	2,149	\$35,520,900	\$194,703,900	\$201,495,100	\$833,419,100
Pennsylvania	4,555	18,250	\$422,413,400	\$1,546,198,300	\$2,409,248,000	\$6,550,409,700
Rhode Island	195	817	\$18,971,900	\$68,990,100	\$99,570,200	\$316,277,400
South Carolina	4,161	15,287	\$393,571,800	\$1,217,727,100	\$2,284,606,800	\$5,249,942,800
South Dakota	225	927	\$19,581,900	\$76,381,200	\$93,827,700	\$419,830,200.00
Tennessee	2,344	9,652	\$221,179,400	\$825,222,100	\$1,272,045,700	\$3,606,638,900
Texas	7,016	33,445	\$550,860,400	\$2,947,900,900	\$3,512,933,800	\$18,985,171,500
Utah	337	1,766	\$26,046,000	\$139,084,400	\$175,412,600	\$648,396,800
Vermont	64	311	\$4,802,300	\$23,658,200	\$29,574,300	\$127,000,700
Virginia	2,994	11,050	\$272,553,600	\$910,982,300	\$1,575,072,200	\$3,768,596,300
Washington	2,086	7,796	\$177,173,200	\$669,194,300	\$1,036,846,400	\$2,763,905,700
West Virginia	742	2,712	\$57,509,300	\$229,969,600	\$380,978,500	\$1,253,079,800
Wisconsin	8,648	31,627	\$788,320,200	\$2,542,511,100	\$4,530,201,900	\$10,167,601,500
Wyoming	-	152	-	\$16,047,400	-	\$135,352,400
Total	98,422	398,782	\$8,738,501,200	\$33,458,988,300	\$51,532,740,600	\$151,395,528,200

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OUTPUT MODEL

John Dunham & Associates, Inc. produced the 2025 economic impact study for the Flexible Packaging Association. The analysis consists of a number of parts, each of which will be described in the following sections of this document. These include data, models, calculations, and outputs that are presented in output sheets and tables. 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 updated.

ECONOMIC IMPACT MODELING – SUMMARY

The *Economic Impact Study* begins with an accounting of the direct employment in the domestic manufacture of flexible packaging products. The data come from a variety of government and private sources.

It is sometimes mistakenly thought that initial spending accounts for all 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 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 produce a paper bag for example, from the custom design of the product to the folding, gluing, and palletizing packaging generate the direct effects on the economy. Regional (or indirect) impacts occur when these activities require purchases of goods and services such as kraft paper or electricity from local or regional suppliers.



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Additionally, induced impacts occur when workers involved in direct and indirect activities spend their wages. The ratio between the induced economic impact and direct impact is termed the multiplier. The framework in the chart on the previous page 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 in the following “Model Description and Data” section 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 flexible packaging industry 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 FPA, industry sources, government publications, and DataAxle®. The analysis utilizes the IMPLAN Group LLC model in order to quantify the economic impact of the flexible packaging industry on the economy of the United States.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—on a pre-defined, geographic region. It is based on the national income accounts generated by the U.S. 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 flexible packaging industry model, the industry is defined as the production of any package or part of a package, made from paper, plastic, foil, metalized or coated paper and film, or any combination of these materials, whose shape can be readily changed. Labels (other than shrink sleeve or film wrap-around styles), photographic film or paper, photo paper, wrapping paper, tape, toilet and facial tissues, diapers, feminine products, and other general paper products such as copy paper, writing paper, and notebooks are not included in the analysis.

The IMPLAN model is designed to run based on the input of specific direct economic factors. It uses a detailed methodology (see IMPLAN Methodology section) to generate estimates of the other direct impacts, tax impacts and supplier and induced

⁵ IMPLAN® model, 2023 Data, using inputs provided by the user and IMPLAN Group LLC, IMPLAN System (2025), 16905 Northcross Dr., Suite 120, Huntersville, NC 28078, www.IMPAN.com.

⁶ 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 U.S. Forest Service, the Federal Emergency Management Agency, and the Bureau of Land Management. It was converted to a user-friendly model by IMPLAN in 1993.

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impacts based on these entries. In the case of the flexible packaging industry economic impact model, direct employment in the flexible packaging industry is a base starting point for the analysis. Direct employment is based on data provided to John Dunham & Associates from FPA, the Bureau of the Census, and Data Axle®.⁷

This data is gathered at the facility level; therefore, a flexible packaging manufacturing plant, warehouse, and sales office would be three facilities, each with separate employment counts. The primary source of this data are the FPA and DataAxle®. Data is checked against company websites, social media accounts, review sites, news articles, and/or Google Maps.

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 is then adjusted to account for counties where non-disclosure rules apply. Wage data includes 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.

⁷ DataAxle® data is recognized nationally as a premier source of micro industry data. This data is gathered at the facility level; therefore, a company with a manufacturing plant, warehouse, and sales office would have three facilities, each with separate employment counts. Since the DataAxle® data is adjusted on a continual basis, staff from John Dunham & Associates scanned the data for discrepancies. Member provided data is given first priority in assigning jobs to a facility, followed by DataAxle® data; for facilities where neither source has employment information, median job counts are used (based on industry and state data) to fill in gaps.

Total output is the value of production by industry in a given state. It is estimated by IMPLAN from sources like 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, DataAxle® data provide the basis for legislative 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. The model therefore uses actual physical location data provided by DataAxle® 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. 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 DataAxle® data.

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IMPLAN METHODOLOGY⁸

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 each 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 IMPLAN Group LLC 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 U.S. 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 a package is from the purchase of raw 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 528 sectors of the IMPLAN model. Where data are missing, deflators from BEA's Survey of Current Businesses are used.

⁸ This section is paraphrased from IMPLAN Professional: Users Guide, Analysis Guide, Data Guide, Version 2.0, MIG, Inc., June 2000.

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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 528 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.

FPA'S MISSION

The Flexible Packaging Association (FPA) is dedicated to promoting and protecting the benefits, contributions, and advantages—including the sustainability—of the value-added segment of the flexible packaging industry. Its mission centers on researching, collecting, analyzing, and providing members with easy access to industry data and market information to help them benchmark performance and identify emerging trends and opportunities. FPA also serves as a strong advocate for the industry, representing its interests before key stakeholders such as government, retailers, customers, and consumers. In addition, the association fosters professional growth by offering educational programs and networking opportunities for industry leaders.

ABOUT JOHN DUNHAM & ASSOCIATES

John Dunham & Associates (JDA) is a leading economic consulting firm specializing in the economics of fast-moving issues. JDA is an expert at translating complex economic concepts into clear, easily understandable messages for a wide range of audiences. JDA's clients have included a wide variety of businesses and organizations, including some of the largest companies in America, such as Altria, Diageo, Feld Entertainment, Forbes Media, Molson Coors, Verizon, and Wegmans Stores.

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

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



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