

2015

Economic Impact of the Logistics Industry on the Dayton, Ohio MSA



Executive Summary

In 2015, the Dayton Area Logistics Association contracted with the Center for Urban & Public Affairs (CUPA) to conduct the economic impact analysis of the logistics and transportation industry on the Dayton, OH MSA regional economy. The Transportation and Logistics¹ industry is classified as establishments in wood container and pallet manufacturing, paperboard container manufacturing, material handling equipment manufacturing, transport by air, transport by rail, transport by water, transport by truck, transit and ground passenger transportation, warehousing and storage, management, scientific, and technical consulting services, and commercial and industrial machinery and equipment repair and maintenance. For this study, CUPA used IMPLAN, a tool for economic impact assessment to estimate the direct, indirect, and induced impacts of the \$1.7 billion² industry on the regional economy (Montgomery, Greene, and Miami counties).

Production and employment on the three-county regional economy is estimated to generate a total of \$2.5 billion in sales, nearly 20 thousand permanent jobs, \$855 million in labor income, and nearly \$27 million in state and local sales and *income* tax revenues due to industry operations.

Impact Type	Direct Effect (Operations)	Indirect Effect	Induced Effect	Total Effect
		(Changes to other industries due to operations)	(Household Spending)	
Output (Sales)	\$1,680,301,288	\$367,415,828	\$472,433,832	\$2,520,150,948
Employment	12,564	3,021	3,968	19,553
Labor Income	\$534,295,479	\$154,547,572	\$166,092,222	\$854,935,273
Tax on Production & Imports	N/A	N/A	N/A	\$54,934,794
State & Local Income Tax & Other Taxes	N/A	N/A	N/A	\$27,059,816

Figure 1: Total Estimated Economic Impacts on the Regional Economy (Montgomery, Greene, and Miami Counties), 2015

¹ Large distribution operations classified as by other NAICS, such as the P&G facility in Union (NAICS code 325611), OH, have been included in this analysis. For a complete list of additional companies included, refer to Appendix B.

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Introduction

In 2015, the Dayton Area Logistics Association contracted with the Center for Urban & Public Affairs (CUPA) to conduct the economic impact analysis of the logistics and transportation industry on the regional economy. The logistics and transportation industry is defined as establishments classified by the following NAICS codes:

- 321920 Wood Container and Pallet Manufacturing
- 322211 Corrugated and Solid Fiber Box Manufacturing
- 322212 Folding Paperboard Box Manufacturing
- 322219 Other Paperboard Container Manufacturing
- 333922 Conveyor and Conveying Equipment Manufacturing
- 333923 Overhead Traveling Crane, Hoist, and Monorail System Manufacturing
- 333924 Industrial Truck, Tractor, Trailer, and Stacker Machinery Manufacturing
- 481111 Scheduled Passenger Air Transportation
- 481112 Scheduled Freight Air Transportation
- 481211 Nonscheduled Chartered Passenger Air Transportation
- 481212 Nonscheduled Chartered Freight Air Transportation
- 481219 Other Nonscheduled Air Transportation
- 482110 Rail transportation
- 483111 Deep Sea Freight Transportation
- 483112 Deep Sea Passenger Transportation
- 483113 Coastal and Great Lakes Freight Transportation
- 483114 Coastal and Great Lakes Passenger Transportation
- 483211 Inland Water Freight Transportation
- 483212 Inland Water Passenger Transportation
- 484110 General Freight Trucking, Local
- 484121 General Freight Trucking, Long-Distance, Truckload
- 484122 General Freight Trucking, Long-Distance, Less Than Truckload
- 484210 Used Household and Office Goods Moving
- 484220 Specialized Freight (except Used Goods) Trucking, Local
- 484230 Specialized Freight (except Used Goods) Trucking, Long-Distance
- 485111 Mixed Mode Transit Systems
- 485112 Commuter Rail Systems
- 485113 Bus and Other Motor Vehicle Transit Systems

- 485119 Other Urban Transit Systems
- 485210 Interurban and Rural Bus Transportation
- 485310 Taxi Service
- 485320 Limousine Service
- 485410 School and Employee Bus Transportation
- 485510 Charter Bus Industry
- 485991 Special Needs Transportation
- 485999 All Other Transit and Ground Passenger Transportation
- 492110 Couriers and Express Delivery Services
- 492210 Local Messengers and Local Delivery
- 493110 General Warehousing and Storage
- 493120 Refrigerated Warehousing and Storage
- 493130 Farm Product Warehousing and Storage
- 493190 Other Warehousing and Storage
- 541614 Process, Physical Distribution, and Logistics Consulting Services
- 811310 Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

An economic impact study is an analytical assessment of the positive and/or negative influence of a business, program, or event on a target area. For this study, it is the measurement of the economic impact of the estimated expenditures of \$1.7 billion. Expenditures will generate direct and indirect economic impacts for the Dayton Metropolitan Area (Montgomery, Greene, and Miami counties) in the form of employment, income, gross domestic product, and state and local tax revenues.

Large distribution operations classified as by other NAICS, such as the P&G facility in Union (NAICS code 325611), OH, have been included in this analysis. For a complete list of additional companies included, refer to Appendix B.

The purpose of this study was to assess the impact of the transportation industry on the economy of the Dayton Metropolitan region — Montgomery, Greene, and Miami counties.

Findings

This study estimates the direct, indirect, and induced output (sales), employment, and labor income impact of new facility construction on the regional three-county economy — Montgomery, Greene, and Miami counties. This study also estimates state and local tax revenues generated as a result of these impacts.

Impact on the Regional Economy (Montgomery, Greene, and Miami counties)

As shown in Figure 2, the direct effect of the logistics and transportation industry’s activities is nearly \$1.7 billion.³ This added stimulus to the regional economy generates an additional \$367 million in estimated indirect effects or output (sales and services) from supporting industries throughout the three-county area. This indirect effect is the purchases made by supporting businesses and their supplying or supporting businesses (i.e., raw materials used in wood container and pallet manufacturing, fuel, etc.). The direct and indirect effects or activities related to regional logistics and transportation industry stimulates an estimated \$472 million in induced effects (Additional impact generated as logistics and transportation employees and other area employees spend the income they earned on products and services). The total estimated 2015 economic output of the three-county economy, resulting from the regional logistics and transportation industry, is nearly \$2.5 billion.

Impact Type	Output (Sales)	Employment	Labor Income
Direct Effect (<i>Operations</i>)	\$1,680,301,288	12,564	\$534,295,479
Indirect Effect (<i>Changes to other industries due to operations</i>)	\$367,415,828	3,021	\$154,547,572
Induced Effect (<i>Household Spending</i>)	\$472,433,832	3,968	\$166,092,222
Total Effect	\$2,520,150,948	19,553	\$854,935,273

Figure 2: Total Estimated Economic Impacts on the Regional Economy (Montgomery, Greene, and Miami Counties), 2015

The industry is estimated to generate a total of 19,553 jobs in Montgomery, Greene, and Miami counties related to the movement of goods throughout the regional economy and beyond. The IMPLAN model estimates that 12,564 laborers and professional employees will be directly related to these services. Indirectly, 3,021 jobs will be created as a result of products and

³ The IMPLAN model can show a lower direct impact in output than the initial total investment (\$1.7 billion). This discrepancy is due a leakage of investment for goods and services, which can only be acquired outside the selected region to fulfill the requirements needed for the investment. (e.g., if a fire alarm system is required to complete the construction of the facility and the service or materials can only be acquired from a vendor or contractor outside the geographic or modeled area being analyzed, then the funds necessary for these services will not be factored in the model because this investment will not be made in the analyzed region.)

services (associated with the support of the logistics and transportation industry) purchased from area businesses. An additional 3,968 jobs will be created in the three-county area to support increased household spending generated by those workers affected directly and indirectly by the logistics and transportation industry.

Also provided in Figure 2 is the labor income figure, which provides the estimated wages and benefits that laborers/employees will earn. The total labor income is estimated to be nearly \$534 million. The direct effect of labor income supported by the logistics and transportation industry is approximately \$855 million, while \$321 million in wages and benefits is projected to be generated in indirect and induced effects — \$155 million and \$166 million, respectively.

The economic activity will also have a significant impact on tax revenues. According to the model, approximately \$55 million will be generated indirectly by businesses as sales and other tax. In addition, over \$27 million will be generated from the labor income in the local economy as local & State (income tax revenues paid by employees.

Impact Type	State & Local Income Tax & Other Taxes	Tax on Production & Imports
Total Effect	\$27,059,816	\$54,934,794

Figure 3: Estimated Tax Impacts, 2015

Appendix A: Project Methodology

This study utilizes the Impact Analysis for Planning (IMPLAN) economic modeling software and IMPLAN (Social Accounting Matrices (SAMs)) data sets for Greene, Montgomery, and Miami Counties by the Minnesota IMPLAN Group Inc. (MIG), of Stillwater, Minnesota. The Social Accounts Matrices describe the structure and function of a specific economy, so that IMPLAN can create a highly localized model to investigate the consequences of projected economic transactions of a specific geographic region.⁴ IMPLAN does not provide modelling information specifically for the logistics industry. Logistics data (employment, wages, and sales) discussed in this report.

The IMPLAN software can measure current economic impacts, as well as impacts that will occur in the future. The models help analysts understand how a local economy works and, in this case, what economic impact a project or action can have on the local economy. The software can also help predict the effect of economic growth and contraction.

IMPLAN makes certain assumptions about organizations within a region. These assumptions include:

- An organization will purchase its goods locally based on BEA averages, if the goods are available in a sector
 - The amount of locally purchased goods can be edited if the amount is known
- If a region has goods available, there will be enough goods to meet increased demand
- When a region is used, instead of a single area, results may differ due to:
 - Average pay within the area
 - Average output per employee
 - Trade flow differences between areas
- The model is a snapshot of organizational activities, it cannot predict trends
 - Events can take place in different years
 - Deflators are used to put the events occurring in future or past years in current dollars
- IMPLAN uses its own industry sector codes
 - Some sector codes have been added and combined for the 2008 data
- All employees will come from the region being analyzed

⁴ Minnesota IMPLAN Group, Inc.

The IMPLAN software generates the model or multipliers that analysts use to report the total impact an industry, project, or one-time event may have on the local economy. All businesses and events have “direct,” “indirect,” and “induced” impacts on the local economy. IMPLAN modeling software uses Bureau of Economic Analysis (BEA) statistics to build multipliers by economic sector and to identify the *direct, indirect, and induced* impact economic actions have on the study area.

- **Direct effects** refer to the actual jobs and income created in the local economy from businesses that can come about by investments and any purchase of goods and services needed for the initial investment (in this case, the construction of the facility). The direct effect is measured by output, the value of production by industry; employment, the number of employees; labor income, the sum of employee compensation and proprietor income; and total value added, the payments made by a company to workers, interest, profits and indirect business taxes .
- **Indirect effects** are measured by output, which are the goods and services used in the operation of the company in the direct effect; employment, the number of employees needed to produce the goods or services being purchased by the company making the initial investment; labor income, the sum of employee compensation and proprietor income; and total value added, the payments made by a company to workers, interest, profits and indirect business taxes.
- **Induced effects** are changes or impacts generated in the local economy by the increased sales of goods and services in the local economy from spending by employees (households) due to the changes in direct and indirect production.

The total impact on the local economy by each industrial sector can be calculated through an economic model known as a “multiplier.” The multiplier expresses the number of additional jobs or amount of additional income created by each new job or each dollar earned. For example, every dollar spent on building materials or services necessary to construct a new facility in the Dayton region will generate additional dollars in other sectors of the local economy. Another way of expressing these impacts is that every dollar the construction manager uses to purchase building materials for the job site from a local supplier generates income for the local proprietor. The local proprietor saves or invests some of the revenue and purchases additional goods or services from another local vendor with the remainder of the funds, which becomes income for a third establishment and this activity continues to ripple through the local economy.

Another way to look at multipliers is the impact economic activities have on the workforce. For example, if a logistics or transportation facility in the Dayton region brings 100 new support personnel to the local economy, which creates an additional 30 local jobs in other local businesses to support these logistics and transportation activities, the multiplier would be 1.3. For each new job generated in the local economy, an additional 0.3 jobs ($1 + 0.3 = 1.3$) would be created in existing industries in the local economy.

Appendix B: Distribution Facilities Classified by Other NAICS Codes

Company	Employees
P&G	1,300
Caterpillar Logistics	700
Payless Shoesource (Collective Brands)	700
Heidelberg	330
Crown Packaging	275
I-Supply	120
White Castle Distribution	120
Power Logistics (Hormel)	110
Wolverine Worldwide	110