

Economic Impact Analysis

The economic impact analysis is based on the economies of the Trumbull and Mahoning Counties. These counties are analyzed in IMPLAN's Multi-Region Input-Output (MIRO) tool. This economic impact analysis reports on this two-county region only and does not consider impacts to the larger economy of eastern Ohio.

The Multiplier Effect

Economic impact analysis is driven by what is known as the multiplier effect. As money spent on goods, services and labor circulates through the regional economy, beginning with the money spent on direct labor to produce goods and services in the local economies of Lordstown or Jackson and moving from an individual business to others in the region, the economic benefits are shared and expanded. Each initial dollar is magnified as income is generated throughout the regional economy.

Since no local economy produces every good or service needed to conduct business, a "leakage" effect occurs as money leaves the local economy. The leakage effect counters the multiplier effect because only that portion of the money spent on goods or services that are produced locally can be recirculated to benefit the local economy. When there are leakages in local production, the multiplier effect is reduced, which will reduce the benefits to the local economy. IMPLAN uses imbedded multipliers determined specifically for the MRIO region to estimate the indirect and induced effects on output, employees, and employment income.

Economic Impact Modeling Terminology

- **Direct impacts** are those that result from the direct infusion of money in the economy as the result of an economic event, which is the initial expenditure on an activity. These impacts consist of permanent jobs, wages, and the output of economic events.
- **Indirect impacts** are the jobs, wages, and output created by businesses, which provide goods and services essential to the initial economic stimulus. Supporting industries such as finance, construction, real estate services, maintenance, products, and supplies, each contribute to additional rounds of spending. Indirect impacts represent a cumulative total of several cycles of spending that work their way through the local economic supply chain until all remaining money from the initial stimulus leaks from the study area economy. For example, a series of factories making purchases from local suppliers of finished goods for assembly, would be an example of a portion of indirect impacts as defined in this analysis.
- **Induced impacts** are those impacts that result from household spending by those impacted by the direct and indirect phases of economic activities. The spending of wages earned by employees working for industries impacted by economic events represents the largest portion of induced impacts. This spending creates induced employment, especially in the service sectors.
- **Labor Income** consists of two parts. The first, Employee Compensation (EC), is the total payroll cost of wage and salary employees to the employer. EC includes wages and salaries, all benefits (e.g., health, retirement) and payroll taxes (both sides of social security, unemployment insurance taxes, etc.). It is also referred to as fully-loaded payroll.

The second piece of Labor Income is Proprietor Income (PI). PI consists of payments received by self-employed individuals and unincorporated business owners. More specifically, it represents the current-production income of sole proprietorships, partnerships, and tax-exempt cooperatives. PI

excludes dividends, monetary interest received by non-financial business, and rental income received by persons not primarily engaged in the real estate business.

- **Value Added** represents the difference between Output and the cost of intermediate inputs throughout a defined economy during a specified period of time. It equals gross Output (sales or receipts and other operating income, plus inventory change) minus intermediate inputs (consumption of goods and services purchased from other industries or imported). Value Added is equivalent to an industry's contribution to Gross Domestic Product. Value Added is a large portion of Output, as it encompasses Labor Income (LI), PI, EC, Other Property Income (OPI), and Taxes on Production and Imports (TOPI).
- **Output** represents the value of industry production. For manufacturers this would be sales plus or minus changes in inventory. For service sectors, output equals sales. For retail and wholesale trade, output equals gross margin (or marginal revenue) and not gross sales (total revenue), which includes the value of the goods sold.

For industries that do not hold inventory, output equals revenues (sales). For industries that do hold inventory, output equals revenues plus any net change in inventory (additions to inventory less sales out of inventory); for these industries, it is possible for a year's sales to exceed that year's value of production, if some of those sales came out of inventory (a previous year's production). In economic analysis models, what matters is the value of production that occurred in a year, since production is what drives the purchases of inputs. Sales of items that have been sitting in inventory do not generate indirect and induced impacts this year since they were produced in a previous year; thus, they are not counted as part of this year's output, to do so would overstate the indirect and induced impacts.

Economic Events

IMPLAN builds the economic analysis of direct, induced, and indirect impacts from user-defined economic events, which are the initial direct inputs of employment, labor expenditures, and/or output (such as sales). Economic events represent exogenous investment in the regional economy, either money from outside the region or investment of savings and/or capital.

The following economic events are inputs to the IMPLAN model for LIVE:

- One-time construction of public and private facilities.
- Employment, the number of permanent, full-time jobs generated by new industries in the region.

Economic Impacts

Two components of economic impacts are analyzed: the direct, indirect, and induced impacts from the one-time construction of private warehouse or manufacturing space, and the ongoing industrial activity in the region. The construction of new industrial space on available industrial-zoned parcels within the Phase 1 influence area of the LIVE project, is projected to be approximately 6.5 million square feet in Trumbull County and 2.4 million square feet in Mahoning County. Assuming a construction cost of \$150 per square foot, the direct, indirect, and induced impacts of the \$1.34 billion investment in new industrial facilities is summarized in **Table 1**.

Table 1 –Economic Impacts of One-time Construction of Industrial Facilities

Impact	Employment	Labor Income	Value Added	Output
Direct	11,135	676,990,191	688,540,177	1,340,000,000
Indirect	1,643	98,480,447	158,611,859	318,381,049
Induced	3,539	149,086,681	272,511,151	484,249,437
Total Impact	16,317	924,557,319	1,119,663,187	2,142,630,485

For the long-term annual impacts from the operation of the new Phase 1 LIVE industrial development, it is projected that new employment would be generated in the two counties in the following industries:

Table 2 –New LIVE Zone Employment

Industry	Trumbull County	Mahoning County	Total
Warehousing and Storage	2,430	620	3,050
Miscellaneous Manufacturing	1,720	1,550	3,270
Motor Vehicle Parts Manufacturing	300	0	300
Total	4,450	2,170	6,620

The economic direct, indirect, and induced impacts of this new employment is summarized in **Table 3**.

Table 3 –Economic Impacts of Ongoing (Annual) Impacts

Impact	Employment	Labor Income	Value Added	Output
Direct	6,620	480,338,045	551,594,920	2,302,694,927
Indirect	4,603	216,270,363	352,100,605	757,393,292
Induced	3,118	131,797,944	240,335,709	427,205,535
Total Impact	14,340	828,406,353	1,144,031,233	3,487,293,755

IMPLAN provides a list of every industry in the two-county region that will be effected by the economic event. The top-five industry sectors that will benefit from the ongoing economic events defined for LIVE are given in the tables below. Low impacts in the indirect and induced effects indicate that a leakage exists in that industry—services and supplies will need to come from outside the Trumbull and Mahoning Counties to support the projected direct employment.

Table 4 -- Top-Five Employment Industries

Industry	Direct Employment	Indirect Employment	Induced Employment	Total Employment
422 - Warehousing and storage	3,050	216	11	1,877
391 - Miscellaneous manufacturing	3,270	1	0	3,271
352 – Motor Vehicle Parts Manufacturing	300	1	0	301
447 - Other real estate	0	723	85	808
472 – Employment Services	0	269	51	320
Total	6,620	1,356	150	8,126

Table 5 -- Top-Five Output Industries

Industry	Direct Output	Indirect Output	Induced Output	Total Output
391 - Miscellaneous manufacturing	\$1,430,113,098	\$143,633	\$1,072	\$1,430,257,803
422 - Warehousing and storage	\$727,647,492	\$26,489,102	\$1,095,883	\$755,232,476
447 - Other real estate	\$0	\$135,661,515	\$15,525,858	\$151,187,374
352 - Motor vehicle parts manufacturing	\$144,934,338	\$262,833	\$5,305	\$145,202,475
396 - Durable goods merchant wholesalers	\$0	\$63,409,221	\$2,358,829	\$65,768,050
Total	\$2,302,694,927	\$225,966,304	\$18,986,947	\$2,547,648,179

