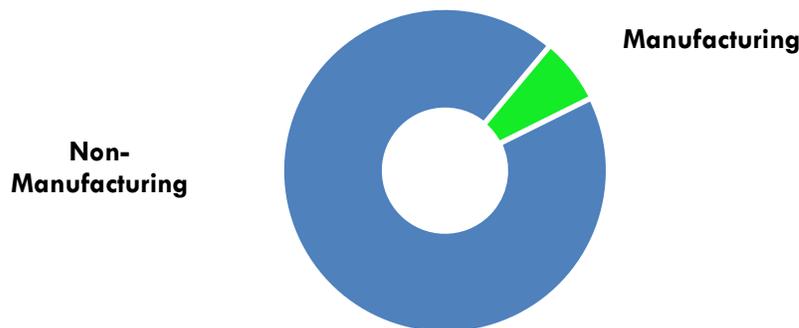


As West Virginia's economy continues to transform, it is important to consider which industries provide the greatest benefit to the overall economy.

Manufacturing currently employs about 46,600 workers and comprises 6.5 percent of West Virginia's employment. Average annual earnings in the manufacturing industry in the state are \$74,000, which includes base salary and supplements. These earnings are significantly higher than average for all industries at \$52,000. Jobs in manufacturing have been slowly declining in the state at rate of 5 percent since 2012. Only four industries experienced growth in employment (administrative, health care, transportation, and agriculture), in the same timeframe. Meanwhile the mining industry faced a 41 percent decline in employment from 2012 to 2017.

Manufacturing Employment in West Virginia, 2017



Source: Economic Modeling Specialist International (EMSI) 2017.4

Policy makers need to maximize the return on any investment in economic development, especially tax incentives. When a manufacturing firm is recruited or expanded, jobs are generated in other sectors to support the new company, tax revenue is increased, and economic growth is stimulated through the increase in wages paid to employees. Economists call this return on investment the multiplier effect.

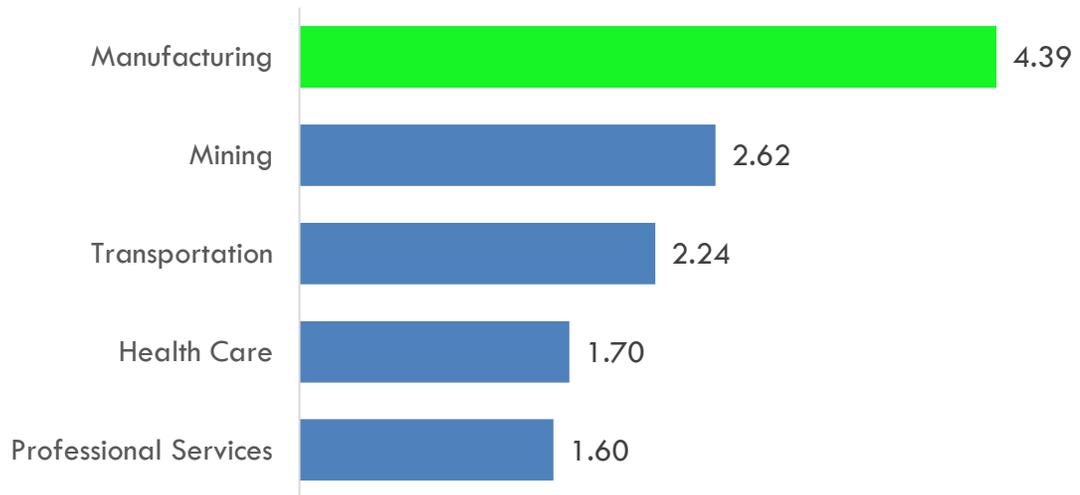
The four types of multiplying effects are:

1. *Initial* – this represents the jobs, sales, and earnings directly related to a project's construction or operations.
2. *Direct* – these impacts are the first round of impacts to the industry's supply chain due to new input purchases required by a project.
3. *Indirect* – these impacts reflect the second round of activity when the supply chains stimulate sales within their supply chains.
4. *Induced* – these impacts are the result of increased earnings and therefore further spending throughout the economy.

An input-output model takes assumptions on supply chain spending between sectors of the economy and calculates the multiplier effect as a result of changes to an industry. The Economic Modeling Specialists International (EMSI) input-output model estimates that the multiplier effect for

the manufacturing industry in West Virginia is 4.39. This is a unit-less ratio that indicates that for every 1 job created in the manufacturing industry another 3.39 jobs are created throughout the economy, for a total of 4.39 new jobs. The chart below demonstrates that manufacturing has one of the highest jobs multipliers in the state.

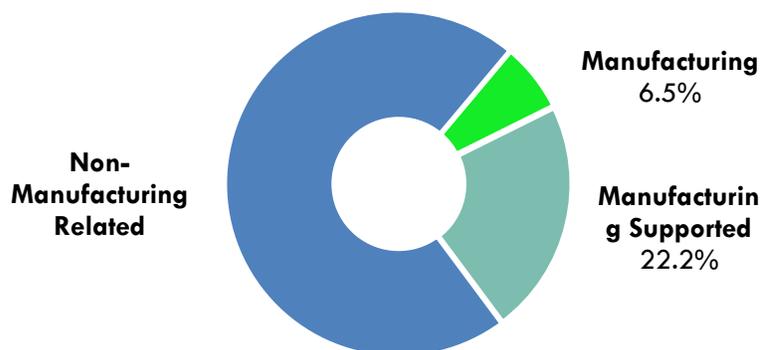
Job Multiplier Effect of West Virginian Industries



Source: EMSI 2017.4

When accounting for this multiplying effect on the economy, the total impact of the manufacturing industry on the total economy is much stronger. In West Virginia, the employment that is indirectly supported by manufacturing jobs represents 22.2 percent of total employment.

Manufacturing Impact on Employment in West Virginia, 2017



Source: EMSI 2017.4

Another approach to assess economic impact is to use input-output software to determine the economic impacts of a hypothetical scenario. For this report, a manufacturing firm with 100 employees is assumed to be recruited to West Virginia. Based on average sales per worker and earnings per worker ratios, the expected earnings and wages anticipated under this scenario would be \$7.0 million in earnings and \$50.8 million in sales. This manufacturing firm would create an additional 340 jobs and \$19.3 million in sales in the state economy.

Economic Impact of 100-Employee Manufacturing Firm in West Virginia

Prepared by: Economic Leadership LLC, January 2018

| Impact Type | Jobs | Earnings | Sales |
|-------------------------------|------------|---------------------|---------------------|
| Initial | 100 | \$6,970,000 | \$50,790,000 |
| Indirect & Induced | 340 | \$8,290,000 | \$19,300,000 |
| Total | 440 | \$15,260,000 | \$70,090,000 |

Source: EL calculations based on EMSI 2017.4

Anticipated annual tax impacts were also calculated for this scenario. These tax impacts represent taxes on productions and imports which includes non-personal property taxes, licenses, sales/gross receipts taxes, and federal excise taxes. At the state level, a 100-employee industrial equipment manufacturing firm could generate about \$571,000 annually in tax revenue.

Modeled Annual Tax Impact of 100 Employee Manufacturing Firm

| Local | State | Federal |
|-----------|-----------|-----------|
| \$691,000 | \$571,000 | \$288,000 |

Source: EL calculations based on EMSI 2017.4

Note: Tax impacts were modeled on a 100-employee industrial equipment manufacturing firm and \$50.8 million in annual sales.