

# The Economic Impact of the Steel Industry in Pennsylvania

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## Executive Summary

The Pennsylvania Steel Alliance includes steel companies, labor unions and key stakeholders, working together to educate the public and elected officials about the positive impacts of the steel industry and the policy issues affecting the industry. The Pennsylvania Steel Alliance is cochaired by the United Steelworkers and United States Steel Corporation and works with labor organizations, steel companies, and organizations that are stakeholders in the Pennsylvania steel industry. These groups work together on policies and initiatives that support the steel industry in Pennsylvania, protect steel jobs and promote greater economic prosperity in Pennsylvania. The organization asked the Allegheny Conference on Community Development (ACCD) to perform an economic impact study of the steel industry in Pennsylvania. This study looks at the relevant industries' annual impact on the Commonwealth's economy, using 2021 as a baseline year unless otherwise stated.

### Measuring the current economic impact of the steel industry

Pennsylvania's economy benefits from the direct employment, compensation, and output of the steel industry, as well as from the impacts of the industry's supply chain. This analysis will separately consider and cover the Primary Metal Manufacturing industry (primary steel) and the Fabricated Metal Product Manufacturing industry (secondary steel) as both are critical to the overall steel industry. The Primary Metal Manufacturing industry creates metal alloys, castings and basic metal products whereas the Fabricated Metal Product Manufacturing industry uses those materials from the Primary Metal Manufacturing industry to make intermediate or end products. The current jobs within the industry, and many more in the broader economy, would not exist without the activity of the steel industry. Similarly, the wages paid to industry employees have an effect on the broader economy, as employees use their compensation to buy goods and services. In this report, the ACCD measures the direct, indirect, and induced employment created by the steel industry as well as the economic output stimulated.

### The primary steel industry supports more than 120,000 jobs in Pennsylvania

Pennsylvania's primary steel industry is a vital contributor to the state's economy, with direct, indirect, and induced impacts responsible for:

- **Approximately 123,761 full-time and part-time jobs**, about 30,978 of these directly in the primary metal industry. For each direct primary metal manufacturing job, an additional 3.00 jobs are generated throughout the state, for a total employment multiplier of 4.00.
- **Approximately \$55.3 billion in economic output is created in Pennsylvania**, \$33.1 billion of this directly by the primary metal manufacturing industry.

## The secondary steel industry supports more than 170,000 jobs in Pennsylvania

Pennsylvania's secondary steel industry is a vital contributor to the state's economy, with direct, indirect, and induced impacts responsible for:

- **Approximately 176,538 full-time and part-time jobs**, about 76,871 of these directly in the fabricated structural metal manufacturing industry. For each direct fabricated structural metal manufacturing job, an additional 1.30 jobs are generated throughout the state, for a total employment multiplier of 2.30.
- **Approximately \$47.4 billion in economic output is created in Pennsylvania**, \$26.3 billion of this directly by the fabricated structural metal manufacturing industry.

The economic value and benefits of steel production are not limited to a single region in the state but rather distributed among many counties. More than half of the counties in Pennsylvania have business establishments related to the production and fabrication of steel product. Section 1.2 further elaborates this point as well as other significant history for the industry in Pennsylvania.

The industry makes substantial capital investments that increase the economic impact of steel in the state by utilizing advanced machinery that costs millions of dollars to purchase, operate, and maintain while also investing in a multitude of other goods and services.

# 1. Introduction

## 1.1. Origins of this report

The Pennsylvania Steel Alliance is a partnership of Pennsylvania's steel companies and labor unions united to educate the public and elected officials about the positive impacts of the steel industry and the policy issues affecting the industry's growth. Pennsylvania Steel Alliance members include labor organizations and steel companies across the state, as well as organizations that support the steel industry. These members work together to support policies and initiatives: to grow the steel industry in Pennsylvania and create new jobs and greater economic prosperity in Pennsylvania. The Pennsylvania Steel Alliance asked the Allegheny Conference on Community Development (ACCD) to perform a study of the economic impact of the steel industry in Pennsylvania. This study looks at the relevant industries' impacts on the Commonwealth's economy, using 2021 as a baseline year unless otherwise stated.

The previous reports were authored by the Pennsylvania Economy League of Greater Pittsburgh, LLC (PELGP), a regional branch of Pennsylvania Economy League (PEL) which was founded in 1936 by business and civic leaders seeking to improve the quality of government and promote economic development in Pennsylvania. PELGP is the public policy research affiliate of the Allegheny Conference on Community Development. PELGP provides research and analysis on critical issues for the region's competitiveness to support improvements for living and doing business in the region. With a rich history of civic and community involvement and emphasis on comparative research and policy analysis, the organization holds a statewide reputation for objectivity, integrity, and consensus-building.

## 1.2 The Steel Industry's rich history in Pennsylvania

Steel has a long history in Pennsylvania, dating back to the mid-18th century. It powered the American Industrial Revolution and helped Pennsylvania's industrial centers to flourish. This historic strength and experience as well as Pennsylvania's prolific natural resources enabled the state to lead in the production of iron ore and steel.

Saucona Iron Company was launched in 1857 by Augustus Wolle in Bethlehem, PA and would eventually become Bethlehem Steel. Bethlehem Steel played a significant role in the construction of many of the United States' largest and most recognizable structures such as the Empire State building and the Golden Gate Bridge as well as warships and military weapons in World War I and World War II. Across the state in 1875, Andrew Carnegie opened his first steel mill in Braddock and by 1901, U.S. Steel was the largest company in the world and Pittsburgh was the nation's steel manufacturing hub. By 1911, Pittsburgh was producing half the nation's steel. The region earned the nickname "Arsenal of Democracy," during World War II as the city led the way in producing munitions for the Allied war effort while its mills produced nearly 100 million tons of steel. However, by the early 1980s, increased global competition and lack of investment led to a collapse of the steel industry. Despite this shift, Pennsylvania remains a dominant player in the steel industry for the nation. Per the latest data from Lightcast, Pennsylvania ranks third in employment and second in GRP in Primary Metal Manufacturing and fifth in employment and fifth in GRP in Fabricated Metal Product Manufacturing industries.

Pennsylvania steel has many uses, from buildings, tools, vehicles, appliances, and weapons and is widely exported to other states and countries. The fabrication, transportation, and use of steel in Pennsylvania create economic activity that contributes to the state’s economic vitality which is explored in this report.

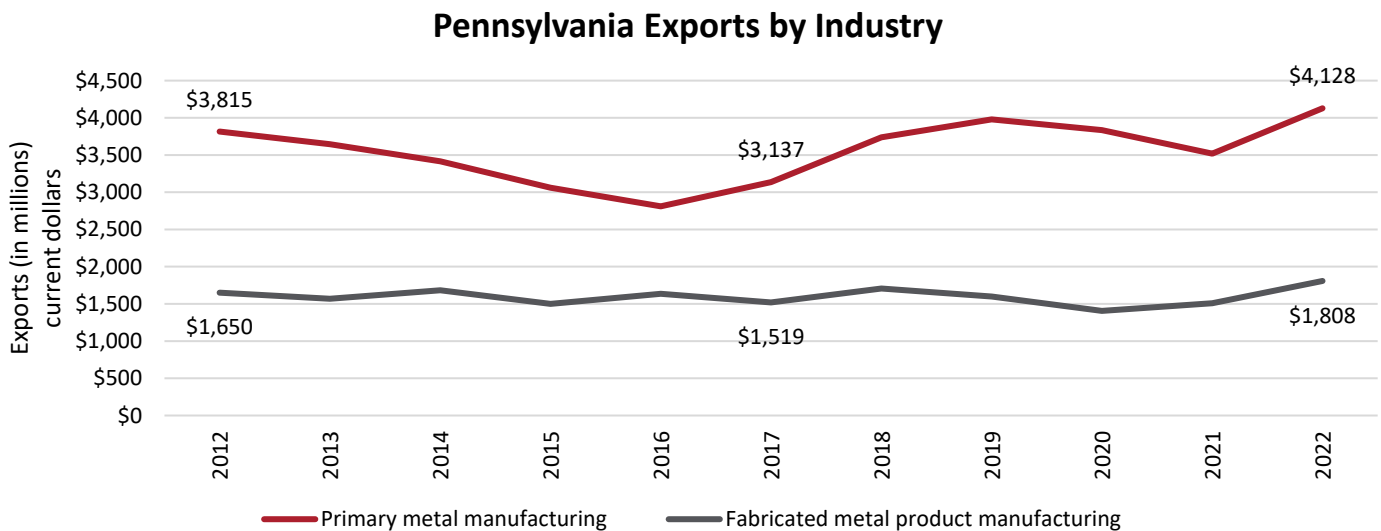
### Steel is a vital economic resource

In 2022, the United States exported \$88.6 billion in Primary Metal and Pennsylvania ranks fifth among the states for volume of such exports, exporting \$4.1 billion of product which accounts for 4.7% of the US total. Within the state, Primary metal was the fourth largest sector in accounting for 8.3% of Pennsylvania exports. For Fabricated Metal Products, Pennsylvania ranks seventh nationally in terms of exports at 3.4%.

2022 Exports by Sector (in millions)					
	Pennsylvania	% of PA	% of US	United States	% of US
<b>Total</b>	\$49,478			\$20,062,937	
<b>NAICS 331 - Primary metal manufacturing</b>	\$4,128	8.3%	4.7%	\$88,597	0.4%
<b>NAICS 332 - Fabricated metal product manufacturing</b>	\$1,808	3.7%	3.4%	\$52,918	0.3%

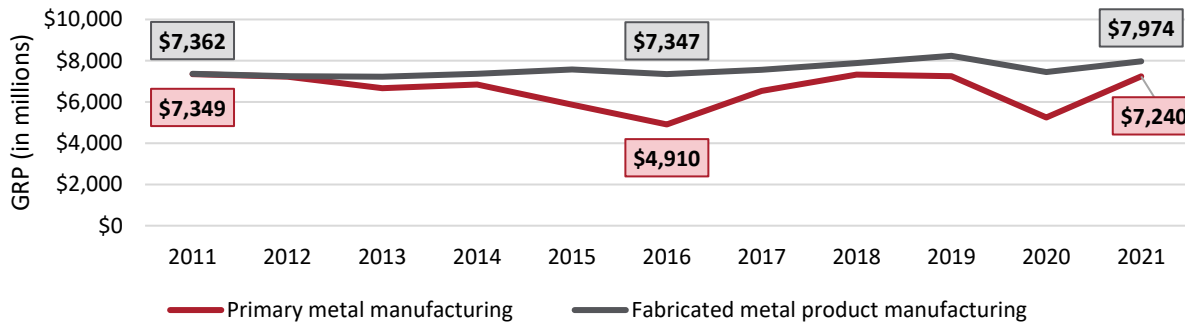
Source: International Trade Administration

In Pennsylvania, Primary Metal Manufacturing and Fabricated Metal Product Manufacturing exports have grown in the long term and short term, as seen in the following graph. In 2022, Primary Metal Exports grew 17.3% and Fabricated Metal Product Exports grew 19.9% over 2021. This represents the highest export value in the past decade as well as recovery from the COVID-19 pandemic.



Similarly, GRP for each of the industries has grown in the short and medium term increasing 37.9% and 7.0% respectively year-over-year from 2020. As a measure of productivity, in 2021, the GRP per employee in the primary metal manufacturing industry was \$233,721, an increase of 42.5% over the year prior.

### Pennsylvania Gross Regional Product by Industry



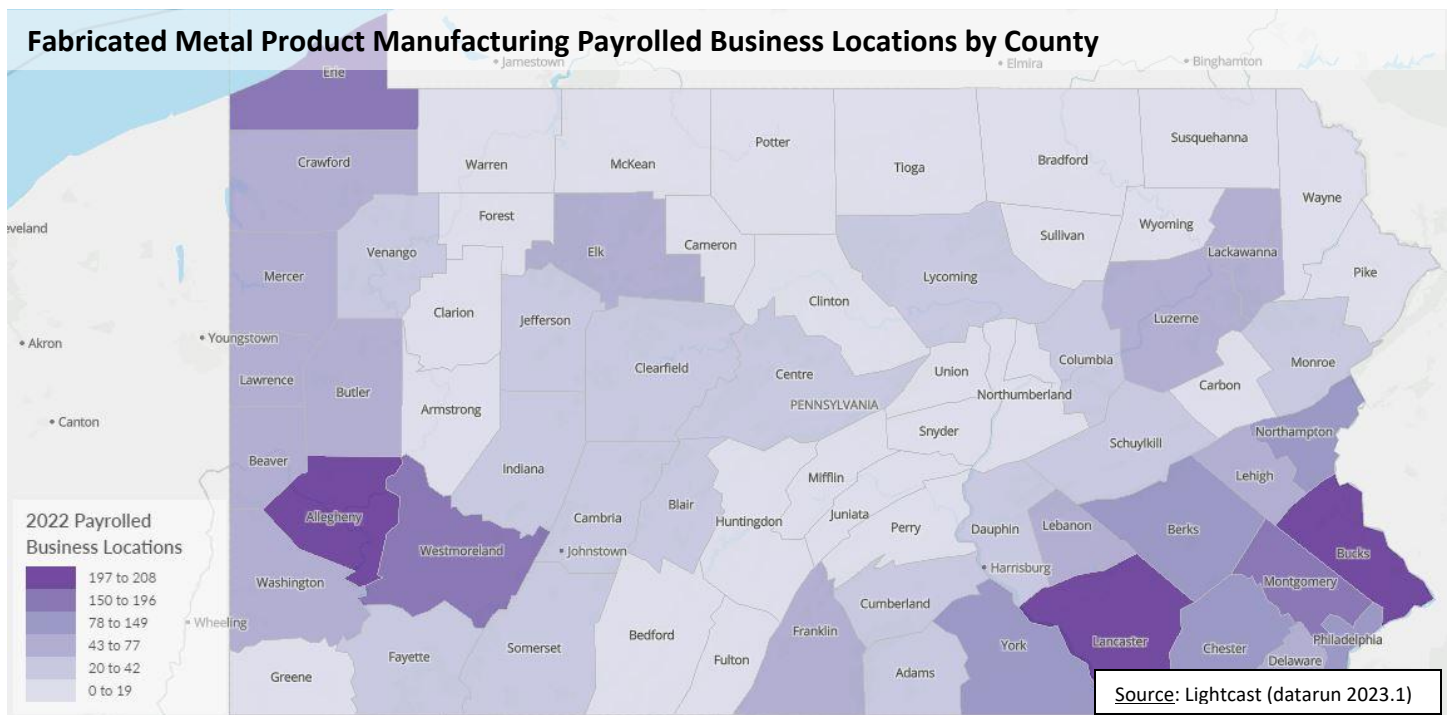
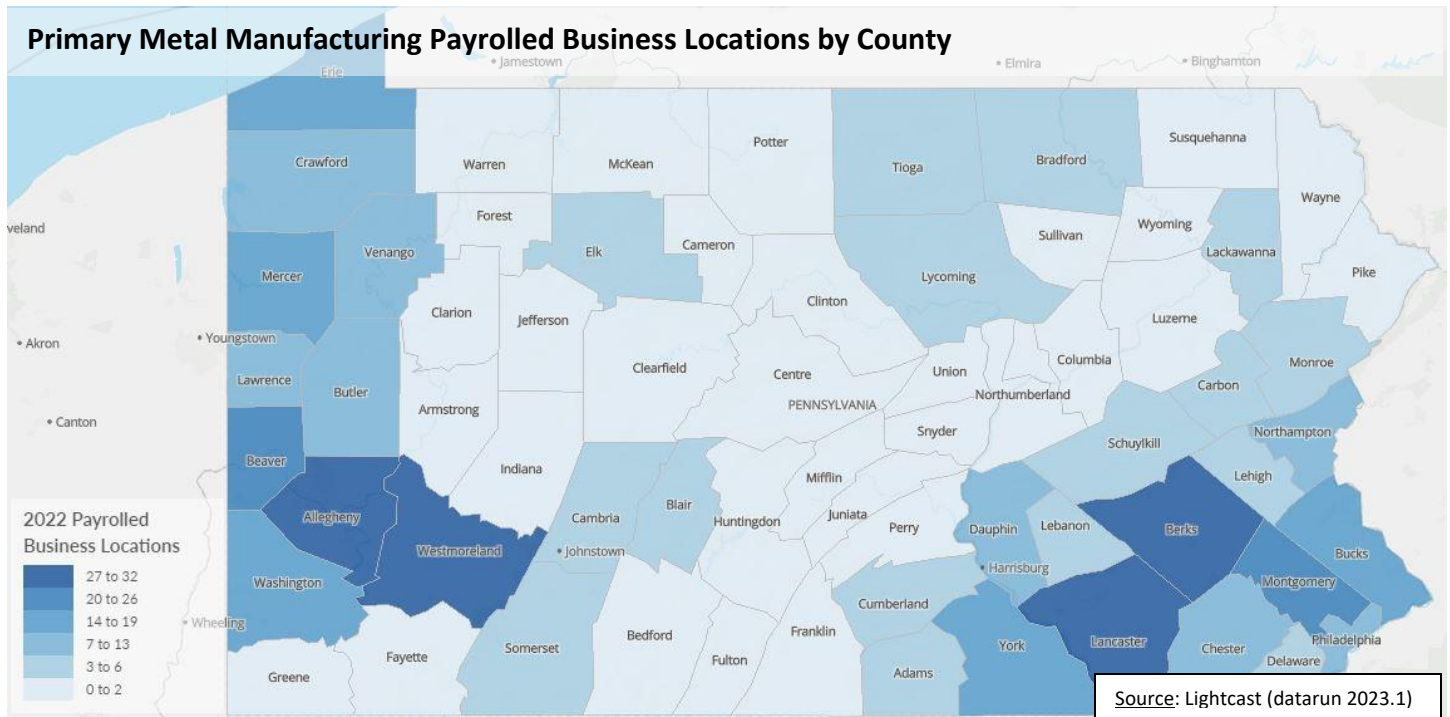
Average wages in industries related to steel in Pennsylvania are higher than average Pennsylvania private sector wages. Average wages have increased in the past five years.

Pennsylvania Average Annual Pay in by Industry compared to Pennsylvania private sector								
		2016	2017	2018	2019	2020	2021	5-Year Change
<b>Total, all Pennsylvania private sector</b>		\$52,105	\$53,673	\$55,294	\$57,226	\$61,950	\$64,742	24.3%
Primary metal manufacturing (NAICS 331)	Average Annual Pay (\$)	\$65,416	\$69,435	\$73,535	\$73,148	\$72,073	\$79,891	22.1%
	% of Pennsylvania Private Average Annual Pay	125.5%	129.4%	133.0%	127.8%	116.3%	123.4%	
Fabricated metal product manufacturing (NAICS 332)	Average Annual Pay (\$)	\$53,906	\$55,330	\$56,866	\$57,560	\$59,431	\$62,212	15.4%
	% of Pennsylvania Private Average Annual Pay	103.5%	103.1%	102.8%	100.6%	95.9%	96.1%	

Source: Bureau of Labor Statistics, Quarterly Census of Employment and Wages



As seen in the following maps, payrolled business locations for primary steel and secondary steel are distributed across the state. As of 2021, 7% of the nation’s primary metal manufacturing establishments and approximately 9% of the nation’s primary metal manufacturing workforce is in Pennsylvania, as well as 5% of the nation’s fabricated metal product manufacturing establishments and 6% of the nation’s fabricated metal product manufacturing workforce. This industry is punching above its weight in terms of productivity for the state of Pennsylvania, which points to the industry’s significance within the state itself as well as its role on the national and international stage.



## 2. Measuring the economic impact of Pennsylvania's Steel Industry

The economic impact of the steel industry in Pennsylvania is not limited to the employment and compensation within the industry itself. Through its supply chain, the steel industry creates jobs in related industries. These jobs would not exist without the activity of the steel industry. Similarly, the wages paid to employees have an effect on the broader economy as employees use their compensation to buy goods and services for their personal use.

To estimate the overall economic impact of the steel industry in Pennsylvania, ACCD used an input-output model for the state. There are several input-output models commonly used by economists to estimate multiplier effects. Because of the complexity of measuring multiplier effects, all of the models have limitations. Still, economists generally agree that the models can provide a reasonable approximation of the indirect and induced spending, and total jobs generated by a given amount of direct spending in a particular geographic area. ACCD employed the IMPLAN input-output model in developing the impact estimates of the construction of the steel industry on the Pennsylvania economy.

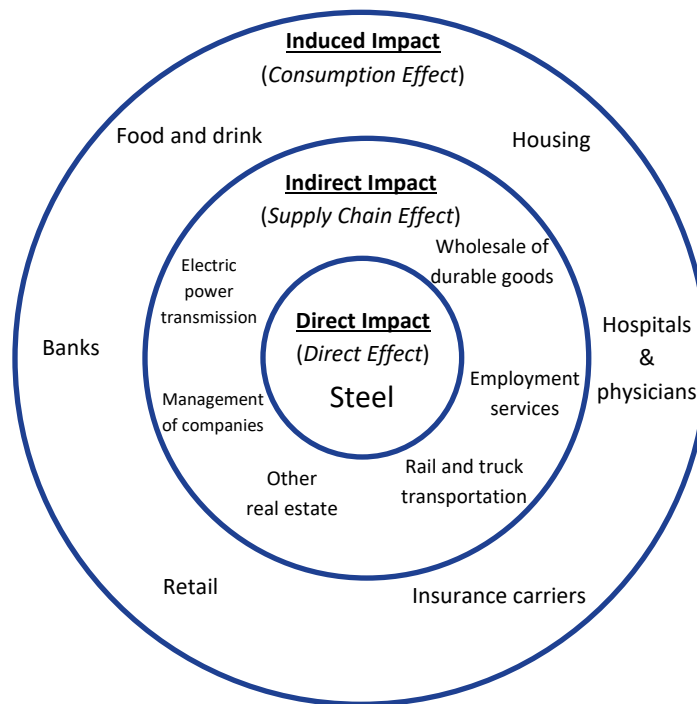
The IMPLAN model organizes the economy into 546 separate industries and has comprehensive data on every area of the United States. IMPLAN was originally created in 1978 by the United States Forest Service (USFS) to assist in developing 5-year management plans. In 1985, the responsibility for developing IMPLAN data sets shifted to the University of Minnesota. As demand grew for regional models by non-USFS organizations, IMPLAN (then Minnesota IMPLAN Group (MIG, Inc.)) was established in 1993 as an independent corporation for the purpose of developing and selling all future iterations of the IMPLAN database and software. Based in Hendersonville, North Carolina, since 2013, IMPLAN's tools are used by more than 1,000 public and private institutions.

### 2.1. Direct, indirect and induced economic impact

The economic impact of the steel industry on the Pennsylvania economy is not limited to the employment and other activity directly related to the steel industry. Through its supply chain, the steel industry creates jobs in related industries, and some of these jobs would not exist without the activity of the steel industry. Similarly, the wages paid to employees working in the steel industry have an effect on the broader economy as employees use their compensation to buy goods and services.

The *Direct Spending* of the steel industry in the Pennsylvania economy is the total the industry spends on payroll, goods (such as equipment) and services (such as engineering contracts). The money spent by the steel industry in its supply chain is spent again by local businesses. Businesses make their own purchases and pay employees – termed *Indirect Spending*. Employees throughout the supply chain use their salaries and wages to purchase goods and services from other businesses for personal consumption – termed *Induced Spending*. A chain reaction of indirect and induced spending continues, with subsequent rounds of additional spending gradually diminished through savings, taxes, and expenditures made outside the state. This economic ripple effect is measured by IMPLAN and other input-output economic models, using a series of multipliers to provide estimates of the number of times each dollar of input, or direct spending, cycles through the economy in terms of indirect and induced output, or additional spending, personal income and employment. Figure 1 presents an illustration of some direct, indirect and induced impacts of the steel industry.

**Figure 1 - The steel industry has an impact on the broader economy through indirect and induced spending**



## 2.2. Methodology

The ACCD modeled the impact of the Pennsylvania steel industry within the state of Pennsylvania. The Pennsylvania steel industry will have economic impacts outside the state and steel industry companies located outside Pennsylvania will have an impact on the Pennsylvania economy, but for purposes of this analysis, these impacts were not considered. Studies done at the national level on the impact of the steel industry on Pennsylvania may not align with these results because of this difference in geographic scope.

To determine the impact of the Iron/Steel Mills and Ferroalloy Manufacturing and Fabricated structural metal manufacturing industries in Pennsylvania, the Pennsylvania Economy League of Greater Pittsburgh obtained private employment figures from the Bureau of Labor Statistics, Quarterly Census of Employment and Wages and calculated an economic impact of the respective industries based on the following assumptions:

1. *Iron and steel mills and ferroalloy manufacturing* impact (aka Steel)
  - 30,978 in employment to the Iron and steel mills and ferroalloy manufacturing IMPLAN industry.
2. *Fabricated structural metal manufacturing* impact (aka Fabricated metal)
  - 76,871 in employment to the Fabricated structural metal manufacturing IMPLAN industry.

The IMPLAN model determines several different impacts that the project (or a specific industry or event) has on the region including employment, output, and the value added to the regional economy in areas such as income and taxes. The model also determines impacts by industry.

The specific impacts are defined as follows:

- **Employment** – Both full and part-time workers
- **Output** – Value of the total production of an industry, event, or company
- **Total Value Added** – The difference between an industry, event, or company’s total output, and the cost of its intermediate inputs (consumption of goods and services purchased from other industries or imported). Value added, which measures the contribution to the Gross Regional Product (GRP), consists of Labor Income, Other Property Type Income, and Indirect Business Taxes
  - **Labor Income** – Combination of Employee Compensation and Proprietors’ Income
    - **Employee Compensation** – Payroll costs for the industry including salaries and benefits
    - **Proprietors’ Income** – Payments received by self-employed individuals as income, including income received by private business owners
  - **Other Property Type Income** – Payments for rents received on properties, royalties from contracts, dividends paid by corporations, and corporate profits earned by corporations
  - **Taxes on Production and Imports** – Taxes on production and imports less subsidies; includes excise taxes, property taxes, fees, licenses, and sales taxes paid by businesses, but excludes employer contributions for social insurance and taxes on income

### 3. The economic impact of the Steel Industry in Pennsylvania

#### 3.1 The economic impact of iron and steel mills and ferroalloy manufacturing

The direct, indirect, and induced impact in employment, output, and value added are based on the 2021 annual private employment in the primary metal manufacturing industry in Pennsylvania according to the Bureau of Labor Statistics – 30,978. This number was the direct input placed into the input-output model for the results shown in this report.

As shown in Table 1, Pennsylvania’s primary steel industry is a vital contributor to the state’s economy, providing support through direct, indirect, and induced impacts:

- **Approximately 123,761 full and part-time jobs**, more than 30,978 of these directly in iron and steel mills and ferroalloy manufacturing. For each direct job, an additional 3.00 jobs are generated throughout Pennsylvania for a total multiplier of 4.00x.
- **\$55.3 billion in total output**, including \$33.1 billion in direct spending.
- **Approximately \$20.0 billion in total value added to the Pennsylvania economy**, \$8.5 billion of this directly created by iron and steel mills and ferroalloy manufacturing. This includes:
  - Approximately \$10.9 billion in labor income (\$10.0 billion in employee compensation and \$876 million in proprietors’ income).
  - Property income contributed about \$8.1 billion.
  - Total taxes on production and imports added over \$1 billion to the economy.

**Table 1 - Summary of Iron and steel mills and ferroalloy manufacturing Industry economic impact in Pennsylvania**

Iron and steel mills and ferroalloy manufacturing Impact					
	Direct	Indirect	Induced	Total	Multiplier <sup>1</sup>
Employment	30,978	51,856	40,927	123,761	4.00
Output	\$33,092.1	\$14,906.5	\$7,321.4	\$55,320.1	1.67
Total Value Added <sup>2</sup>	\$8,522.1	\$7,176.2	\$4,323.6	\$20,021.9	2.35
Labor Income	\$3,814.2	\$4,480.3	\$2,583.6	\$10,878.1	2.85
Employee Compensation	\$3,787.8	\$3,924.5	\$2,289.2	\$10,001.6	2.64
Proprietors Income	\$26.4	\$555.7	\$294.4	\$876.5	33.18
Other Property Type Income	\$4,444.8	\$2,192.6	\$1,456.7	\$8,094.1	1.82
Taxes on Production and Imports	\$263.0	\$503.4	\$283.2	\$1,049.6	3.99

Note: Dollar values are in millions

Assumptions: Model run allocating 30,978 in private employment to the Iron and steel mills and ferroalloy manufacturing IMPLAN industry (215) for the state of Pennsylvania.

<sup>1</sup> Total impact divided by direct impact

<sup>2</sup> Total Value Added represents the industry's contribution to Gross Regional Product

Source: IMPLAN

Compiled by the Allegheny Conference on Community Development, April 2023

### 3.1a Employment: The primary steel industry generates approximately 123,761 full-time and part-time equivalent jobs in Pennsylvania

Among the approximately 123,761 full-time and part-time equivalent jobs that the primary steel industry supports, the industry supports about 30,978 jobs directly. The roughly 92,783 indirect and induced jobs are in industries that supply goods and services to the primary steel industry, as well as in industries across the entire economy as employees of the primary steel industry and its supply chain spend their income on various goods and services.

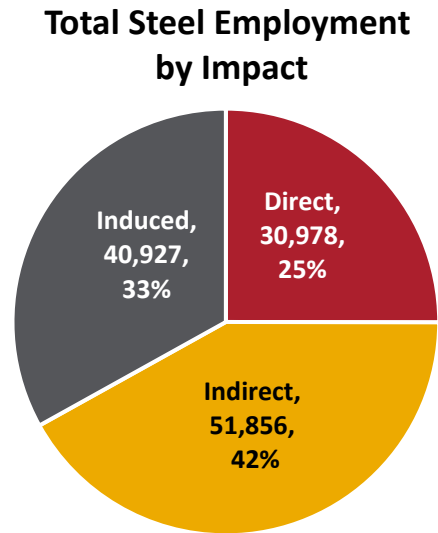


Table 2 shows the industries that are identified in the model as seeing the largest number of jobs supported as a result of the activity of the primary steel industry ranked by total employment. The *Wholesale - Other durable goods merchant wholesalers* industry sees the largest indirect impact with over 9,500 jobs generated as a result of the activity of the primary steel industry in Pennsylvania. The rest of the indirect impact on employment is spread across a large number of industry sectors. The *Hospitals* industry sees the largest induced impact on employment resulting from activities in the primary steel industry and its supply chain, with 2,771 jobs.

**Table 2 - Employment Impact of the Pennsylvania Primary Steel Industry**

Primary Steel Employment Impact				
Industry	Direct	Indirect	Induced	Total
<b>Iron and steel mills and ferroalloy manufacturing</b>	<b>30,978</b>	<b>1,262</b>	<b>1</b>	<b>32,241</b>
Wholesale - Other durable goods merchant wholesalers	0	9,586	135	9,720
Truck transportation	0	5,762	363	6,125
Hospitals	0	0	2,771	2,771
Employment services	0	1,961	796	2,758
Full-service restaurants	0	716	1,643	2,359
Other real estate	0	1,281	1,026	2,308
Couriers and messengers	0	1,652	362	2,015
Limited-service restaurants	0	360	1,576	1,935
Services to buildings	0	1,488	260	1,748
Individual and family services	0	0	1,696	1,696
<i>Other Industries</i>	0	27,787	30,296	58,084
<b>Total All Industries</b>	<b>30,978</b>	<b>51,856</b>	<b>40,927</b>	<b>123,761</b>

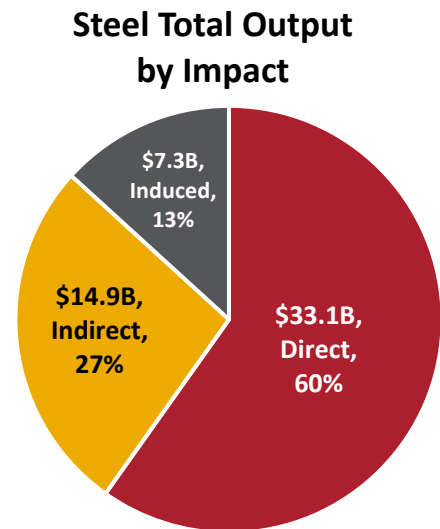
Source: IMPLAN

Compiled by the Allegheny Conference on Community Development, April 2023



### 3.1b Total Output: Primary Steel Production is a \$55.3 Billion Dollar Industry

The total output of a particular industry is the value created by the industry’s employment and activities as well as its intermediate inputs, which are the consumption of good and services purchased from another industry or imported. In all, primary steel is involved in just under \$55.3 billion of Pennsylvania’s overall statewide economy. \$33.1 billion was from primary steel activities directly with top indirect and induced contributing industries of *Wholesale – Other durable goods merchant wholesalers* and *Truck Transportation* accounting for about 7.8% of total output combined.



**Table 3 – Total Output of the Pennsylvania Primary Steel Industry: Top Industries**

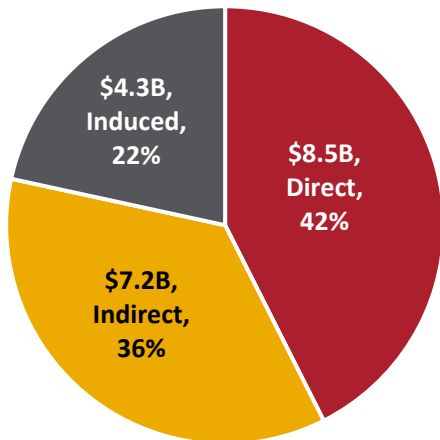
Primary Steel Total Output (in millions)				
Industry	Direct	Indirect	Induced	Total
<b>Iron and steel mills and ferroalloy manufacturing</b>	\$33,092	\$1,348	\$1	\$34,441
Wholesale - Other durable goods merchant wholesalers	\$0	\$3,035	\$43	\$3,077
Truck transportation	\$0	\$1,189	\$75	\$1,264
Owner-occupied dwellings	\$0	\$0	\$771	\$771
Electric power transmission and distribution	\$0	\$602	\$88	\$691
Rail transportation	\$0	\$646	\$7	\$653
Hospitals	\$0	\$0	\$536	\$536
Other real estate	\$0	\$284	\$228	\$512
Management of companies and enterprises	\$0	\$353	\$119	\$473
Insurance carriers, except direct life	\$0	\$113	\$289	\$402
Monetary authorities and depository credit intermediation	\$0	\$189	\$158	\$348
<i>Other Industries</i>	\$0	\$7,146	\$5,007	\$12,153
<b>Total All Industries</b>	\$33,092	\$14,907	\$7,321	\$55,320

Source: IMPLAN

Compiled by the Allegheny Conference on Community Development, April 2023

### 3.1c Total Value Added: The Primary Steel Industry adds \$20 billion to Pennsylvania’s Gross Regional Product

**Primary Steel Total Value Added by Impact**



The total value added by an industry can be understood to be the industry’s contribution to the Pennsylvania economy as part of the Gross Regional Product (GRP), or as the sum value of all of the labor income, profits, rents and indirect business taxes generated in the operation of the industry over a year. The primary steel industry created \$20 billion in total value added – the value of the labor income paid to employees and contractors, the payments to property owners and the indirect state taxes generated in Pennsylvania in 2021. These components are discussed in the following sections. As seen in the graph to the left, 42% of the total value added is attributed directly to the primary steel industry,

which in turn stimulates an additional \$11.5 billion in indirect and induced value added across the broader Pennsylvania economy, including in companies that supply products to the primary steel industry and in companies that supply goods and services to the employees of the primary steel industry and its supply chain. In total, about \$20 billion was added to Pennsylvania’s GRP as a result of primary steel industry activity, the majority of this directly through the primary steel industry. The industries that are identified in the model as seeing the largest total value added as a result of the activity of the Steel Industry can be found in Table 4.

**Table 4 – Total Value-Added Impact of the Pennsylvania Primary Steel Industry: Top Industries**

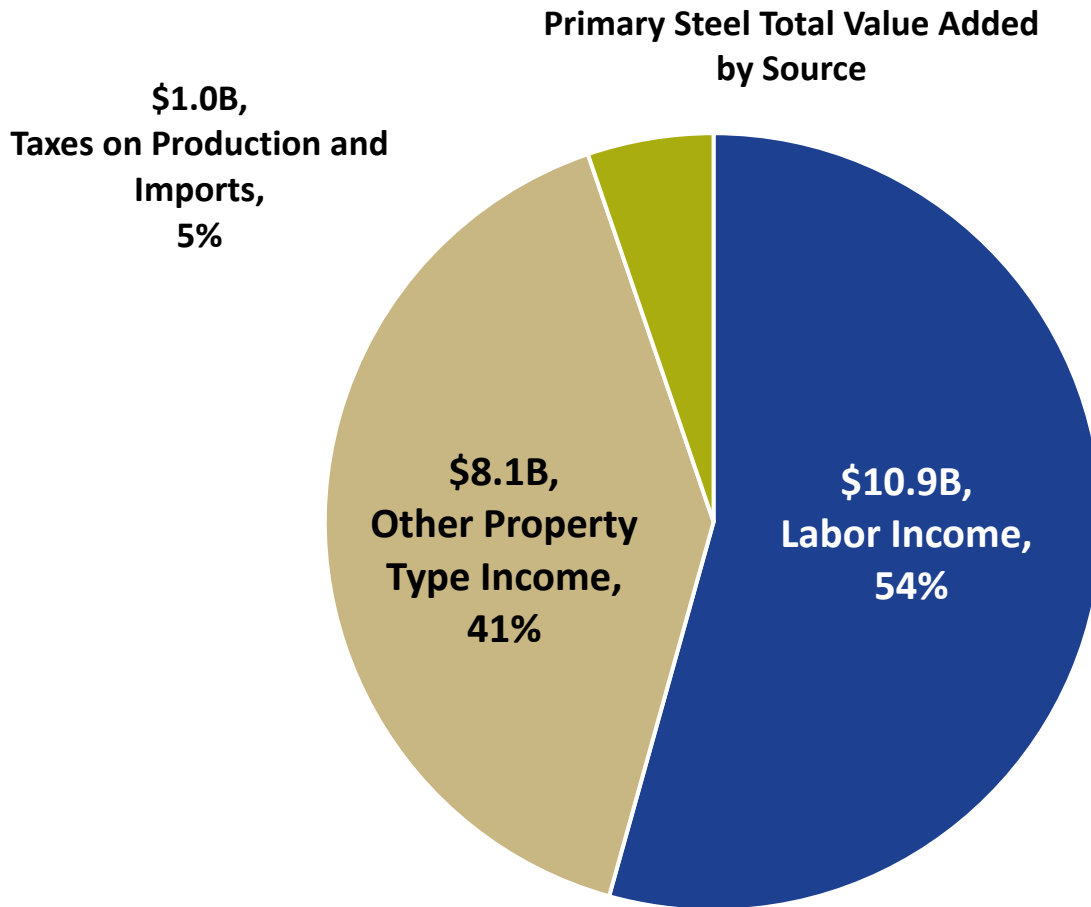
Total Value Added by Industry				
Industry	Direct	Indirect	Induced	Total
<b>Iron and steel mills and ferroalloy manufacturing</b>	\$8,522,091,692	\$347,124,381	\$240,707	\$8,869,456,780
Wholesale - Other durable goods merchant wholesalers	\$0	\$1,560,972,295	\$21,905,855	\$1,582,878,150
Owner-occupied dwellings	\$0	\$0	\$609,309,504	\$609,309,504
Truck transportation	\$0	\$568,509,612	\$35,854,589	\$604,364,201
Management of companies and enterprises	\$0	\$233,096,269	\$78,756,552	\$311,852,821
Electric power transmission and distribution	\$0	\$270,853,696	\$39,758,866	\$310,612,562
Hospitals	\$0	\$0	\$290,308,433	\$290,308,433
Rail transportation	\$0	\$256,180,687	\$2,652,710	\$258,833,397
Monetary authorities and depository credit intermediation	\$0	\$127,354,366	\$106,602,251	\$233,956,617
Other real estate	\$0	\$122,815,834	\$98,396,996	\$221,212,829
Employment services	\$0	\$131,714,345	\$53,490,033	\$185,204,378
<i>Other Industries</i>	\$0	\$3,557,577,826	\$2,986,312,824	\$6,543,890,650
<b>Total All Industries</b>	\$8,522,091,692	\$7,176,199,311	\$4,323,589,321	\$20,021,880,323

Source: IMPLAN

Compiled by the Allegheny Conference on Community Development, April 2023



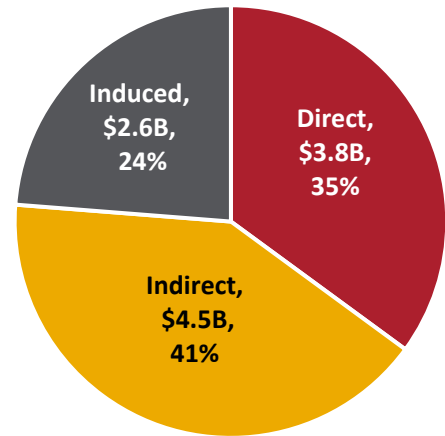
The following sections will discuss the three sources of Value Added: Labor Income, Other Property Type Income, and Taxes on Production and Imports.



### 3.1c - Total Value Added: Labor Income

Labor income makes up over half of the primary steel industry’s total value added to the Pennsylvania economy. Labor income is comprised of employee compensation and proprietor income. Employee compensation comprises the vast majority of the labor income in the primary steel industry. Of the \$10.9 billion in labor income that can be attributed to the activity of the primary steel industry and its ripple effects in the economy, approximately 35% is paid directly into the primary steel industry. The indirect and induced labor income of approximately \$7.1 billion is attributed to the supply chain through primary steel industry purchases and in the broader economy through employee spending. The industries that are identified in the model as seeing the largest amount of labor income as a result of the activity of the primary steel industry can be found in Table 5. The *Wholesale - Other durable goods merchant wholesalers* and *Truck transportation* are the two industries that saw the largest indirect impact because of their place in the supply chain for the primary steel industry. The largest induced impact on labor income is seen in the medical field, specifically in *Hospitals* and *Offices of Physicians*, accounting for 17.1% of the induced impact combined.

**Primary Steel Labor Income by Impact**



**Table 5 – Labor Income impact of the Pennsylvania Primary Steel Industry**

Primary Steel Labor Income Impact				
Industry	Direct	Indirect	Induced	Total
<b>Iron and steel mills and ferroalloy manufacturing</b>	<b>\$3,814,233,446</b>	<b>\$155,362,495</b>	<b>\$107,733</b>	<b>\$3,969,703,674</b>
Wholesale - Other durable goods merchant wholesalers	\$0	\$851,263,217	\$11,946,175	\$863,209,393
Truck transportation	\$0	\$498,131,930	\$31,416,031	\$529,547,961
Management of companies and enterprises	\$0	\$200,273,494	\$67,666,677	\$267,940,170
Hospitals	\$0	\$0	\$254,923,892	\$254,923,892
Rail transportation	\$0	\$204,479,387	\$2,117,352	\$206,596,738
Offices of physicians	\$0	\$0	\$186,772,647	\$186,772,647
Employment services	\$0	\$105,465,928	\$42,830,384	\$148,296,313
Radio and television broadcasting	\$0	\$73,497,106	\$45,210,449	\$118,707,555
Monetary authorities and depository credit intermediation	\$0	\$63,403,518	\$53,072,054	\$116,475,571
Wholesale - Wholesale electronic markets and agents and brokers	\$0	\$100,148,708	\$14,765,260	\$114,913,968
<i>Other Industries</i>	\$0	\$2,228,235,105	\$1,872,783,719	\$4,101,018,824
<b>Total All Industries</b>	<b>\$3,814,233,446</b>	<b>\$4,480,260,887</b>	<b>\$2,583,612,374</b>	<b>\$10,878,106,708</b>

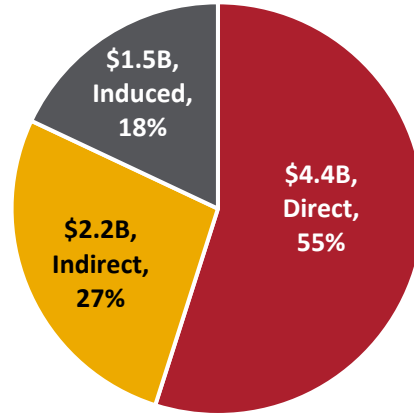
Source: IMPLAN

Compiled by the Allegheny Conference on Community Development, April 2023

**3.1c - Total Value Added: Other Property Income**

Other property income includes payments for rents received on properties, royalties from contracts, dividends paid by corporations, and corporate profits earned by corporations. The Pennsylvania primary steel industry generates almost \$8.1 billion in other property income through direct, indirect, and induced effects. This represents 40.4% of the total value added to the Pennsylvania economy by the industry. More than 57.2% of the total other property income occurs in the primary steel industry itself. Property income has the greatest effect on three industries: *Owner-occupied dwellings*, *Wholesale - Other durable goods merchant wholesalers*, and *Electric power transmission and distribution*.

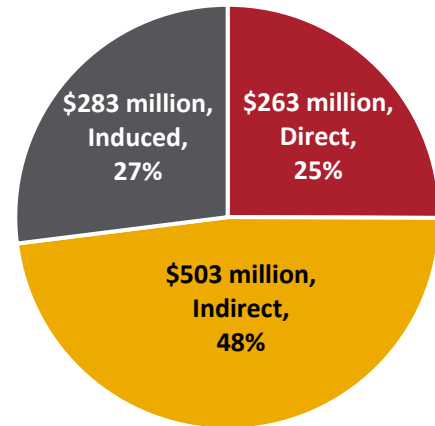
**Primary Steel Other Property Income by Impact**



**3.1c - Total Value Added: Taxes on Production and Imports Net of Subsidies**

Taxes on production and imports net of subsidies includes sales and excise taxes, customs duties, property taxes, motor vehicle licenses, severance taxes, other taxes, and special assessments. The primary steel industry generated \$1.1 billion in production and import taxes, 25% of which was paid directly by the primary steel industry. Taxes on production and imports net of subsidies account for 5.2% of the total value added to the Pennsylvania economy by the industry.

**Primary Steel Business Taxes by Impact**



### 3.2 The economic impact of fabricated structural metal manufacturing

The direct, indirect, and induced impact in employment, output, and value added are based on the 2021 annual private employment in the secondary metal manufacturing industry in Pennsylvania according to the Bureau of Labor Statistics – 76,871. This number was the direct input placed into the input-output model for the results shown in this report.

As shown in Table 6, Pennsylvania’s secondary steel industry is a vital contributor to the state’s economy, providing support through direct, indirect, and induced impacts:

- **Approximately 176,538 full and part-time jobs**, more than 76,871 of these directly in fabricated structural metal manufacturing. For each direct job, an additional 1.30 jobs are generated throughout Pennsylvania for a total multiplier of 2.30x.
- **\$47.4 billion in total output**, including \$26.3 billion in direct spending.
- **Approximately \$19.5 billion in total value added to the Pennsylvania economy**, \$8.4 billion of this directly created by fabricated structural metal manufacturing. This includes:
  - Approximately \$13.3 billion in labor income (\$12.2 billion in employee compensation and \$1.1 million in proprietors’ income).
  - Property income contributed about \$5.7 billion.
  - Total taxes on production and imports added over \$452 million to the economy.

**Table 6 - Summary of fabricated structural metal manufacturing Industry economic impact in Pennsylvania**

Fabricated structural metal manufacturing Impact					
	Direct	Indirect	Induced	Total	Multiplier <sup>1</sup>
Employment	76,871	50,743	48,924	176,538	2.30
Output	\$26,296.9	\$12,317.0	\$8,751.9	\$47,365.8	1.80
Total Value Added <sup>2</sup>	\$8,405.0	\$5,955.8	\$5,168.3	\$19,529.1	2.32
Labor Income	\$6,207.4	\$3,978.0	\$3,088.6	\$13,274.0	2.14
Employee Compensation	\$5,992.4	\$3,493.4	\$2,736.8	\$12,222.6	2.04
Proprietors Income	\$215.0	\$484.6	\$351.8	\$1,051.4	4.89
Other Property Type Income	\$2,300.9	\$1,670.7	\$1,741.2	\$5,712.8	2.48
Taxes on Production and Imports	(\$103.3)	\$307.2	\$338.5	\$542.3	-5.25

Note: Dollar values are in millions

Assumptions: Model run allocating 76,871 in private employment to the Fabricated structural metal manufacturing IMPLAN industry (236) for the state of Pennsylvania.

<sup>1</sup> Total impact divided by direct impact

<sup>2</sup> Total Value Added represents the industry's contribution to Gross Regional Product

Source: IMPLAN

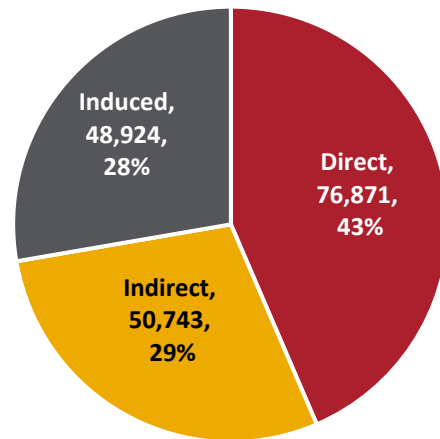
Compiled by the Allegheny Conference on Community Development, April 2023

### 3.2a Employment: The secondary steel industry generates approximately 176,538 full-time and part-time equivalent jobs in Pennsylvania

Among the approximately 176,538 full-time and part-time equivalent jobs that the secondary steel industry supports, the industry supports about 76,871 jobs directly. The roughly 99,667 indirect and induced jobs are in industries that supply goods and services to the secondary steel industry, as well as in industries across the entire economy as employees of the secondary steel industry and its supply chain spend their income on various goods and services.

Table 7 shows the industries that are identified in the model as seeing the largest number of jobs supported as a result of the activity of the secondary steel industry ranked by total employment. The *Employment services* industry sees the largest indirect impact with over 5,800 jobs generated as a result of the activity of the secondary steel industry in Pennsylvania. The rest of the indirect impact on employment is spread across a large number of industry sectors. The *Hospitals* industry sees the largest induced impact on employment resulting from activities in the secondary steel Industry and its supply chain, with 3,314 jobs.

**Total Secondary Steel Employment by Impact**



**Table 7 - Employment Impact of the Pennsylvania Secondary Steel Industry**

Secondary Steel Employment Impact				
Industry	Direct	Indirect	Induced	Total
<b>Fabricated structural metal manufacturing</b>	<b>76,871</b>	<b>1,030</b>	<b>1</b>	<b>77,903</b>
Employment services	0	5,804	952	6,756
Wholesale - Other durable goods merchant wholesalers	0	4,021	161	4,181
Investigation and security services	0	3,166	263	3,430
Business support services	0	2,436	197	2,633
Truck transportation	0	2,228	434	2,663
Management of companies and enterprises	0	2,044	499	2,543
Other real estate	0	2,025	1,227	3,252
Iron and steel mills and ferroalloy manufacturing	0	1,622	1	1,623
Other support services	0	1,383	98	1,481
Wholesale - Machinery, equipment, and supplies	0	1,211	45	1,257
<i>Other Industries</i>	0	23,772	45,045	68,817
<b>Total All Industries</b>	<b>76,871</b>	<b>50,743</b>	<b>48,924</b>	<b>176,538</b>

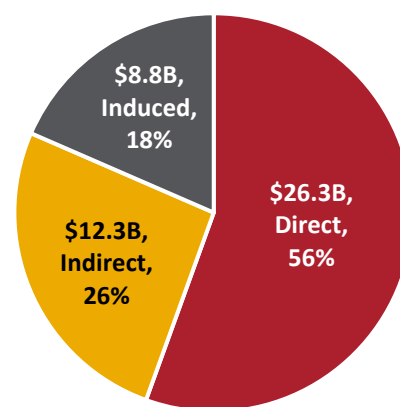
Source: IMPLAN

Compiled by the Allegheny Conference on Community Development, April 2023

### 3.2b Total Output: Fabricated Metal is a \$47.3 Billion Dollar Industry

The total output of a particular industry is the value created by the industry’s employment and activities as well as its intermediate inputs, which are the consumption of good and services purchased from another industry or imported. In all, secondary steel is involved in just under \$47.4 billion of Pennsylvania’s overall statewide economy. \$26.3 billion was from fabricated structural metal manufacturing directly with top indirect and induced contributing industries of *Iron and steel mills and ferroalloy manufacturing* and *Wholesale - Other durable goods merchant wholesalers* accounting for about 6.5% of total output.

**Secondary Steel Total Output by Impact**



**Table 8 – Total Output of the Pennsylvania Secondary Steel Industry: Top Industries**

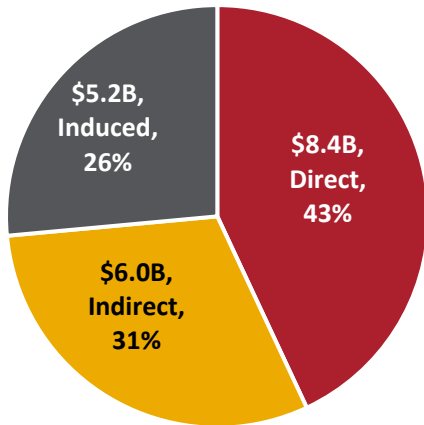
Secondary Steel Total Output				
Industry	Direct	Indirect	Induced	Total
<b>Fabricated structural metal manufacturing</b>	\$26,296,869,694	\$352,504,413	\$379,815	\$26,649,753,922
Iron and steel mills and ferroalloy manufacturing	\$0	\$1,732,388,226	\$1,117,446	\$1,733,505,672
Wholesale - Other durable goods merchant wholesalers	\$0	\$1,272,888,354	\$50,885,893	\$1,323,774,247
Owner-occupied dwellings	\$0	\$0	\$922,212,259	\$922,212,259
Employment services	\$0	\$651,645,787	\$106,911,739	\$758,557,527
Management of companies and enterprises	\$0	\$584,789,904	\$142,767,222	\$727,557,126
Other real estate	\$0	\$449,081,995	\$272,087,440	\$721,169,434
Hospitals	\$0	\$0	\$640,709,521	\$640,709,521
Truck transportation	\$0	\$459,870,777	\$89,649,808	\$549,520,586
Insurance carriers, except direct life	\$0	\$81,904,380	\$345,236,030	\$427,140,410
Wholesale - Machinery, equipment, and supplies	\$0	\$384,487,001	\$14,364,559	\$398,851,560
<i>Other Industries</i>	\$0	\$6,347,459,052	\$6,165,582,513	\$12,513,041,565
<b>Total All Industries</b>	\$26,296,869,694	\$12,317,019,890	\$8,751,904,245	\$47,365,793,829

Source: IMPLAN

Compiled by the Allegheny Conference on Community Development, April 2023

### 3.2c Total Value Added: The Secondary Steel Industry adds \$20 billion to Pennsylvania’s Gross Regional Product

**Secondary Steel Total Value Added by Impact**



The total value added by an industry can be understood to be the industry’s contribution to the Pennsylvania economy as part of the Gross Regional Product (GRP), or as the sum value of all of the labor income, profits, rents and indirect business taxes generated in the operation of the industry over a year. The secondary steel industry created nearly \$20 billion in total value added – the value of the labor income paid to employees and contractors, the payments to property owners and the indirect state taxes generated in Pennsylvania in 2021. These components are discussed in the following sections. As seen in the graph to the left, 43% of the total value added is

attributed directly to the secondary steel industry, which in turn stimulates an additional \$11.1 billion in indirect and induced value added across the broader Pennsylvania economy, including in companies that supply products to the secondary steel industry and in companies that supply goods and services to the employees of the secondary steel industry and its supply chain. In total, about \$20 billion was added to Pennsylvania’s GRP as a result of secondary steel industry activity, the majority of this directly through the secondary steel sector. The industries that are identified in the model as seeing the largest total value added as a result of the activity of the secondary steel industry can be found in Table 9.

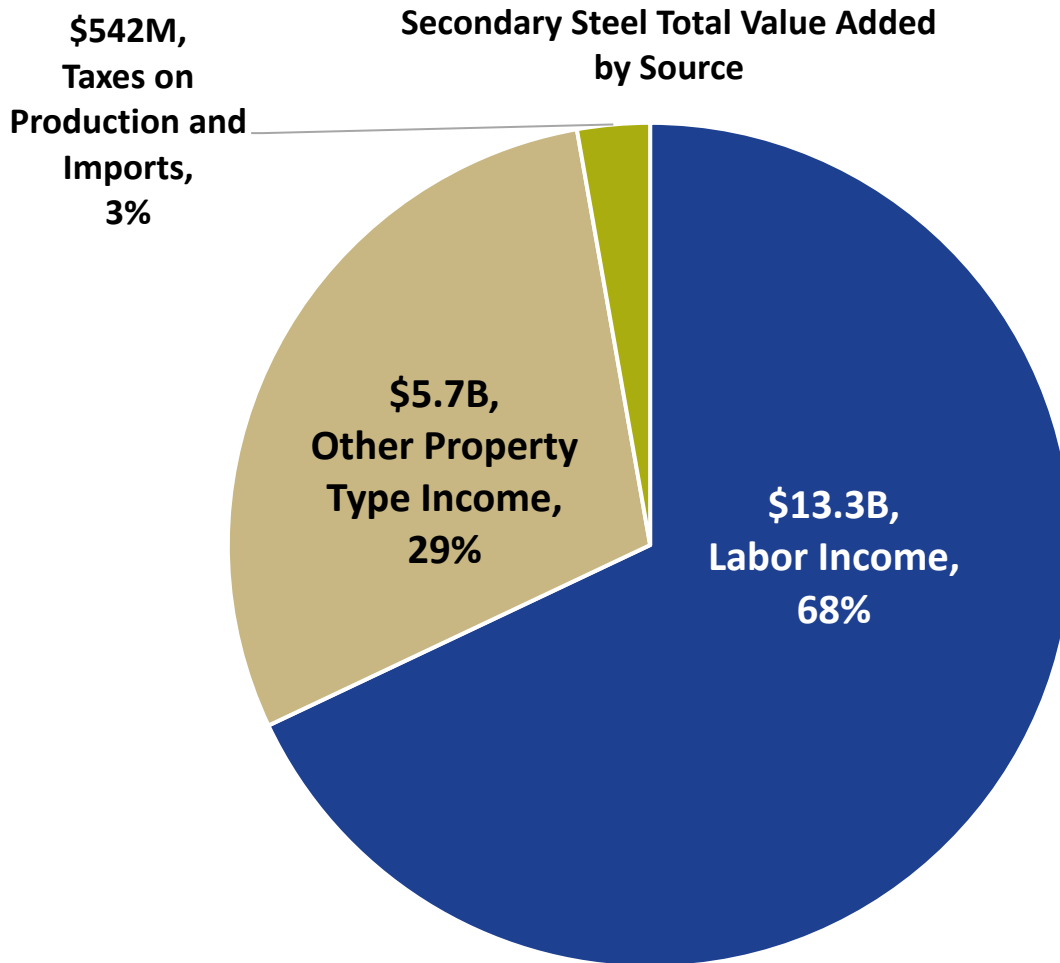
**Table 9 – Total Value-Added Impact of the Pennsylvania Secondary Steel Industry: Top Industries**

Total Value Added by Industry				
Industry	Direct	Indirect	Induced	Total
<b>Fabricated structural metal manufacturing</b>	<b>\$8,405,015,011</b>	<b>\$112,667,588</b>	<b>\$121,397</b>	<b>\$8,517,803,996</b>
Owner-occupied dwellings	\$0	\$0	\$729,136,573	\$729,136,573
Wholesale - Other durable goods merchant wholesalers	\$0	\$654,714,344	\$26,173,328	\$680,887,672
Management of companies and enterprises	\$0	\$385,682,232	\$94,158,227	\$479,840,460
Employment services	\$0	\$389,752,505	\$63,944,430	\$453,696,935
Iron and steel mills and ferroalloy manufacturing	\$0	\$446,135,254	\$287,772	\$446,423,026
Hospitals	\$0	\$0	\$347,174,354	\$347,174,354
Other real estate	\$0	\$194,148,331	\$117,629,571	\$311,777,902
Truck transportation	\$0	\$219,862,389	\$42,861,217	\$262,723,606
Monetary authorities and depository credit intermediation	\$0	\$119,537,203	\$127,199,968	\$246,737,171
Wholesale - Machinery, equipment, and supplies	\$0	\$216,306,913	\$8,081,296	\$224,388,210
<i>Other Industries</i>	\$0	\$3,217,041,052	\$3,611,495,759	\$6,828,536,812
<b>Total All Industries</b>	<b>\$8,405,015,011</b>	<b>\$5,955,847,813</b>	<b>\$5,168,263,891</b>	<b>\$19,529,126,716</b>

Source: IMPLAN

Compiled by the Allegheny Conference on Community Development, April 2023

The following sections will discuss the three sources of Value Added: Labor Income, Other Property Type Income, and Taxes on Production and Imports.

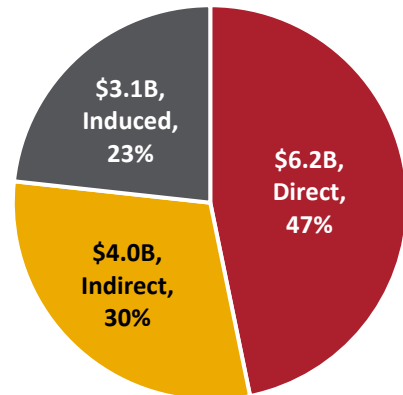




### 3.2c - Total Value Added: Labor Income

Labor income makes up 68% of the secondary steel Industry’s total value added to the Pennsylvania economy. Labor income is comprised of employee compensation and proprietor income. Employee compensation comprises the vast majority of the labor income in the secondary steel industry. Of the \$13.3 billion in labor income that can be attributed to the activity of the secondary steel industry and its ripple effects in the economy, approximately 47% is paid directly into the secondary steel industry. The indirect and induced labor income of approximately \$7.1 billion is attributed to the supply chain through secondary steel Industry purchases and in the broader economy through employee spending. The industries that are identified in the model as seeing the largest amount of labor income as a result of the activity of the secondary steel industry can be found in Table 10. The *Wholesale - Other durable goods merchant wholesalers, Management of companies and enterprises, and Employment services* are the three industries that saw the largest indirect impact. The largest induced impact on labor income is seen in the medical field, specifically in *Hospitals and Offices of Physicians*, accounting for 17.1% of the induced impact combined.

**Secondary Steel Labor Income by Impact**



**Table 10 – Labor Income impact of the Pennsylvania Secondary Steel Industry: Top Industries**

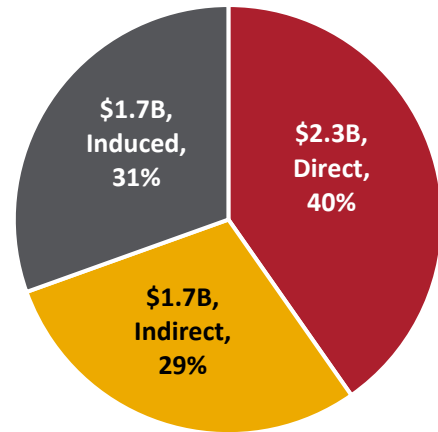
Secondary Steel Labor Income Impact				
Industry	Direct	Indirect	Induced	Total
<b>Fabricated structural metal manufacturing</b>	<b>\$6,207,429,261</b>	<b>\$83,209,379</b>	<b>\$89,656</b>	<b>\$6,290,728,297</b>
Management of companies and enterprises	\$0	\$331,373,507	\$80,899,610	\$412,273,117
Wholesale - Other durable goods merchant wholesalers	\$0	\$357,043,005	\$14,273,406	\$371,316,411
Employment services	\$0	\$312,081,496	\$51,201,398	\$363,282,894
Hospitals	\$0	\$0	\$304,858,652	\$304,858,652
Truck transportation	\$0	\$192,644,898	\$37,555,285	\$230,200,183
Offices of physicians	\$0	\$0	\$223,483,672	\$223,483,672
Iron and steel mills and ferroalloy manufacturing	\$0	\$199,676,801	\$128,798	\$199,805,599
Investigation and security services	\$0	\$147,152,806	\$12,223,610	\$159,376,416
Business support services	\$0	\$145,411,865	\$11,773,798	\$157,185,664
Radio and television broadcasting	\$0	\$83,802,122	\$54,051,010	\$137,853,132
<i>Other Industries</i>	\$0	\$2,125,591,016	\$2,298,039,936	\$4,423,630,952
<b>Total All Industries</b>	<b>\$6,207,429,261</b>	<b>\$3,977,986,896</b>	<b>\$3,088,578,832</b>	<b>\$13,273,994,989</b>

Note: Labor Income is the sum of Employee Compensation and Proprietor Income  
 Source: IMPLAN  
 Compiled by the Allegheny Conference on Community Development, April 2023

**3.2c - Total Value Added: Other Property Income**

Other property income includes payments for rents received on properties, royalties from contracts, dividends paid by corporations, and corporate profits earned by corporations. The Pennsylvania secondary steel industry generates over \$5.7 billion in other property income through direct, indirect, and induced effects. This represents 29% of the total value added to the Pennsylvania economy by the industry. More than 40% of the other investor and property owner income occurs in the secondary steel industry itself. Property income has the greatest effect on *Fabricated structural metal manufacturing* and *Owner-occupied dwellings*.

**Secondary Steel Property Income by Impact**



**3.2c - Total Value Added: Taxes on Production and Imports Net of Subsidies**

Taxes on production and imports net of subsidies includes sales and excise taxes, customs duties, property taxes, motor vehicle licenses, severance taxes, other taxes, and special assessments. Fabricated structural metal manufacturing received more subsidies from the government in 2021 than it paid out in direct taxes, and thus the direct taxes on production and imports net of subsidies is negative. The secondary steel industry generated \$542 million in production and import taxes. Taxes on production and imports net of subsidies account for 3% of the total value added to the Pennsylvania economy by the industry.

**Secondary Steel Business Taxes by Impact**

