

IOWA PRINTING INDUSTRY ECONOMIC & FISCAL CONTRIBUTION



*Demonstrating the Importance of the
Printing Industry to the Iowa State and
Local Governments*

Commissioned by Printing Industry Midwest
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*The Printing Industry in Iowa contributes value
to the state economy in many ways. The industry
generates and supports many jobs, economic output,
and government programs. The industry contributes
over \$2 billion in output, 11,700 jobs, \$449 million
in labor income, and more than \$136 million in
state and local tax revenues.*

The U.S. Printing Industry

Call it printing. Or call it graphic arts or graphic communications. Whatever you call it, you're referring to one of the largest industries in the United States in terms of not only employees but also annual shipments.

It is very hard to overlook an industry that employs more than 460,000 people in more than 27,500 establishments with annual shipments above \$84 billion.

Definition

What has traditionally been referred to as the printing industry encompasses many segments: general commercial printing, quick printing, digital imaging, magazine, newspaper, book and display graphics, financial

and legal printing, screen printing, forms printing, label and tag printing, packaging, greeting card, and trade and finishing services.

(These are encompassed by NAICS code group 323)

Due to the rapid technological changes and broadening of the scope of services provided by many of the companies in the fields today, it is commonly referred to as the graphic communications industry.

Companies in the business have expanded services to include creative design, retail display design, e-commerce, webpage design and hosting, mailing, fulfillment, and a host of services that provide horizontal marketing well beyond the core printing model. This is a description that accurately represents the broad range of what printers do today.

Why Conduct an Economic & Fiscal Contribution Study?

The aim of this study is to establish the economic importance of the printing industry to the Iowa economy. We define importance as the total contribution to the regional economy in terms of shipments, employment, labor income, and value-added/GDP.

The results from our economic and fiscal contribution study will show the interconnectedness of the printing industry with the Iowa economy. We will gain a clear understanding of how much economic activity is being cycled through the Iowa economy due to the printing industry. We will also calculate how much economic activity was associated with the printing industry.

The Economic Contribution Model

Direct Contribution
+
Indirect Contribution
+
Induced Contribution

Total Economic Contribution

Iowa Print Industry Fiscal Contributions include Federal, State, and Local Taxes. We estimated these fiscal contributions using data from the PIA *Ratios* financial benchmarking database, Fiscal Year 2013 Analytical Perspectives Budget of the U.S. government from the OMB, and the Tax Foundation. See Appendix for definitions.

Economic Contributions

In 2013 the printing industry directly contributed \$1.19 billion in output, 6,559 jobs, and \$257.15 million in labor income to Iowa's economy. After calculating backward-linked supply chain effects or indirect economic contributions and household spending generated by labor income or induced economic contributions, these values increased significantly. Total economic contributions for the Iowa economy amounted to \$2.06 billion in output, \$914.93 million in value-added (GDP), 11,707 jobs, and \$449.16 million in labor income.

Backward-linked supply chain effects or indirect contributions accounted for 23.1% or \$477.18 million of total economic contribution, 21% of employment contribution or 2,462 jobs, and 23.3% of labor income contribution or \$104.66 million. Household spending generated by labor income or induced economic contributions accounted for \$394.4 million or 19.1% of total economic contribution, 22.9% of employment contribution or 2,686 jobs, and 19.4% of labor income contributions or \$87.4 million.

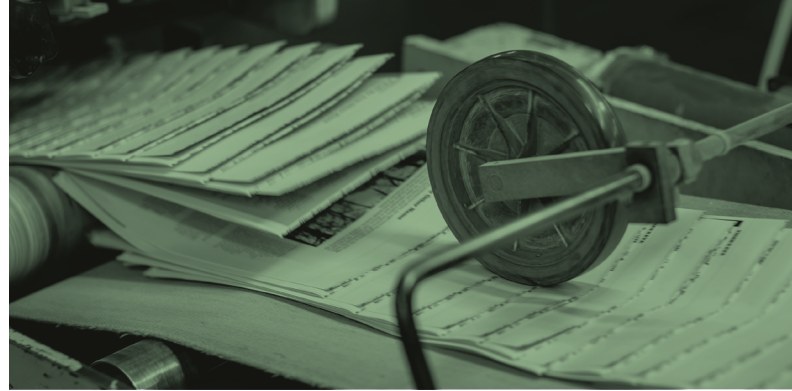
The printing industry in Iowa generates \$914.93 million in value-added, or GDP, annually through its direct economic impact and indirect/induced effects or approximately 0.55% of the state's \$165.77 billion total economic output. Compared to the overall national figures, the Iowa printing industry drives a slightly larger percent of GDP than other states. The national average is 0.51% of GDP.

PRINTING INDUSTRY ECONOMIC CONTRIBUTION IN IOWA

	Direct Contribution	Indirect Contribution	Induced Contribution	Total Economic Contribution
Output (\$1000s)	\$1,191,465.50	\$477,181.90	\$394,375.10	\$2,063,022.40
Employment	6,559	2,462	2,686	11,707
Labor Income (\$1000s)	\$257,146.10	\$104,658.50	\$87,352.50	\$449,157.20
Value-Added or GDP (\$1000s)	\$559,988.80	\$119,146.50	\$235,791.00	\$914,926.30

Source: RIMS II multipliers and Census Bureau County Business Patterns Database

Figure 1.



The printing industry has a moderately strong relationship with other sectors of the economy in Iowa, leading to significant multipliers. For every additional \$1 in output, the printing industry generates an additional \$0.73 in backward-linked, non-printing industry spending and household spending. To break that down further, every additional \$1 of output generated by the printing industry leads to an additional \$0.40 in backward-linked industries and \$0.33 in additional household spending. In Iowa, the backward-linked industries the printing industry has the strongest relationship with include manufacturing, wholesale trade, finance and insurance, transportation and warehousing, and administrative and waste management services. The industries most affected by induced household spending generated by the printing industry include: real estate, rental, and leasing; health care and social assistance; finance and insurance; and retail trade. The industries that are most interconnected to the printing industry through the combination of indirect and induced contribution include: manufacturing; finance and insurance; real estate and rental and leasing; wholesale trade; and health care and social assistance (Figure 2).

Every additional job in the Iowa printing industry supports an additional 0.38 non-print jobs due to inter-industry effects and 0.41 jobs due to additional household spending or an additional 0.78 jobs. The printing industry has a strong inter-industry relationship with other manufactures—51.3% of print’s inter-industry effect is with other manufacturing industries. Since, on average, manufacturing pays higher

average salaries than the service sector, the labor income per additional job is high. For each job directly supported by the printing industry in Iowa, the average labor income per job is \$39,204, and the indirect labor income per job is \$42,516.

Induced employment contributions are based on additional household spending cycling through the economy. The sectors of the Iowa economy that are most affected by the induced employment contribution include health care and social assistance (20.2%); retail trade (18.6%); and real estate, rental, and leasing (8.7%). Each job directly generated by the printing industry results in 0.41 being supported through induced employment contributions. The induced jobs are lower paying on average because they are in industries with lower wages. The average labor income for these jobs is \$32,522 in Iowa. The industries that are most interconnected to the printing industry through the combination of indirect and induced employment contribution include: manufacturing; health care and social assistance; retail trade; administrative and waste management services; and real estate and other services (Figure 3).

INDUSTRIES MOST INTERCONNECTED WITH THE PRINTING INDUSTRY IN IOWA

Percent of Indirect and Induced Output Generated by Print Economic Activity

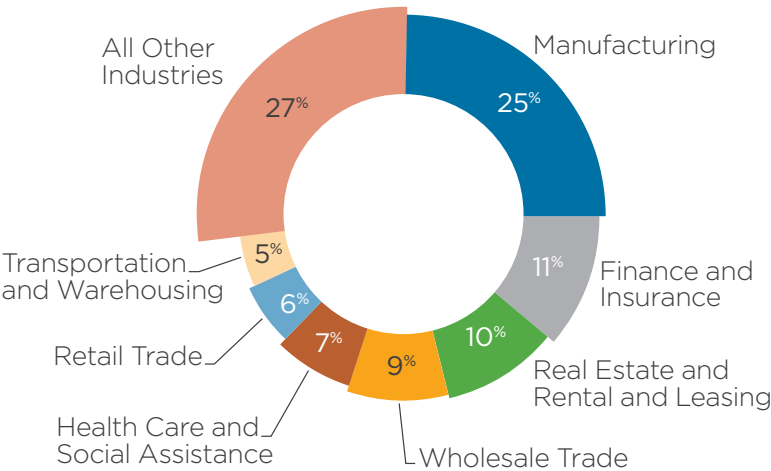


Figure 2.

INDUSTRIES MOST INTERCONNECTED WITH THE PRINTING INDUSTRY IN IOWA

Percent of Indirect and Induced Employment Generated by Print Economic Activity

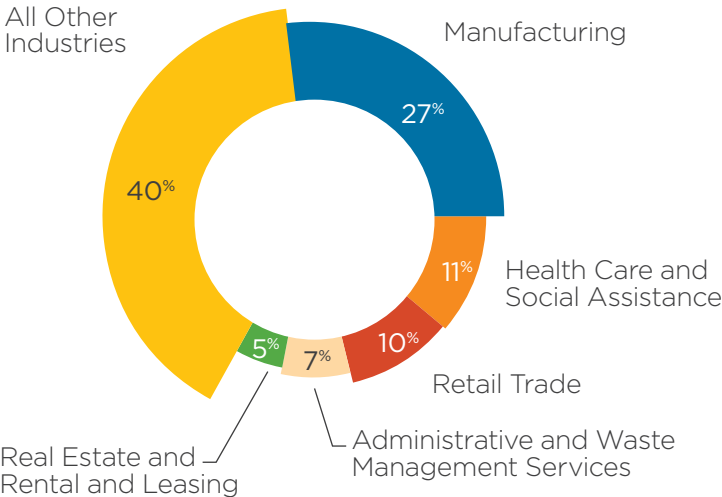


Figure 3.

The Iowa economy generated \$165.77 billion gross domestic product (GDP) in 2013 or approximately 0.95% of total U.S. output. The largest industries in terms of percent of GDP in Iowa are manufacturing (17.1%); real estate, rental, and leasing (10.4%); finance and insurance (10.2%); and agriculture, forestry, fishing, and hunting (9.7%). We do not include government in the list above (11.2% of output) because it is considered a final use of GDP

in the input-output models. The industries that are driving the most growth in 2013 include agriculture, forestry, fishing, and hunting (increased 37.7% adding 2.8% to total Iowa output or 48% share of growth); finance and insurance (increased 6.0% adding 0.6% to total Iowa output or 10.4% share of growth); and manufacturing (increased 2.6% adding 0.5% to total Iowa output or 7.8% share of growth).

GROSS DOMESTIC PRODUCT BY INDUSTRY IN IOWA

(millions of current dollars)

Industry	GDP (millions of current dollars)		Percent change 2012 to 2013	Share of Growth	Contribution to Change in Output	Percent Share of State Output	
	2012	2013				2012	2013
Manufacturing	27,705	28,416	2.6%	7.8%	0.5%	17.7%	17.1%
Real Estate and Rental and Leasing	16,183	17,182	2.2%	4.0%	0.2%	10.7%	10.4%
Finance and Insurance	15,915	16,871	6.0%	10.4%	0.6%	10.2%	10.2%
Agriculture, forestry, fishing, and hunting	11,663	16,058	37.7%	48.0%	2.8%	7.4%	9.7%
Health Care and Social Assistance	10,187	10,649	4.5%	5.0%	0.3%	6.5%	6.4%
Wholesale Trade	9,598	10,066	4.9%	5.1%	0.3%	6.1%	6.1%
Retail Trade	8,967	9,219	2.8%	2.8%	0.2%	5.7%	5.6%
Construction	6,078	6,459	6.3%	4.2%	0.2%	3.9%	3.9%
Transportation and Warehousing	5,253	5,467	4.1%	2.3%	0.1%	3.4%	3.3%
Professional, Scientific, and Technical Services	4,819	5,048	4.8%	2.5%	0.1%	3.1%	3.0%
Information	4,107	4,177	1.7%	0.8%	0.0%	2.6%	2.5%
Accommodation and Food Services	3,229	3,403	5.4%	1.9%	0.1%	2.1%	2.1%
Other Services, Except Government	3,233	3,328	2.9%	1.0%	0.1%	2.1%	2.0%
Administrative and Waste Management Services	3,277	3,317	1.2%	0.4%	0.0%	2.1%	2.0%
Utilities	2,663	2,789	4.7%	1.4%	0.1%	1.7%	1.7%
Management of Companies and Enterprises	1,781	1,834	3.0%	0.6%	0.0%	1.1%	1.1%
Educational Services	1,453	1,488	2.4%	0.4%	0.0%	0.9%	0.9%
Arts, Entertainment, and Recreation	1,140	1,043	-8.5%	-1.1%	-0.1%	0.7%	0.6%
Mining	486	432	-11.1%	-0.6%	0.0%	0.3%	0.3%
Government	18,239	18,521	1.5%	3.1%	0.2%	11.6%	11.2%
All Industry Total	156,606	165,767	5.8%	100.0%	5.8%	100.0%	100.0%

Figure 4.

The size of the industry in the region has an effect on the indirect and induced impact the printing industry has on the regional economy. In other words, on average, the larger the industry the more interconnected it is with various industries within a region.

For example: manufacturing accounts for 17.1% of total economic output in the Iowa economy or it is the largest industry. Almost 25% of the printing industry's indirect and induced contributions to the regional economy are circulated through the manufacturing industry. In fact, the three largest industries in Iowa are also the three highest ranked in terms of percent of printing industry indirect and induced contribution to the regional economy.

The fourth largest industry in the region, agriculture, forestry, fishing, and hunting, breaks this trend. It is a large industry in the region (9.7% of total regional output) but has little inter-relationship with the printing industry (1.5% of indirect/induced economic contribution). The printing industry does not have much in terms of backward-linked supply chain effects or indirect economic contributions or household spending generated by labor income with agriculture, forestry, fishing, and hunting. See the figure below for the complete list of industry output as a percent of total regional output compared to indirect and induced printing industry economic contributions by industry (Figure 5).

SIZE OF IOWA INDUSTRIES COMPARED TO INDUSTRIES' INDIRECT AND INDUCED RELATIONSHIP WITH THE PRINTING INDUSTRY

Industry	Rank		Percent of	
	By Size of Industry (\$ Output)	By Interconnectedness with the Printing Industry	Total Iowa Regional GDP	Printing Industry Indirect and Induced Output
Manufacturing	1	1	17.14%	24.7%
Real Estate and Rental and Leasing	2	3	10.37%	9.8%
Finance and Insurance	3	2	10.18%	10.7%
Agriculture, forestry, fishing, and hunting	4	15	9.69%	1.5%
Health Care and Social Assistance	5	5	6.42%	6.9%
Wholesale Trade	6	4	6.07%	9.5%
Retail Trade	7	6	5.56%	5.6%
Construction	8	16	3.90%	1.3%
Transportation and Warehousing	9	7	3.30%	5.5%
Professional, Scientific, and Technical Services	10	10	3.05%	3.6%
Information	11	9	2.52%	3.7%
Accommodation and Food Services	12	11	2.05%	3.3%
Other Services, Except Government	13	13	2.01%	2.7%
Administrative and Waste Management Services	14	8	2.00%	4.2%
Utilities	15	12	1.68%	3.1%
Management of Companies and Enterprises	16	14	1.11%	2.2%
Educational Services	17	17	0.90%	1.2%
Arts, Entertainment, and Recreation	18	18	0.63%	0.5%
Mining	19	19	0.26%	0.0%

Figure 5.

Fiscal Contributions

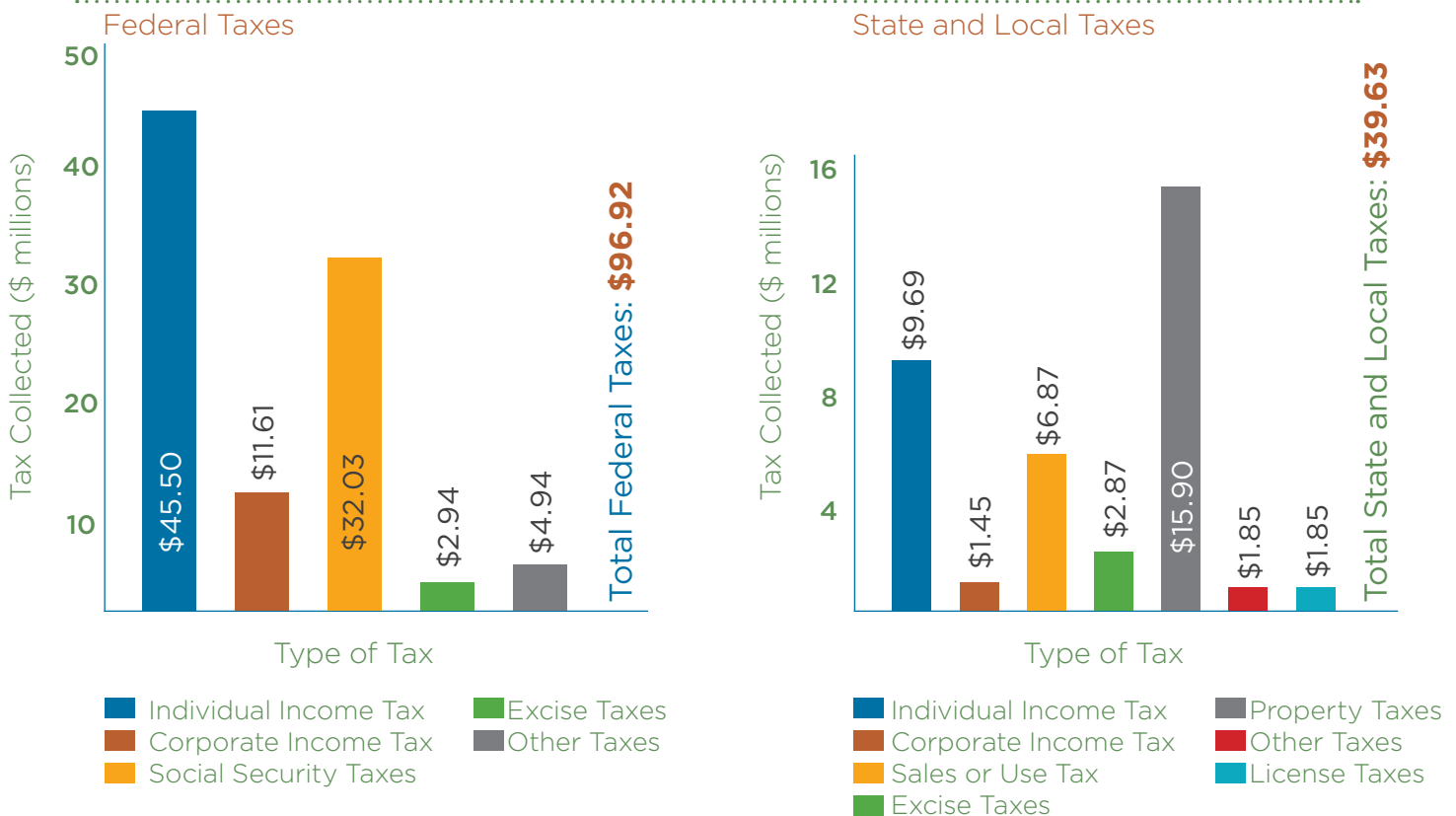
Federal, State, and Local Tax revenues generated by the Iowa printing industry totaled \$136.55 million. The printing industry added \$559.98 million in direct value-added output to Iowa's gross domestic product, and 24.4% of this output was collected by the federal, state, and local governments in taxes. The main source of federal tax revenues was individual income taxes and social security taxes. More than 7% of Iowa printing industry revenues or \$39.6 million were collected to help fund the state and local governments. Property taxes (40%) and individual income taxes (24.5%) were the two main sources of revenue for state and local governments (Figure 6).

Conclusions

The printing industry in Iowa is large and a significantly interconnected industry. Each additional dollar generated by the printing industry in Iowa leads to an additional

\$0.73 spent in backward-linked supply chain spending and additional household spending. Each print job supports 0.78 jobs in the Iowa labor market due to spending of labor income in the backward-linked supply chain industries and household spending. Print industry output in Iowa is most interconnected with other manufactures, financial and insurance companies, and real estate. Print industry employment in Iowa is most interconnected with the following industries: manufacturing, health care and social assistance, and retail trade. The effects of an industry on the local economy add to total output, employment, wages and also support of government programs. In Iowa 7% of the printing industry's value-added output generated went to support state and local governments. Data used in this study are based on many sources, including BEA RIMS II multipliers, The Tax Foundation, County Business Patterns Database, PIA Print Market Atlas, and the PIA Ratios Financial database for the printing industry.

2013 FEDERAL, STATE, AND LOCAL TAXES GENERATED BY THE PRINTING INDUSTRY IN IOWA



Sources: U.S. Census, Office of Management and Budget, and Tax Foundation

Figure 6.



Definitions

Direct Contribution or Final-Demand Industry:

The “Direct” contribution relates to the first round of inputs purchased from the final-demand industry or the figure we calculate in the Print Market Atlas. It is the portion of print shipments that are purchased for consumption by the final user. It includes the consumption of the goods and services that are produced and distributed in the economy. In the Input-Output accounts, final-use transactions consist of transactions that make up the final-expenditure components of GDP: Personal consumption expenditures; Private fixed investment; Change in private inventories; Exports of goods and services; Imports of goods and services; Federal, state, and local government consumption expenditures; and Gross investment.

Indirect Contribution: Relates to the subsequent rounds of inputs purchased by supporting industries. Some of the supporting industries include: mining, utilities, construction, manufacturing, wholesale trade, retail trade, information, educational services, healthcare, and social services; arts, entertainment, and recreation, etc. The sum of the “Direct” and “Indirect” contributions is called the inter-industry effect or inter-industry total. This takes

into account the spending the printing industry generates in other industries—the impact of local industries buying goods and services from other local industries. The cycle of spending works its way backward through the supply chain until all money leaks from the local economy, either through imports or by payments to value-added.

Induced Contributions: RIMS Type II multipliers not only account for the inter-industry effect, but also account for the induced economic contribution to final demand. The induced contribution relates to spending of workers whose earnings or labor income are affected by the final demand contribution. This contribution is called the household-spending contribution. We use the multipliers to measure the total contribution to the state economy.

Total Economic Contribution: Includes the final demand generated by the printing industry, the inter-industry contributions or indirect effects, and the induced contribution from household spending that the printing industry supports.

For more information on how Input-Output multipliers are developed by the BEA we recommend reading the RIMS II handbook, “An essential tool for regional developers and planners.”



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