

An Economic Analysis of the Commercial Construction Industry in the Cincinnati Metropolitan Statistical Area

November 2023

Final Report

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Introduction

With more than 500 members, Allied Construction Industries is a not-for-profit trade association serving the commercial construction industry in the Cincinnati Region. Established in 1929, membership includes both union and open shop employers, who are general contractors, subcontractors, architects, engineers, developers, material suppliers, and service providers to the commercial construction industry. Allied Construction Industries focuses on delivering workforce solutions that solve talent challenges, engaging in advocacy efforts that remove obstacles and create a climate of growth for the industry, and providing meaningful connections through networking opportunities.

Allied Construction Industries engaged the University of Cincinnati Economics Center to conduct the first ever economic analysis of the commercial construction industry in the Cincinnati Metropolitan Statistical Area (MSA)(Region).¹ The impetus for this initiative was to quantify the contributions of the Cincinnati region's commercial construction sector to the overall economy of the region. This analysis includes the economic and fiscal impact of the commercial construction industry in the Cincinnati MSA as well as the demographic and occupational characteristics of the commercial construction industry, and an analysis of the commercial construction industry's supply chain. The sales, earnings, jobs, and union membership rate in the Cincinnati MSA's construction industry, and where possible the commercial construction industry, were compared to select MSAs in surrounding states. Additionally, the Cincinnati MSA's construction industry and commercial construction industry were compared to all other industries in the Cincinnati MSA.

¹ A Metropolitan Statistical Area (MSA) is an area comprised of different communities with close economic ties to one another. The Cincinnati MSA encompasses five counties in Ohio: Brown, Butler, Clermont, Hamilton, and Warren; seven counties in Kentucky: Boone, Bracken, Campbell, Gallatin, Grant, Kenton, and Pendleton; and four counties in Indiana: Dearborn, Franklin, Ohio, and Union.

Executive Summary

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Allied Construction Industries engaged the University of Cincinnati Economics Center to conduct the first ever economic analysis of the commercial construction industry in the Cincinnati Metropolitan Statistical Area (MSA)(Region).² The impetus for this initiative was to quantify the contributions of the Cincinnati region's commercial construction sector to the overall economy of the region. It is important to note that this report is not intended to quantify how the various facets of our built environment contribute to enhancing the appeal of the Cincinnati region as a place of residence, employment, and leisure. From the workplaces we occupy, the culinary establishments we dine in, the cultural and sports arenas that provide entertainment, the essential infrastructure that supports our activities and lives, the healthcare facilities that offer healing and the educational institutions that facilitate learning, every project the commercial construction completes serves to create an attractive and competitive city. The critical role played by commercial construction in shaping the Cincinnati Metropolitan Statistical Area cannot be overstated, for it underpins the very existence and vitality of this vibrant city.

In total, the commercial construction industry in the Cincinnati MSA generated \$9.2 billion in economic activity, supported 54,282 jobs, and generated \$3.7 billion in earnings in the Cincinnati MSA during 2022. Subsequently, this led to approximately \$231.2 million in earnings and sales tax revenue for state and local jurisdictions during 2022. Jurisdictions in Ohio received \$161.2 million of the total tax revenue generated by the commercial construction industry in the Cincinnati MSA, while jurisdictions in Kentucky and Indiana received \$62.7 million and \$7.4 million of the total tax revenue generated, respectively.

Furthermore, the commercial construction industry within the Cincinnati MSA also generated nearly \$1.1 billion in sales to industries and consumers outside of the Cincinnati MSA during 2022, referred to as exported sales. Although unknown, a portion of exported sales supports the local activities of the commercial construction industry. Therefore, the additional impacts occurring in the Cincinnati MSA as a result of the exported sales of the commercial construction industry are not included in the impacts detailed in this analysis.

The commercial construction industry supports other industries by purchasing materials, equipment, services, and more for its construction and business efforts. During 2022, the commercial construction industry in the Cincinnati MSA made total purchases of \$2.7 billion, of which 51.1 percent was spent with businesses in the Cincinnati MSA. The industries benefiting the most from the spending of the commercial construction

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industry were the manufacturing industry; the wholesale trade industry; the retail trade industry; the professional, scientific, and technical services industry; and the real estate, rental, and leasing industry.

Comparison to Other MSAs

To contextualize the construction industry, and specifically the commercial construction industry, in the Cincinnati MSA, the industry sales, jobs, and earnings as well as the union membership rate in the Cincinnati MSA were compared with the Cleveland MSA, Columbus MSA, Indianapolis MSA, Lexington MSA, Louisville MSA, and Pittsburgh MSA. The Cincinnati MSA has more commercial construction jobs than the Cleveland, Columbus, Lexington, and Louisville MSAs. The Cincinnati MSA has greater sales than the Cleveland, Lexington and Louisville MSAs and nearly equal to the Columbus MSA. The Cincinnati MSA has greater earnings than the Cleveland, Columbus, Lexington, and Louisville MSAs.

Nationally, 10.1 percent of wage and salary workers were members of unions in 2022 compared to 11.7 percent of wage and salary workers in the construction industry.³ Locally, the union membership rate for the construction industry was 10.5 percent in the Cincinnati MSA during 2022.⁴ The Cincinnati MSA had a lower union membership rate for the construction industry during 2022 than the Pittsburgh MSA (49.7%), the Cleveland MSA (26.5%), and the Columbus MSA (16.8%).⁵ However, the Cincinnati MSA had a higher union membership rate for the construction industry during 2022 than the Louisville MSA (9.0%), the Indianapolis MSA (6.7%), and the Lexington MSA (0.0%).⁶

The commercial construction industry encompassed 31,011 jobs in the Cincinnati MSA during 2022. Of the jobs in the commercial construction industry in the Cincinnati MSA, 19.1 percent were held by individuals between the ages of 25 and 34, 23.4 percent were held by individuals between the ages of 35 and 44, 22.7 percent were held by individuals between the ages of 45 and 54, and 20.3 percent were held by individuals between the ages of 55 and 64. Additionally, 0.7 percent of jobs were held by individuals aged 18 or younger, 7.5 percent of jobs were held by individuals between the ages of 19 and 24, and 6.3 percent of jobs were held by individuals aged 65 and older. Males represented 89.1 percent of the total jobs in the commercial construction industry, while females represented the remaining 10.9 percent of jobs. Approximately 88.8 percent of the jobs in the commercial construction industry were held by White individuals followed by Hispanic or Latino individuals (5.3%), Black or African American individuals (4.0%), individuals of two or more races (1.4%), and individuals of other races (0.6%).

Of the top 20 occupations in the commercial construction industry in the Cincinnati MSA, the occupations with the most jobs were construction laborers (4,617 jobs), carpenters (3,361 jobs), construction managers (1,933 jobs), electricians (1,921 jobs), and first-line supervisors of construction trades and extraction workers (1,632 jobs). These five occupations represented 43.4 percent of the total jobs in the commercial construction industry in the Cincinnati MSA during 2022. Of the top 20 occupations in the commercial construction industry in the Cincinnati MSA, the occupations with the highest median annual earnings in 2022 were general and operations managers (\$94,434), project management

³ (U.S. Bureau of Labor Statistics 2023)

⁴ (Hirsch, Macpherson and Even 2023a)

⁵ (Hirsch, Macpherson and Even 2023a)

⁶ (Hirsch, Macpherson and Even 2023a)

specialists (\$81,674), cost estimators (\$64,355), structural iron and steel workers (\$63,361), and first-line supervisors of construction trades and extraction workers (\$62,832).

The commercial construction industry sold \$5.2 billion worth of goods and services to industries and consumers within the Cincinnati MSA during 2022, which directly supported 31,011 jobs with earnings of \$2.2 billion. This led to additional indirect impacts of \$4.0 billion in economic activity, 23,271 jobs, and \$1.4 billion in earnings. In total, the commercial construction industry in the Cincinnati MSA generated \$9.2 billion in economic activity, supported 54,282 jobs, and generated \$3.7 billion in earnings in the Cincinnati MSA during 2022. Subsequently, this led to approximately \$231.2 million in earnings and sales tax revenue for state and local jurisdictions during 2022. Jurisdictions in Ohio received 69.7 percent of the total tax revenue generated by the commercial construction industry in the Cincinnati MSA, while jurisdictions in Kentucky and Indiana received 27.1 percent and 3.2 percent of the total tax revenue generated, respectively.

During 2022, industries and consumers in the Cincinnati MSA spent approximately \$655.8 million with firms in the commercial construction industry located outside of the Cincinnati MSA. This is due to a variety of factors that may include companies hiring general contractors from outside of the Cincinnati MSA without putting the project out to bid in the local community. This mismatch may also be due, in part, to the timing of construction projects taking place within and outside of the Cincinnati Region. If the needs of all industries and consumers in the Cincinnati MSA were met by local firms, an additional \$1.2 billion in economic activity, 6,202 jobs, and \$436.7 million in earnings would be supported in the Cincinnati MSA. This would subsequently result in an additional \$27.6 million in earnings and sales tax revenue for state and local jurisdictions.

Furthermore, the commercial construction industry within the Cincinnati MSA also generated nearly \$1.1 billion in sales to industries and consumers outside of the Cincinnati MSA during 2022, referred to as exported sales. Although unknown, a portion of exported sales supports the local activities of the commercial construction industry. Therefore, exported sales also positively impact commercial construction in the Cincinnati MSA, although those results are not included in the impacts detailed in this analysis.

The commercial construction industry supports other industries by purchasing materials, equipment, services, and more to support its construction and business efforts. During 2022, the commercial construction industry in the Cincinnati MSA made total purchases of \$2.7 billion, of which 51.1 percent was spent with businesses in the Cincinnati MSA. The industries benefiting most from the spending of the commercial construction industry were: manufacturing; wholesale trade; retail trade; professional, scientific, and technical services; and real estate, rental, and leasing.

To contextualize the construction industry, and specifically the commercial construction industry, in the Cincinnati MSA, the industry sales, jobs, and earnings as well as the union membership rate in the Cincinnati MSA were compared with the Cleveland MSA, Columbus MSA, Indianapolis MSA, Lexington MSA, Louisville MSA, and Pittsburgh MSA. The construction industry in the Pittsburgh MSA and the Indianapolis MSA were larger than the construction industry in the Cincinnati MSA based on sales, jobs, and earnings, while the construction industry in the Columbus MSA was larger based only on sales. Similarly, the commercial construction industry in the Pittsburgh MSA and the Indianapolis MSA were estimated

to be larger than the commercial construction industry in the Cincinnati MSA based on sales, jobs, and earnings, whereas the commercial construction industry in the Columbus MSA was estimated to be larger based on sales only.

Nationally, 10.1 percent of wage and salary workers were members of unions in 2022 compared to 11.7 percent of wage and salary workers in the construction industry.⁷ Locally, the union membership rate for the construction industry was 10.5 percent in the Cincinnati MSA during 2022.⁸ The Cincinnati MSA had a lower union membership rate for the construction industry during 2022 than the Pittsburgh MSA (49.7%), the Cleveland MSA (26.5%), and the Columbus MSA (16.8%).⁹ However, the Cincinnati MSA had a higher union membership rate for the construction industry during 2022 than the Louisville MSA (9.0%), the Indianapolis MSA (6.7%), and the Lexington MSA (0.0%).¹⁰

Relative to all industries in the Cincinnati MSA, the construction industry comprised 5.7 percent of the total jobs, 5.6 percent of the total earnings, and 4.3 percent of the total sales of all industries in the Cincinnati MSA during 2022. Out of 21 industries, the construction industry ranked 10th in total jobs, 8th in total earnings, and 8th in total sales compared to all other industries in the Cincinnati MSA during 2022.

Commercial construction in the Cincinnati MSA comprised 38.8 percent of the total jobs, 41.1 percent of the total earnings, and 46.0 percent of the total sales of the entire construction industry during 2022. Furthermore, the commercial construction industry in the Cincinnati MSA comprised 2.2 percent of the total jobs, 2.3 percent of the total earnings, and 2.0 percent of the total sales of all industries in the Cincinnati MSA during 2022. If the commercial construction industry were its own NAICS designation, the commercial construction industry would have ranked 16th of 22 industries in total jobs, 15th in total earnings, and 15th in total sales compared to all other industries in the Cincinnati MSA.

The Cincinnati MSA's commercial construction industry generated \$9.2 billion in economic activity, supported 54,282 jobs, and generated \$3.7 billion in earnings in the Cincinnati Region during 2022. Additionally, \$231.2 million in earnings and sales tax revenue was generated for state and local jurisdictions as a result of the activities of the Cincinnati MSA's commercial construction industry. In addition to the economic and fiscal impacts, the commercial construction industry in the Cincinnati Region also supports businesses and industries through its purchases as well as prepares the future workforce. The commercial construction industry in the Cincinnati Region has wide-reaching benefits for the local economy, taxing jurisdictions, related industries, and its workforce.

⁷ (U.S. Bureau of Labor Statistics 2023)

⁸ (Hirsch, Macpherson and Even 2023a)

⁹ (Hirsch, Macpherson and Even 2023a)

¹⁰ (Hirsch, Macpherson and Even 2023a)

Demographic Characteristics of the Commercial Construction Industry

This section details the demographic characteristics by age, sex, and race/ethnicity for the commercial construction industry in the Cincinnati MSA during 2022.

The commercial construction industry had a total of 31,011 jobs in the Cincinnati MSA in 2022. Of the jobs in the commercial construction industry in the Cincinnati MSA during 2022, 19.1 percent were held by individuals between the ages of 25 to 34, 23.4 percent were held by individuals between the ages of 35 to 44, 22.7 percent were held by individuals between the ages of 45 to 54, and 20.3 percent were held by individuals between the ages of 55 and 64. Collectively, 85.5 percent of jobs in the commercial construction industry in the Cincinnati MSA were held by individuals between the ages of 25 and 64, as detailed in Table 1. Additionally, 0.7 percent of jobs were held by individuals aged 18 or younger, 7.5 percent of jobs were held by individuals between the ages of 19 and 24, and 6.3 percent of jobs were held by individuals aged 65 and older.

Table 1: Commercial Construction Industry Jobs in the Cincinnati MSA by Age, 2022

Age	Jobs	Percent of Jobs
14 to 18	217	0.7%
19 to 24	2,328	7.5%
25 to 34	5,909	19.1%
35 to 44	7,266	23.4%
45 to 54	7,028	22.7%
55 to 64	6,300	20.3%
65+	1,963	6.3%
Total	31,011	100.0%

Source: Economics Center analysis of data retrieved from Lightcast.

As detailed in Table 2, 3,376 jobs in the commercial construction industry in the Cincinnati MSA were held by females, while males held the remaining 27,635 jobs in the commercial construction industry in the Cincinnati MSA. Males represented 89.1 percent of the total jobs in the commercial construction industry despite representing 49.5 percent of the population in the Cincinnati MSA. Although representing 50.5 percent of the population in the Cincinnati MSA, females represented the remaining 10.9 percent of the total jobs in the commercial construction industry. As of April 2023, there were 12,616 unemployed females in the Cincinnati MSA. These individuals represent potential workers who might be available for recruitment by the commercial construction in order to increase the representation of females in its workforce.

Table 2: Commercial Construction Industry Jobs in the Cincinnati MSA by Sex, 2022

Sex	Jobs	Percent of Jobs
Female	3,376	10.9%
Male	27,635	89.1%
Total	31,011	100.0%

Source: Economics Center analysis of data retrieved from Lightcast.

As detailed in Table 3, the majority of jobs in the commercial construction industry in the Cincinnati MSA during 2022 were held by White individuals. White individuals held 27,531 jobs within the industry, which represented approximately 88.8 percent of the total jobs in the industry. Hispanic or Latino individuals held 5.3 percent of the jobs in the commercial construction industry in the Cincinnati MSA, Black or African American individuals held 4.0 percent of the jobs in the industry, and individuals of two or more races held 1.4 percent of the jobs in the industry. Furthermore, individuals of other races held 0.6 percent of the jobs in the commercial construction industry in the Cincinnati MSA in 2022. As of April 2023, there were 6,507 unemployed Black or African American individuals and 1,237 unemployed Hispanic or Latino individuals in the Cincinnati MSA. These individuals represent potential workers that could be recruited by the commercial construction industry to increase the representation of minorities in its workforce.

Table 3: Commercial Construction Industry Jobs in the Cincinnati MSA by Race/Ethnicity, 2022

Race/Ethnicity	Jobs	Percent of Jobs
American Indian or Alaska Native	54	0.2%
Asian	114	0.4%
Black or African American	1,231	4.0%
Hispanic or Latino	1,649	5.3%
Native Hawaiian or Pacific Islander	11	0.0%
White	27,531	88.8%
Two or More Races	421	1.4%
Total	31,011	100.0%¹¹

Source: Economics Center analysis of data retrieved from Lightcast.

¹¹ The percent of jobs does not sum due to rounding.

Occupation Analysis of the Commercial Construction Industry

The commercial construction industry in the Cincinnati MSA is comprised of a variety of occupations.

Table 4 details the earnings profile of the top 20 occupations in the commercial construction industry in the Cincinnati MSA. The occupations with the highest median annual earnings in 2022 were general and operations managers (\$94,434), project management specialists (\$81,674), cost estimators (\$64,355), structural iron and steel workers (\$63,361), and first-line supervisors of construction trades and extraction workers (\$62,832). The occupations with in the lowest median annual earnings in 2022 were construction and maintenance painters (\$37,413); secretaries and administrative assistants (except legal, medical, and executive) (\$37,803); general office clerks (\$38,638); bookkeeping, accounting, and auditing clerks (\$39,327); and construction laborers (\$40,768).

Among the top 20 occupations in the commercial construction industry in the Cincinnati MSA, the occupations with the highest 90th percentile annual earnings were general and operations managers (\$209,585), other managers (\$189,582), construction managers (\$155,650), project management specialists (\$135,957), and first-line supervisors of construction trades and extraction workers (\$105,203). However, the occupations with the highest growth rate between median annual earnings and 90th percentile annual earnings during 2022 were other managers (251.0%), construction managers (164.7%), general and operations managers (121.9%), construction and maintenance painters (105.9%), and construction laborers (93.3%). Despite having among the lowest median annual earnings, construction laborers and construction and maintenance painters have among the highest growth rate between median annual earnings and 90th percentile annual earnings during 2022.

During 2022, the occupations with the lowest 90th percentile annual earnings were secretaries and administrative assistants (except legal, medical, and executive) (\$51,861); general office clerks (\$62,055); bookkeeping, accounting, and auditing clerks (\$62,886); roofers (\$67,905); and heavy and tractor-trailer truck drivers (\$76,108). However, the occupations with the lowest growth rate between median annual earnings and 90th percentile annual earnings during 2022 were structural iron and steel workers (30.6%); secretaries and administrative assistants (except legal, medical, and executive) (37.2%); operating engineers and other construction equipment operators (45.4%); electricians (46.7%); and plumbers, pipefitters, and steamfitters (48.1%). Although structural iron and steel workers have among the highest median annual earnings of the top 20 occupations in the commercial construction industry in the Cincinnati MSA, they have among the lowest growth rate between median annual earnings and 90th percentile annual earnings during 2022.

Between 2012 and 2022, the occupations in the commercial construction industry with the highest annual growth rate in median annual earnings were operating engineers and other construction equipment operators (3.8%), roofers (3.2%), project management specialist (3.1%), heavy and tractor-trailer truck drivers (2.9%), and general office clerks (2.9%). Conversely, the occupations with the lowest annual growth rate in median annual earnings between 2012 and 2022 were other managers (-0.4%), general and operations managers (0.2%), construction managers (0.6%), heating, air conditioning, and refrigeration mechanics and installers (0.8%), and cost estimators (1.0%). Assuming these historical trends reflect future trends, this illustrates the occupations in the commercial construction industry in the Cincinnati MSA that may experience the highest and lowest annual growth in median annual earnings.

Furthermore, the annual rate of inflation between 2012 and 2022 was 2.5 percent, according to an analysis of data from the U.S. Bureau of Labor Statistics, retrieved from FRED, Federal Reserve Bank of St. Louis. This indicates that the annual growth rate in median annual earnings between 2012 and 2022 outpaced inflation for only six of the top 20 occupations in the commercial construction industry in the Cincinnati MSA.

Table 4: Earnings Profile of the Top 20 Occupations in the Commercial Construction Industry in the Cincinnati MSA, 2012 (2012\$) and 2022 (2022\$)

SOC Code	Occupation	Median Annual Earnings (2012, 2012\$)	Median Annual Earnings (2022, 2022\$)	Annual Growth Rate (2012-2022)	10 th Percentile Annual Earnings (2022, 2022\$)	25 th Percentile Annual Earnings (2022, 2022\$)	75 th Percentile Annual Earnings (2022, 2022\$)	90 th Percentile Annual Earnings (2022, 2022\$)
47-2061	Construction Laborers	\$33,276	\$40,768	2.1%	\$15,683	\$27,608	\$56,834	\$78,802
47-2031	Carpenters	\$36,276	\$45,916	2.4%	\$17,338	\$32,081	\$60,601	\$79,708
11-9021	Construction Managers	\$55,315	\$58,794	0.6%	\$16,665	\$32,316	\$101,043	\$155,650
47-2111	Electricians	\$49,438	\$56,408	1.3%	\$30,782	\$39,243	\$69,957	\$82,762
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	\$50,494	\$62,832	2.2%	\$30,216	\$48,927	\$79,933	\$105,203
47-2152	Plumbers, Pipefitters, and Steamfitters	\$46,250	\$59,323	2.5%	\$31,235	\$42,174	\$77,955	\$87,851
47-2141	Painters, Construction and Maintenance	\$32,056	\$37,413	1.6%	\$13,575	\$23,771	\$51,881	\$77,030
11-9199	Managers, All Other	\$56,143	\$54,005	-0.4%	\$11,612	\$27,455	\$106,848	\$189,582
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	\$43,659	\$47,144	0.8%	\$28,026	\$35,466	\$61,586	\$79,100
47-2073	Operating Engineers and Other Construction Equipment Operators	\$41,746	\$60,806	3.8%	\$37,400	\$46,314	\$79,225	\$88,405
13-1082	Project Management Specialists	\$60,175	\$81,674	3.1%	\$48,048	\$62,145	\$106,682	\$135,957

43-9061	Office Clerks, General	\$29,046	\$38,638	2.9%	\$23,944	\$30,175	\$49,487	\$62,055
11-1021	General and Operations Managers	\$93,008	\$94,434	0.2%	\$39,351	\$59,566	\$136,945	\$209,585
47-2181	Roofers	\$32,832	\$44,843	3.2%	\$21,216	\$32,720	\$55,966	\$67,905
47-2051	Cement Masons and Concrete Finishers	\$43,092	\$47,994	1.1%	\$33,023	\$38,975	\$62,045	\$76,576
43-3031	Bookkeeping, Accounting, and Auditing Clerks	\$34,734	\$39,327	1.2%	\$27,482	\$34,596	\$49,323	\$62,886
13-1051	Cost Estimators	\$58,437	\$64,355	1.0%	\$39,028	\$50,099	\$82,776	\$104,831
53-3032	Heavy and Tractor-Trailer Truck Drivers	\$37,225	\$49,649	2.9%	\$28,309	\$37,841	\$62,909	\$76,108
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	\$32,478	\$37,803	1.5%	\$27,258	\$30,377	\$47,511	\$51,861
47-2221	Structural Iron and Steel Workers	\$52,512	\$63,361	1.9%	\$44,338	\$54,658	\$76,813	\$82,762

Source: Lightcast.

Economic and Fiscal Impact of the Commercial Construction Industry

The sales of the commercial construction industry directly support jobs and earnings in the Cincinnati MSA, and in turn stimulate additional economic activity for the businesses and industries supported by the commercial construction industry. In addition to the economic impact generated by the commercial construction industry, fiscal impacts also accrue to state and local jurisdictions in the form of earnings and sales tax revenue.

Table 5 details the economic impact of the commercial construction industry's sales to industries and consumers within the Cincinnati MSA during 2022. The commercial construction industry had sales of \$5.2 billion to industries and consumers within the Cincinnati MSA during 2022. This led to further indirect economic activity of \$4.0 billion for the industries supported by the sales of the commercial construction industry. The commercial construction industry's sales to industries and consumers within the Cincinnati MSA directly supported 31,011 jobs with earnings of \$2.2 billion. An additional 23,271 jobs with earnings of \$1.4 billion were indirectly supported within the Cincinnati MSA. The commercial construction industry's sales to industries and consumers within the Cincinnati MSA had a total economic impact of \$9.2 billion, a total employment impact of 54,282 jobs, and a total earnings impact of \$3.7 billion. Furthermore, the commercial construction industry within the Cincinnati MSA also generated nearly \$1.1 billion in sales to industries and consumers outside of the Cincinnati MSA, referred to as exported sales. Although unknown, a portion of exported sales supports the local activities of the commercial construction industry. Therefore, the additional impacts occurring in the Cincinnati MSA as a result of the exported sales of the commercial construction industry are not included in the impacts detailed in this analysis.

Table 5: Economic Impact of the Commercial Construction Industry in the Cincinnati MSA, 2022 (2022\$)

Impact Type	Sales	Jobs	Earnings
Direct	\$5,190,017,881	31,011	\$2,226,768,799
Indirect	\$3,966,700,170	23,271	\$1,449,669,559
Total	\$9,156,718,051	54,282	\$3,676,438,358

Source: Economics Center analysis using data from Lightcast.

Table 6 details the fiscal impact of the commercial construction industry in the Cincinnati MSA during 2022. The wages supported by the commercial construction industry in the Cincinnati MSA generated a total of \$172.0 million in earnings tax revenue for state and local jurisdictions during 2022. A total of \$108.6 million in state earnings tax revenue was generated by the commercial construction industry in the Cincinnati MSA, of which the State of Ohio received \$66.1 million, the Commonwealth of Kentucky received \$37.9 million, and the State of Indiana received \$4.6 million. Counties in the Commonwealth of Kentucky and the State of Indiana received \$4.0 million and \$1.2 million in earnings tax revenue, respectively. Additionally, municipalities in the State of Ohio and the Commonwealth of Kentucky received \$47.2 million and \$11.0 million in earnings tax revenue, respectively.

The spending of the wages supported by the commercial construction industry in the Cincinnati MSA resulted in \$59.2 million in sales tax revenue for state and local jurisdictions during 2022. A total of \$51.5 million in state sales tax revenue was generated, of which the State of Ohio received \$40.2 million, the Commonwealth of Kentucky received \$9.7 million, and the State of Indiana received \$1.6 million. Additionally, counties in the State of Ohio received \$7.7 million in sales tax revenue as a result of the spending of the wages supported by the commercial construction industries in the Cincinnati MSA during 2022.

In total, the commercial construction industry in the Cincinnati MSA led to approximately \$231.2 million in earnings and sales tax revenue for state and local jurisdictions during 2022. Jurisdictions in Ohio received 69.7 percent of the total tax revenue generated by the commercial construction industry in the Cincinnati MSA, while jurisdictions in Kentucky and Indiana received 27.1 percent and 3.2 percent of the total tax revenue generated, respectively. Approximately 60.3 percent, or \$139.5 million, of the tax revenue was directly generated by the commercial construction industry in the Cincinnati MSA, while the remaining 39.7 percent, or \$91.7 million, was indirectly generated.

Table 6: Fiscal Impact of the Commercial Construction Industry, 2022 (2022\$)

State	Jurisdiction	Earnings Tax Revenue	Sales Tax Revenue	Total Tax Revenue
Ohio	Municipalities	\$47,158,952	N/A	\$47,158,952
	Counties	N/A	\$7,740,397	\$7,740,397
	State	\$66,099,215	\$40,152,796	\$106,252,011
	Total	\$113,258,167	\$47,893,193	\$161,151,360
Kentucky	Municipalities	\$11,028,145	N/A	\$11,028,145
	Counties	\$4,005,797	N/A	\$4,005,797
	State	\$37,901,435	\$9,720,838	\$47,622,273
	Total	\$52,935,377	\$9,720,838	\$62,656,215
Indiana	Municipalities	N/A	N/A	N/A
	Counties	\$1,164,088	N/A	\$1,164,088
	State	\$4,607,018	\$1,602,596	\$6,209,614
	Total	\$5,771,106	\$1,602,596	\$7,373,702
Total	Municipalities	\$58,187,097	N/A	\$58,187,097
	Counties	\$5,169,885	\$7,740,397	\$12,910,282
	State	\$108,607,668	\$51,476,230	\$160,083,898
	Total	\$171,964,650	\$59,216,627	\$231,181,277

Source: Economics Center analysis using data from Lightcast.

Potential Economic and Fiscal Impact of Retained Sales of the Commercial Construction Industry

During 2022, industries and consumers in the Cincinnati MSA spent approximately \$655.8 million with firms in the commercial construction industry located outside of the Cincinnati MSA. This is due to a variety of factors that may include companies hiring general contractors from outside of the Cincinnati MSA without putting the project out to bid in the local community. This mismatch may also be due, in part, to the timing of construction projects taking place within and outside of the Cincinnati Region.

Table 7 details the potential, additional economic impact of the commercial construction industry in the Cincinnati MSA if the needs of all industries and consumers within the Cincinnati MSA were met by local firms. If the \$655.8 million in sales met by firms outside of the Cincinnati MSA were retained in the local economy, an additional \$502.5 million in indirect economic activity would be supported. If the commercial construction industry in the Cincinnati MSA were to retain these sales, 3,456 jobs with earnings of \$264.3 million would be directly supported in the Cincinnati MSA and an additional 2,746 jobs with earnings of \$172.4 million would be indirectly supported in the Cincinnati MSA. In total, an additional \$1.2 billion in economic activity, 6,202 jobs, and \$436.7 million in earnings would be supported in the Cincinnati MSA if the needs of all industries and consumers in the Cincinnati MSA were met by local firms.

Table 7: Economic Impact of Retained Sales of the Commercial Construction Industry in the Cincinnati MSA, 2022 (2022\$)

Impact Type	Sales	Jobs	Earnings
Direct	\$655,767,131	3,456	\$264,316,343
Indirect	\$502,510,587	2,746	\$172,394,017
Total	\$1,158,277,718	6,202	\$436,710,360

Source: Economics Center analysis using data from Lightcast.

If the commercial construction needs of all industries and consumers in the Cincinnati MSA were met by local firms, state and local jurisdictions would benefit from additional earnings and sales tax revenue. The wages supported by the retained sales of the commercial construction industry in the Cincinnati MSA would generate a total of \$20.5 million in earnings tax revenue and \$7.0 million in sales tax revenue for state and local jurisdictions. The State of Ohio would benefit from an additional \$8.0 million in earnings tax revenue and \$4.8 million in sales tax revenue. Counties in Ohio would benefit from \$919,491 in sales tax revenue, while municipalities in Ohio would benefit from \$5.6 million in earnings tax revenue. The Commonwealth of Kentucky would benefit from \$4.5 million in earnings tax revenue and \$1.2 million in sales tax revenue. Additionally, counties and municipalities in Kentucky would benefit from \$475,834 and \$1.3 million in earnings tax revenue, respectively. The State of Indiana would benefit from \$547,250 in earnings tax revenue and \$190,374 in sales tax revenue, whereas counties in Indiana would benefit from \$138,278 in earnings tax revenue. As detailed in Table 8, the retained sales of the commercial construction industry in the Cincinnati MSA would generate a total of \$27.6 million in earnings and sales tax revenue for state and local jurisdictions, of which \$16.7 million would be directly generated and \$10.9 million would be indirectly generated.

Table 8: Fiscal Impact of Retained Sales of the Commercial Construction Industry, 2022 (2022\$)

State	Jurisdiction	Earnings Tax Revenue	Sales Tax Revenue	Total Tax Revenue
Ohio	Municipalities	\$5,601,836	N/A	\$5,601,836
	Counties	N/A	\$919,491	\$919,491
	State	\$7,957,879	\$4,769,799	\$12,727,678
	Total	\$13,559,715	\$5,689,290	\$19,249,005
Kentucky	Municipalities	\$1,309,992	N/A	\$1,309,992
	Counties	\$475,834	N/A	\$475,834
	State	\$4,502,170	\$1,154,750	\$5,656,920
	Total	\$6,287,996	\$1,154,750	\$7,442,746
Indiana	Municipalities	N/A	N/A	N/A
	Counties	\$138,278	N/A	\$138,278
	State	\$547,250	\$190,374	\$737,624
	Total	\$685,528	\$190,374	\$875,902
Total	Municipalities	\$6,911,828	N/A	\$6,911,828
	Counties	\$614,112	\$919,491	\$1,533,603
	State	\$13,007,299	\$6,114,923	\$19,122,222
	Total	\$20,533,239	\$7,034,414	\$27,567,653

Source: Economics Center analysis using data from Lightcast.

Supply Chain Analysis of the Commercial Construction Industry

The commercial construction industry supports other industries by purchasing materials, equipment, services, and more to support its construction and business efforts. As a result, the commercial construction industry has wide-reaching benefits for related industries and businesses. During 2022, the commercial construction industry in the Cincinnati MSA made total purchases of \$2.7 billion, as detailed in Table 9. The industries benefiting the most from the spending of the commercial construction industry were the manufacturing industry; the wholesale trade industry; the retail trade industry; the professional, scientific, and technical services industry; and the real estate, rental, and leasing industry. The commercial construction industry in the Cincinnati MSA spent a total of \$1.1 billion with businesses in the manufacturing industry; \$352.7 million with businesses in the wholesale trade industry; \$321.0 million with businesses in the retail trade industry; \$240.1 million with businesses in the professional, scientific, and technical services industry; and \$147.3 million with businesses in the real estate, rental, and leasing industry. The manufacturing industry accounted for 41.9 percent of the total purchases made by the commercial construction industry in the Cincinnati MSA, while the wholesale trade industry and the retail trade industry accounted for 12.9 percent and 11.7 percent of total purchases, respectively. Additionally, the professional, scientific, and technical services industry and the real estate, rental, and leasing industry accounted for 8.8 percent and 5.4 percent, respectively, of the total purchases made by the commercial construction industry in the Cincinnati MSA. Collectively, these five industries accounted for 80.7 percent of the total purchases made by the commercial construction industry in the Cincinnati MSA, highlighting the importance of these industries in the commercial construction industry's supply chain.

Of the \$2.7 billion spent by the Cincinnati MSA's commercial construction industry during 2022, approximately 51.1 percent was spent with businesses in the Cincinnati MSA. The remaining 48.9 percent was spent with businesses outside of the local economy. Within the Cincinnati MSA, the industries benefiting the most from the commercial construction industry were the manufacturing industry (\$414.7 million); the wholesale trade industry (\$222.0 million); and the professional, scientific, and technical services industry (\$191.3 million). Approximately 79.7 percent and 62.9 percent of the purchases made by the Cincinnati MSA's commercial construction industry in the professional, scientific, and technical services industry and the wholesale trade industry were made from businesses within the Cincinnati MSA, respectively. This means that the purchases of the Cincinnati MSA's commercial construction industry on the professional, scientific, and technical services industry and the wholesale trade industry primarily benefited local businesses in the Cincinnati MSA. However, only 36.1 percent of the purchases made in the manufacturing industry by the Cincinnati MSA's commercial construction industry were made from businesses within the Cincinnati MSA. This means that the local commercial construction industry imports more from businesses in the manufacturing industry that were located outside of the local economy than it purchased from businesses in the Cincinnati MSA. This suggests that the manufacturing industry in the Cincinnati MSA does not have the capabilities required to support the Cincinnati MSA's commercial construction industry.

Table 9: Industry Purchases for the Commercial Construction Industry in the Cincinnati MSA, 2022 (2022\$)

NAICS Code	Industry	In-Region Purchases	Percent In-Region Purchases	Imported Purchases	Percent Imported Purchases	Total Purchases
11	Agriculture, Forestry, Fishing and Hunting	\$2,089,142	25.8%	\$6,018,571	74.2%	\$8,107,713
21	Mining, Quarrying, and Oil and Gas Extraction	\$16,585,171	21.6%	\$60,298,396	78.4%	\$76,883,567
22	Utilities	\$10,668,074	58.2%	\$7,672,916	41.8%	\$18,340,990
23	Construction	\$707,951	83.3%	\$141,495	16.7%	\$849,446
31-33	Manufacturing	\$414,715,691	36.1%	\$734,000,672	63.9%	\$1,148,716,363
42	Wholesale Trade	\$222,044,383	62.9%	\$130,690,330	37.1%	\$352,734,712
44-45	Retail Trade	\$123,641,000	38.5%	\$197,375,897	61.5%	\$321,016,897
48-49	Transportation and Warehousing	\$84,096,423	64.9%	\$45,480,465	35.1%	\$129,576,888
51	Information	\$39,735,860	48.7%	\$41,900,096	51.3%	\$81,635,955
52	Finance and Insurance	\$47,916,574	81.6%	\$10,784,943	18.4%	\$58,701,517
53	Real Estate and Rental and Leasing	\$117,753,612	80.0%	\$29,525,516	20.0%	\$147,279,128
54	Professional, Scientific, and Technical Services	\$191,278,375	79.7%	\$48,849,910	20.3%	\$240,128,286
55	Management of Companies and Enterprises	\$36,698,427	86.5%	\$5,741,498	13.5%	\$42,439,925
56	Administrative and Support and Waste Management and Remediation Services	\$56,045,347	85.1%	\$9,821,490	14.9%	\$65,866,836
61	Educational Services	\$1,836,694	40.5%	\$2,695,949	59.5%	\$4,532,643
62	Health Care and Social Assistance	\$4,643,950	87.8%	\$642,594	12.2%	\$5,286,544
71	Arts, Entertainment, and Recreation	\$3,323,057	78.2%	\$927,611	21.8%	\$4,250,667
72	Accommodation and Food Services	\$2,774,257	71.0%	\$1,132,130	29.0%	\$3,906,387
81	Other Services (except Public Administration)	\$21,533,096	76.7%	\$6,558,879	23.3%	\$28,091,975
90	Government	\$456,377	95.1%	\$23,406	4.9%	\$479,783
	Total	\$1,398,543,461	51.1%	\$1,340,282,764	48.9%	\$2,738,826,222

Source: Economics Center analysis of data from Lightcast.

Construction Industry Comparison in Select MSAs

To contextualize the construction industry, and specifically the commercial construction industry, in the Cincinnati MSA, the industry sales, jobs, and earnings as well as the union membership rate were compared for select MSAs during 2021.¹² Table 10 details the sales, jobs, and earnings for the overall construction industry. In 2021, the construction industry in the Cincinnati MSA had sales of \$12.9 billion, 75,952 jobs, and earnings of \$4.1 billion. The Cincinnati MSA has more commercial construction jobs than the Cleveland, Columbus, Lexington, and Louisville MSAs. The Cincinnati MSA has greater sales than the Cleveland, Lexington and Louisville MSAs and nearly equal to the Columbus MSA. The Cincinnati MSA has greater earnings than the Cleveland, Columbus, Lexington, and Louisville MSAs.

The construction industry in the Pittsburgh MSA and the Indianapolis MSA were larger than the construction industry in the Cincinnati MSA based on sales, jobs and earnings, while the construction industry in the Columbus MSA was larger based only on sales. The Pittsburgh MSA had sales of \$14.8 billion, 85,605 jobs, and earnings of \$5.6 billion in 2021, while the Indianapolis MSA had sales of \$14.3 billion, 82,438 jobs, and earnings of \$4.9 billion. Additionally, the construction industry in the Columbus MSA had \$13.0 billion in sales, 71,465 jobs, and \$3.9 billion in earnings in 2021.

Furthermore, the construction industry in the Cleveland MSA, Louisville MSA, and Lexington MSA was smaller than the construction industry in the Cincinnati MSA during 2021. Construction industry sales in 2021 totaled \$10.4 billion in the Cleveland MSA, \$7.5 billion in the Louisville MSA, and \$3.3 billion in the Lexington MSA. The Cleveland MSA, the Louisville MSA, and the Lexington MSA had 62,183 jobs, 43,157 jobs, and 19,347 jobs in the construction industry in 2021, respectively. Additionally, earnings in the construction industry totaled \$3.1 billion in the Cleveland MSA, \$2.2 billion in the Louisville MSA, and \$1.0 billion in the Lexington MSA in 2021.

¹² Data from the U.S. Bureau of Economic Analysis reflects 2021, which was the most recent data available at the time of analysis.

Table 1: Construction Industry Comparison in Select MSAs, 2021 (2021\$)

MSA	Sales ¹³	Jobs	Earnings
Cincinnati, OH-KY-IN	\$12,923,990,296	75,952	\$4,110,522,000
Cleveland-Elyria, OH	\$10,408,945,319	62,183	\$3,157,267,000
Columbus, OH	\$12,975,960,136	71,465	\$3,942,368,000
Indianapolis-Carmel-Anderson, IN	\$14,265,152,643	82,438	\$4,948,068,000
Lexington-Fayette, KY	\$3,347,823,918	19,347	\$1,016,326,000
Louisville/Jefferson County, KY-IN	\$7,467,929,749	43,157	\$2,206,099,000
Pittsburgh, PA	\$14,813,173,440	85,605	\$5,629,141,000

Source: Economics Center analysis of data retrieved from Lightcast and the U.S. Bureau of Economic Analysis.

Table 11 details the estimated sales, jobs, and earnings for the commercial construction industry in select MSAs during 2021. The commercial construction industry in the Cincinnati MSA had estimated sales of \$6.0 billion, 29,466 jobs, and earnings of \$1.9 billion in 2021. Similar to the overall construction industry, the commercial construction industry in the Pittsburgh MSA and the Indianapolis MSA were larger than the commercial construction industry in the Cincinnati MSA based on sales, jobs, and earnings, while the commercial construction industry in the Columbus MSA was larger based only on sales. The estimated sales of the commercial construction industry totaled \$7.1 billion in the Pittsburgh MSA, \$6.8 billion in the Indianapolis MSA, and \$6.0 billion in the Columbus MSA in 2021. During 2021, the estimated jobs in the commercial construction industry totaled 35,114 jobs in the Pittsburgh MSA, 33,815 jobs in the Indianapolis MSA, and 29,014 jobs in the Columbus MSA. Additionally, the estimated earnings in the commercial construction industry in the Pittsburgh MSA, Indianapolis MSA, and Columbus MSA were \$2.7 billion, \$2.4 billion, and \$1.8 billion in 2021, respectively.

Similar to the overall construction industry, the commercial construction industry in the Cleveland MSA, Louisville MSA, and Lexington MSA was estimated to be smaller than the commercial construction industry in the Cincinnati MSA during 2021. The commercial construction industry in the Cleveland MSA had an estimated \$5.4 billion in sales, 27,150 jobs, and \$1.6 billion in earnings in 2021. The commercial construction industry in the Louisville MSA had estimated sales of \$3.6 billion, 17,702 jobs, and earnings of \$1.1 billion. Additionally, the commercial construction industry in the Lexington MSA had an estimated \$1.6 billion in sales, 7,936 jobs, and \$487.8 million in earnings.

¹³ Estimated by the Economics Center.

Table 2: Estimated Commercial Construction Industry Comparison in Select MSAs, 2021 (2021\$)

MSA	Sales	Jobs	Earnings
Cincinnati, OH-KY-IN	\$5,950,928,741	29,466	\$1,889,289,958
Cleveland-Elyria, OH	\$5,398,560,988	27,150	\$1,637,759,552
Columbus, OH	\$5,984,337,296	29,014	\$1,819,212,284
Indianapolis-Carmel-Anderson, IN	\$6,848,646,357	33,815	\$2,374,745,274
Lexington-Fayette, KY	\$1,607,277,725	7,936	\$487,769,239
Louisville/Jefferson County, KY-IN	\$3,585,325,103	17,702	\$1,058,781,564
Pittsburgh, PA	\$7,111,749,089	35,114	\$2,701,615,254

Source: Economics Center analysis of data retrieved from Lightcast and the U.S. Bureau of Economic Analysis.

According to the U.S. Bureau of Labor Statistics, 10.1 percent of wage and salary workers in the United States were members of unions in 2022.¹⁴ In the tristate, the union membership rate in 2022 was 12.8 percent in Ohio, 7.9 percent in Kentucky, and 7.4 percent in Indiana.¹⁵ This means that the union membership rate in 2022 was higher in the State of Ohio than nationally but lower than the national rate in the Commonwealth of Kentucky and the State of Indiana.

Nationally, the union membership rate in the construction industry was 11.7 percent.¹⁶ In comparison, the union membership rate in the construction industry was 19.0 percent in Ohio, 7.1 percent in Kentucky, and 8.3 percent in Indiana.¹⁷ This means that the union membership rate in the construction industry in 2022 was higher in the State of Ohio than nationally but lower than the national rate in the Commonwealth of Kentucky and the State of Indiana.

Table 12 details the construction industry's union membership rate in select MSAs in 2022. The union membership rate for the construction industry was 10.5 percent in the Cincinnati MSA in 2022. The union membership rate for the Cincinnati MSA's construction industry was lower than the union membership rate in the construction industry for the Pittsburgh MSA (49.7%), the Cleveland MSA (26.5%), and the Columbus MSA (16.8%). This indicates that the construction industry's union membership rate was 4.7 times as high in the Pittsburgh MSA, 2.5 times as high in the Cleveland MSA, and 1.6 times as high in the Columbus MSA than in the Cincinnati MSA during 2022. Additionally, the union membership rate for the construction industry was 9.0 percent in the Louisville MSA, 6.7 percent in the Indianapolis MSA, and 0.0 percent in the Lexington MSA in 2022.

¹⁴ (U.S. Bureau of Labor Statistics 2023)

¹⁵ (U.S. Bureau of Labor Statistics 2023)

¹⁶ (U.S. Bureau of Labor Statistics 2023)

¹⁷ (Hirsch, Macpherson and Even, By Sector and State: 1983-2022 2023b)

Table 3: Union Membership Rates for the Construction Industry for Select MSAs, 2022

Metropolitan Statistical Area	Union Membership Rate
Cincinnati, OH-KY-IN	10.5%
Cleveland-Elyria, OH	26.5%
Columbus, OH	16.8%
Indianapolis-Carmel-Anderson, IN	6.7%
Lexington-Fayette, KY	0.0%
Louisville/Jefferson County, KY-IN	9.0%
Pittsburgh, PA	49.7%

Source: Hirsch, Macpherson, and Even (2023a).

Construction Industry Comparison with All Industries in the Cincinnati MSA

To contextualize the size and importance of the Cincinnati MSA's construction industry, and specifically the commercial construction industry, relative to other industries, Table 13 details the total jobs, average earnings per job, total earnings, and total sales of all industries in the Cincinnati MSA during 2022. The construction industry in the Cincinnati MSA comprised 5.7 percent of the total jobs, 5.6 percent of the total earnings, and 4.3 percent of the total sales of all industries in the Cincinnati MSA. Out of 21 industries, the construction industry ranked 10th in total jobs, 8th in total earnings, and 8th in total sales compared to all other industries in the Cincinnati MSA during 2022. The construction industry represented 79,934 jobs in the Cincinnati MSA during 2022, which fell between the other services (except public administration) industry (71,688 jobs) and the finance and insurance industry (84,064 jobs). During 2022, the construction industry generated \$5.4 billion in earnings and \$13.6 billion in sales. The earnings of the construction industry fell between the retail trade industry (\$5.2 billion) and the wholesale trade industry (\$5.6 billion), whereas the sales of the construction industry fell between the management of companies and enterprises industry (\$12.9 billion) and the retail trade industry (\$15.3 billion).

During 2022, the commercial construction industry in the Cincinnati MSA comprised 38.8 percent of the total jobs, 41.1 percent of the total earnings, and 46.0 percent of the total sales of the entire construction industry in the Cincinnati MSA. Furthermore, the commercial construction industry in the Cincinnati MSA comprised 2.2 percent of the total jobs, 2.3 percent of the total earnings, and 2.0 percent of the total sales of all industries in the Cincinnati MSA during 2022. The commercial construction industry represented 31,011 jobs in the Cincinnati MSA and generated \$2.2 billion in earnings and \$6.3 million in sales during 2022. If the commercial construction industry were its own NAICS designation, the commercial construction industry would have ranked 16th of 22 industries in total jobs, 15th in total earnings, and 15th in total sales compared to all other industries in the Cincinnati MSA.

Table 4: Industry Comparison in the Cincinnati MSA, 2022 (2022\$)

NAICS Code	Industry	Jobs	Average Earnings Per Job	Total Earnings	Total Sales
11	Agriculture, Forestry, Fishing and Hunting	11,850	\$31,903	\$378,045,289	\$1,540,208,808
21	Mining, Quarrying, and Oil and Gas Extraction	699	\$86,951	\$60,743,656	\$268,765,234
22	Utilities	2,896	\$153,174	\$443,560,121	\$3,155,846,396
23	Construction	79,934	\$67,857	\$5,424,117,356	\$13,601,567,310
	Commercial Construction	31,011	\$71,806	\$2,226,768,799	\$6,256,512,824
31-33	Manufacturing	121,759	\$101,579	\$12,368,173,213	\$70,524,548,346
42	Wholesale Trade	55,213	\$101,101	\$5,582,087,037	\$25,319,607,268
44-45	Retail Trade	125,033	\$41,828	\$5,229,943,341	\$15,332,942,695
48-49	Transportation and Warehousing	89,409	\$55,390	\$4,952,363,997	\$12,870,357,908
51	Information	16,423	\$96,634	\$1,587,018,589	\$7,683,936,250
52	Finance and Insurance	84,064	\$96,455	\$8,108,417,497	\$29,315,675,392
53	Real Estate and Rental and Leasing	64,797	\$53,272	\$3,451,848,265	\$12,767,667,216
54	Professional, Scientific, and Technical Services	90,131	\$89,793	\$8,093,163,650	\$16,435,523,126
55	Management of Companies and Enterprises	43,948	\$162,478	\$7,140,555,748	\$12,942,292,009
56	Administrative and Support and Waste Management and Remediation Services	88,797	\$51,640	\$4,585,471,890	\$11,242,951,986
61	Educational Services	25,054	\$36,400	\$911,977,939	\$1,414,209,039
62	Health Care and Social Assistance	166,137	\$74,724	\$12,414,491,501	\$23,450,899,023
71	Arts, Entertainment, and Recreation	37,808	\$38,028	\$1,437,798,478	\$3,552,749,596
72	Accommodation and Food Services	103,645	\$26,354	\$2,731,418,284	\$8,969,791,673
81	Other Services (except Public Administration)	71,688	\$36,257	\$2,599,172,117	\$4,923,617,654
90	Government	129,960	\$77,295	\$10,045,234,632	\$42,241,792,972
99	Unclassified Industry	254	\$71,855	\$18,229,074	Insufficient Data
	Total	1,409,500	\$69,219	\$97,563,831,675	\$317,554,949,902

Source: Economics Center analysis of data retrieved from Lightcast.

Conclusion

This report quantifies the contributions of the Cincinnati region's commercial construction industry, presents demographic data, and provides comparative Metropolitan Statistical Area data with select other MSAs.

It is the hope of Allied Construction Industries that these data will prove helpful to our region's business, community and political leaders as they make decisions that affect our collective future. We also hope that this report will be helpful to our partner organizations who are focused on workforce development.

It is our deeply held belief that the Cincinnati region's commercial construction industry is an essential part of the overall region's renaissance and continued upward trajectory. It was our privilege to work with the University of Cincinnati's Economic Center to bring these data to life, and it is our honor to be able to share it with you now.

Methodology

The North American Industry Classification System (NAICS) is the standard industry classification system used by federal statistical agencies. There are five levels of classification with a two-digit code representing the broadest industry definition and a six-digit code representing the most detailed industry definition. The construction industry (NAICS 23) includes the construction of buildings industry (NAICS 236), the heavy and civil engineering construction industry (NAICS 237), and the specialty trade contractors industry (NAICS 238). For the purposes of this study, the commercial construction industry is defined as the new multifamily housing construction (except for-sale builders) industry (NAICS 236116); the industrial building construction industry (NAICS 236210); the commercial and institutional building construction industry (NAICS 236220); the highway, street, and bridge construction industry (NAICS 237310); and portions of the specialty trades contractors industry (NAICS 238).

Because specialty trades contractors work within the entire construction industry, the Economics Center estimated what portion of sales and jobs would be attributable to the commercial construction industry defined in this study. Based on data retrieved from Lightcast, a third-party provider of labor market data, the Economics Center estimated that the new multi-family housing construction (except for-sale builders) industry; the industrial building construction industry; the commercial and institutional building construction industry; and the highway, street, and bridge construction industry accounted for 46.0 percent of the sales and 38.8 percent of the jobs in the construction of buildings industry and the heavy and civil engineering construction industry. Therefore, the Economics Center assumed that 46.0 percent of the sales and 38.8 percent of the jobs in the specialty trade contractor industry were directly associated with the commercial construction industry defined in this study.

Economic Impact

An economic impact analysis measures the effect of an organization or industry's expenditures or sales on its surrounding community. The total economic impact is the sum of the direct and indirect impacts. For this analysis, the direct impact is the local sales of the commercial construction industry and the associated jobs and earnings supported within the local economy. The indirect impact is the additional economic impact

resulting from the increased demand, income, and jobs within other industries, or the inter-industry linkages. The direct impact has ripple effects due to increased household income and spending, which are referred to as induced impacts. Induced impacts are reported within indirect impacts for the entirety of this report.

Data on the sales, jobs, and average earnings per job in the commercial construction industry during 2022 were retrieved from Lightcast. To determine the total earnings of the commercial construction industry, jobs were multiplied by the average earnings per job. The direct sales, earnings, and jobs of the commercial construction industry were used in an input-output model that uses multipliers to represent the inter-industry linkages and household economic relationships. Multipliers are used to determine the total economic impact when applied to the direct impact. This means that multipliers reflect how many additional dollars will be spent in a local economy by other businesses and households for every dollar spent by an organization or industry. These multipliers are location and industry specific and were obtained from Lightcast.

Fiscal Impact

The fiscal impact analysis estimates the subsequent impacts of the commercial construction industry on state and local earnings and sales tax revenue. State and local earnings tax revenue were calculated for the earnings, directly and indirectly, supported, as well as the state and local sales tax revenue resulting from the spending of those earnings.

State earnings tax revenue accrues to the state of residence of the worker, whereas local earnings tax revenue accrues to the jurisdiction of the workplace. The Economics Center assumed that workers in the commercial construction industry followed the same distribution of the state of residence as all employed workers 16 years of age and older in the Cincinnati MSA, based on data retrieved from the U.S. Census Bureau. Of employed workers 16 years of age and older in the Cincinnati MSA, approximately 75.5 percent resided in the State of Ohio, 20.6 percent resided in the Commonwealth of Kentucky, and 3.9 percent resided in the State of Indiana. The applicable state earnings tax rates for each state were then applied to the average earnings per direct and indirect job supported.

The Economics Center assumed that workers in the commercial construction industry followed the same distribution of the county and municipality of work as all employed workers 16 years of age and older in the Cincinnati MSA, based on data retrieved from the U.S. Census Bureau. Of employed workers 16 years of age and older in the Cincinnati MSA, approximately 78.8 percent worked in the State of Ohio, 18.9 percent worked in the Commonwealth of Kentucky, and 2.4 percent worked in the State of Indiana. Local earnings tax rates are assessed for municipalities in the State of Ohio, municipalities and counties in the Commonwealth of Kentucky, and counties in the State of Indiana. Weighted local earnings tax rates were calculated using the municipality and county of employment for employed workers 16 years of age and older in the Cincinnati MSA. The applicable weighted local earnings tax rates were then applied to the average earnings per direct and indirect job supported.

Sales tax revenue accrues to the State of Ohio, the Commonwealth of Kentucky, and the State of Indiana as well as to counties in the State of Ohio. The Economics Center assumed that the individuals, directly and indirectly, supported by the commercial construction industry spend their earnings in the local economy. To estimate the sales tax revenue generated, the Bureau of Labor Statistics' Consumer Expenditure Survey for the Midwest was utilized to determine what portion of average annual earnings were used to make taxable purchases. Taxable spending

was then factored for economic leakage, and the applicable sales tax rates were applied. A weighted sales tax rate was calculated based on the state and county of retail sales and food and beverage sales within the Cincinnati MSA.

Industry Comparison

Data on the total earnings and total jobs of the construction industry for select MSAs was obtained from the U.S. Bureau of Economic Analysis for 2021, which was the most recent data available at the time of analysis. The Economics Center estimated the corresponding sales in the construction industry for select MSAs using the sales per job for the construction industry in the Cincinnati MSA, Cleveland MSA, and Columbus MSA based on data retrieved from Lightcast. On average, each job was associated with \$173,041 in sales during 2022. The relationship between the commercial construction industry and the overall construction industry for the Cincinnati MSA, Cleveland MSA, and Columbus MSA was utilized to estimate the sales, earnings, and jobs in the commercial construction industry in select MSAs. On average, the commercial construction industry represented 48.0 percent of sales and earnings and 41.0 percent of jobs in the overall construction industry during 2022.

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