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Transportation and Distribution in Ohio

Transportation and distribution is not an especially large sector: as defined in this article, it accounts for 411,700 jobs in Ohio, 7.9 percent of the 5.2 million total. The sector's Gross Domestic Product (GDP) is \$54 billion, 9.2 percent of the \$583 billion total. But the importance of transportation and distribution lies its unique function of transporting residents and tourists into, through, and out of the state and linking manufacturers and raw material producers to consumers. Manufacturing would not be able to function without transportation.

As discussed here, the transportation and distribution sector includes two links in the supply chain: wholesale trade and transportation and warehousing. Wholesale trade, as defined by the North American Industry Classification System (NAICS), includes businesses that sell or arrange for the sale of goods for resale and raw materials used in production. Wholesale trade also includes the sale of capital goods to other businesses, including office and commercial equipment, medium and heavy-duty trucks, and machinery and equipment used in a production process. The sector also includes the increasingly important electronic markets that bring together buyers and sellers in virtual space. Transportation and warehousing includes businesses that transport passengers or freight; those that arrange for freight transportation (freight forwarders); those that support road, rail, and air transportation; and those that operate public warehouses and distribution centers.

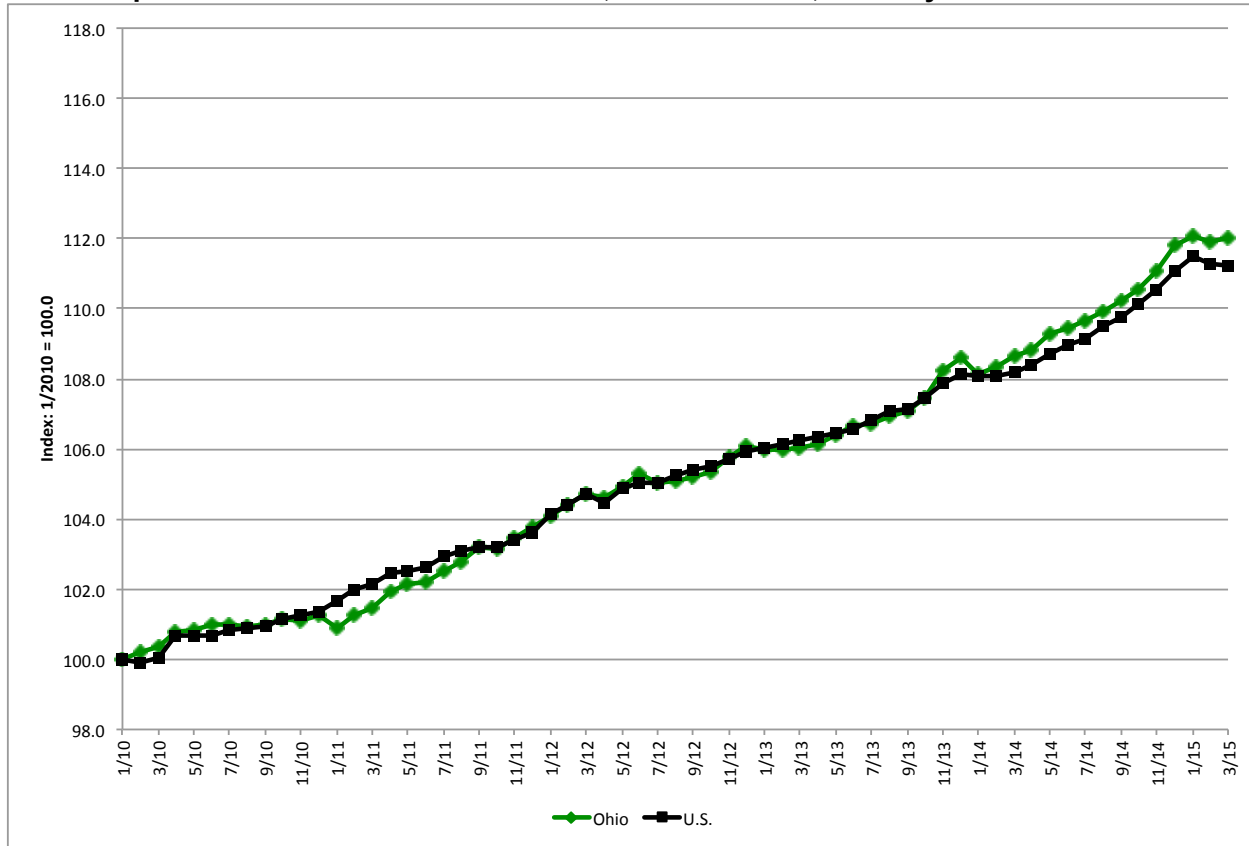
Note that warehouses can be classified either in wholesale trade or in transportation and warehousing. The question is whether the warehouse operator is storing goods to distribute on its own or is primarily providing space and possibly associated services to others who are distributing the goods. A warehouse operated by a manufacturer would be classified in wholesale trade. This raises an important point: classification under NAICS is at the level of business locations, not at the overall firm level. While Kraft Foods' manufacturing facilities are classified in manufacturing, its distribution facilities are classified in wholesale trade.

Employment Trends

Figure 1 on the next page compares monthly Ohio transportation and distribution employment growth to the U.S. average from January 2010 (the beginning of the employment recovery) through March 2015. The chart is constructed by converting each employment series to index values, with state and national employment in January 2010 set to 100. The result is a chart comparing cumulative employment growth. These are seasonally-adjusted employment totals from the Quarterly Census of Employment and Wages (QCEW), so they are highly accurate counts of total employment. Ohio employment growth lagged the national average somewhat

early in the recovery but more recent growth has lifted cumulative growth above the national average. Between January 2010 and March 2015, transportation and distribution has added 44,200 jobs, or 12 percent. U.S. growth has been 11.2 percent.

Figure 1
Transportation and Distribution Growth, Ohio and U.S., January 2010 – March 2015



Source: Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics, seasonally adjusted by Regionomics.

It is worthwhile looking at the two components of transportation and distribution individually because their growth patterns are different. These trends are shown in Figures 2 and 3 on the next page. These charts each have the same scale as that in Figure 1. While transportation and warehousing has been growing faster than wholesale trade, its growth has remained close to the national average. Wholesale trade is responsible for transportation and distribution lagging the average in the early months of the recovery and exceeding the average more recently. Note that while wholesale trade has maintained steady growth in Ohio, the pace of growth has slipped nationally.

Figure 2
Wholesale Trade Growth, Ohio and U.S., January 2010 – March 2015

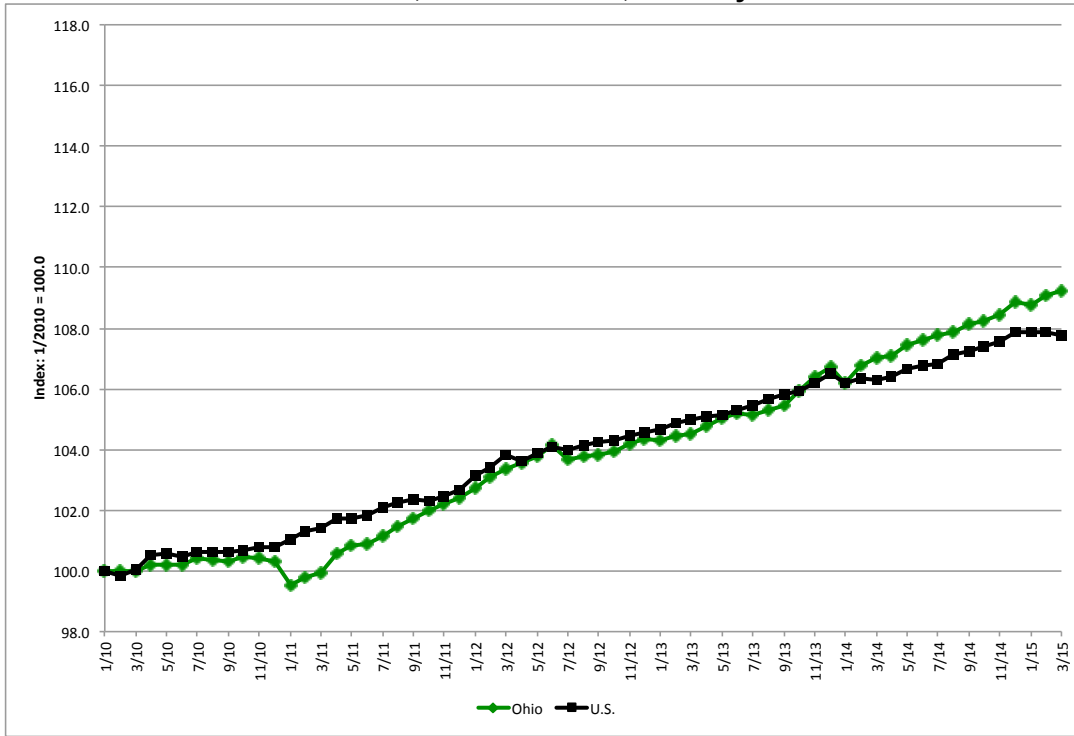
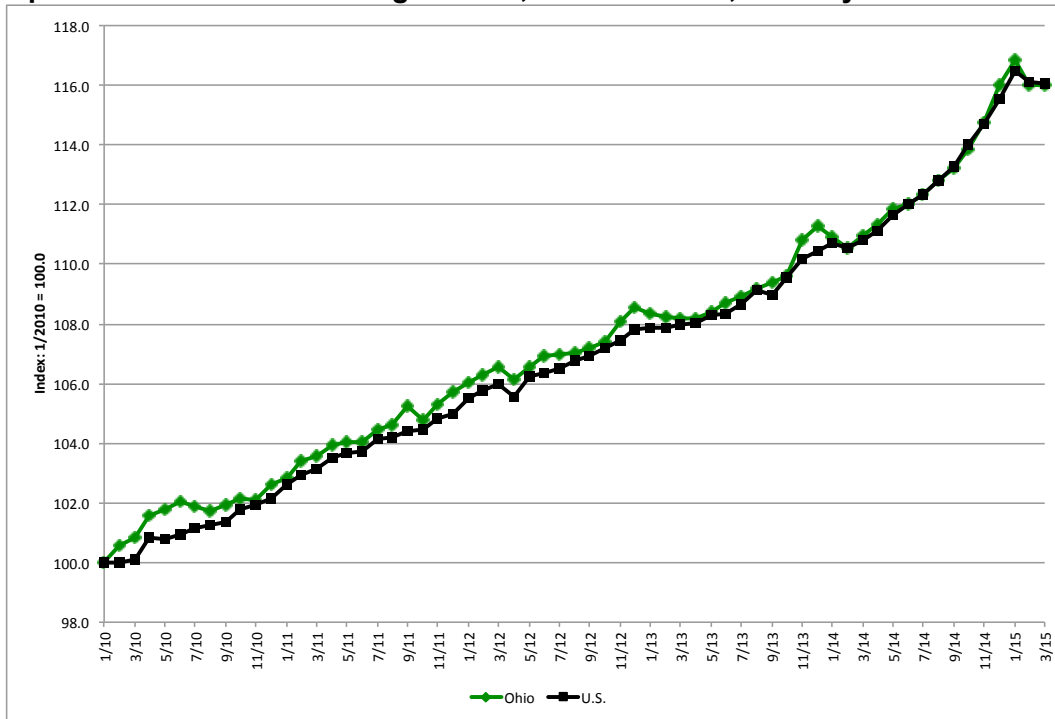


Figure 3
Transportation and Warehousing Growth, Ohio and U.S., January 2010 – March 2015



Source: Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics, seasonally adjusted by Regionomics.

Growth and Concentration of Transportation and Distribution Industries

The tables below detail the individual industries within wholesale trade and transportation and warehousing. The wholesale trade analysis in Table 1 is particularly valuable because wholesale trade businesses are classified by the type of good that they are distributing. Thus, Table 1 gives some degree of insight into the goods that are more prevalent than average in Ohio's distribution networks. The table includes average statewide employment during 2014, the location quotient, and net employment change in Ohio and statewide between 2010 and 2014. The location quotient, a measure of relative employment concentration, is calculated as the percentage of total Ohio employment in a given industry divided by the percentage of total employment in that industry nationally. Thus, a location quotient greater than one indicates an industry that has a greater-than-average share of employment.

Table 1
Ohio Wholesale Trade Industry Employment, Employment Concentration,
and Net Change, 2010-2014

Industry	Employment 2014	Location quotient	Net change, 2010-2014	
			Ohio	U.S.
Wholesale trade	232,282	1.053	7.4%	6.4%
Merchant wholesalers, durable goods	127,442	1.155	9.2%	7.0%
Motor vehicle and parts wholesalers	14,393	1.144	10.0%	7.2%
Furniture and furnishing wholesalers	3,039	0.790	16.0%	9.9%
Lumber and const. supply wholesalers	6,863	0.898	9.1%	7.0%
Commercial equip. wholesalers	23,988	1.029	1.4%	1.5%
Metal and mineral wholesalers	10,159	2.115	15.6%	13.5%
Appliance & electric goods wholesalers	11,595	0.950	1.4%	4.1%
Hardware and plumbing wholesalers	10,843	1.214	6.2%	7.3%
Machinery and supply wholesalers	32,690	1.272	13.3%	11.6%
Misc. durable goods wholesalers	13,873	1.222	18.2%	8.3%
Merchant wholesalers, nondurable goods	67,401	0.883	-5.7%	3.9%
Paper and paper product wholesalers	5,303	1.137	-5.4%	-1.0%
Druggists' goods wholesalers	6,760	0.912	-16.5%	2.7%
Apparel and piece goods wholesalers	1,337	0.242	-20.0%	6.0%
Grocery & related product wholesalers	23,922	0.860	-1.6%	3.4%
Farm product raw material wholesalers	3,119	1.106	0.9%	0.1%
Chemical wholesalers	8,120	1.667	0.7%	6.8%
Petroleum wholesalers	3,063	0.818	-3.6%	5.5%
Alcoholic beverage wholesalers	5,830	0.836	13.4%	13.4%
Misc. nondurable goods wholesalers	9,947	0.798	-19.5%	1.0%
Electronic markets and agents & brokers	37,439	1.101	32.8%	10.3%

Source: Calculated from Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics.

Not surprisingly, the important wholesale industries are generally those distributing goods produced by important manufacturing and agricultural industries: motor vehicles and parts, metals and minerals, hardware and plumbing (fabricated metal products), machinery, farm products, and chemicals. As the table makes clear, Ohio's wholesale trade sector is outperforming the average because of the growth of industries distributing durable goods. Those distributing nondurable goods are as a group seriously underperforming – particularly druggists' goods, apparel, and miscellaneous nondurable goods (including farm supplies, books, flowers and florists' supplies, tobacco, and paint and painters' supplies). Grocery wholesalers lost nearly 400 jobs, but if growth had been average, the industry would have gained more than 800 jobs. On the other hand, electronic markets have enjoyed growth triple

the national average over the past four years. As a result, this industry's employment concentration rose from 10 percent below average in 2010 to 10 percent above average in 2014.

Table 2 presents the same information for transportation and warehousing industries. This table addresses a shortcoming of the QCEW data: railroad employment is not included. The QCEW relies on data from state unemployment insurance systems and the Unemployment Compensation for Federal Employees program, but railroad workers are covered by a separate retirement program. Thus, the total number of active covered workers in Ohio from the Railroad Retirement Board is included in the table. While Tables 2 and 3 both present private sector employment, a significant number of transit employees are employed by local government agencies, so these workers are included as well, as are postal workers, who are federal employees. These additional industries are shown in red in Table 2.

Table 2
Ohio Transportation and Warehousing Industry Employment, Employment Concentration, and Net Change, 2010-2014

Industry	Employment 2014	Location quotient	Net change, 2010-2014	
			Ohio	U.S.
Transportation and warehousing	170,691	1.024	10.8%	11.4%
Plus rail, public transit, and Postal Service	208,892	1.021	7.2%	7.7%
Air transportation	9,989	0.590	-4.5%	-0.4%
Scheduled air transportation	4,433	0.286	-18.6%	0.4%
Nonscheduled air transportation	5,557	3.928	10.9%	-8.6%
Rail transportation	8,200	0.896	-2.5%	-2.3%
Water transportation	635	0.246	5.8%	8.8%
Sea, coastal, and Great Lakes transport	412	0.269	0.2%	8.4%
Inland water transportation	223	0.214	18.0%	9.5%
Truck transportation	68,235	1.275	11.1%	12.8%
General freight trucking	51,414	1.405	7.5%	10.9%
Specialized freight trucking	16,822	0.995	24.0%	17.2%
Transit and ground passenger transport	9,597	0.552	20.0%	9.3%
Plus public employment	16,939	0.714	16.1%	7.8%
Urban & rural transit systems - private	454	0.190	9.1%	5.3%
Urban & rural transit systems - public	7,342	1.154	11.4%	4.0%
Taxi and limousine service	1,377	0.457	6.2%	17.5%
School & employee bus transportation	4,091	0.565	16.8%	4.4%
Charter bus industry	927	0.821	3.2%	0.2%
Other ground passenger transportation	2,748	0.761	45.9%	19.8%
Pipeline transportation	1,138	0.640	19.9%	10.9%
Scenic and sightseeing transportation	172	0.147	-26.5%	16.8%
Support activities for transportation	18,552	0.789	7.2%	14.5%
Support activities for air transportation	4,256	0.641	10.7%	13.2%
Support activities for rail transportation	1,191	0.987	7.7%	43.9%
Support activities for water transport	928	0.256	9.7%	8.5%
Support activities for road transport	2,938	0.843	10.0%	13.5%
Freight transportation arrangement	7,061	0.953	2.3%	15.1%
Other support activities for transport	2,178	1.913	12.4%	16.2%
Postal Service	22,659	1.007	-12.0%	-9.7%
Couriers and messengers	21,136	0.987	4.2%	8.6%
Warehousing and storage	41,161	1.464	18.3%	17.7%

Source: Calculated from Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics and Active Employees and Railroad Retirement Act Beneficiaries by State, Railroad Retirement Board.

Scheduled air transportation employment has declined as a result of the airlines realigning their routes to the detriment of Ohio airports, but charter air employment has grown significantly and now has a concentration nearly four times the national average. This industry includes Columbus-based NetJets, a unit of Berkshire Hathaway, that provides fractional aircraft ownership. The concentration of water transportation is perhaps surprisingly low given the importance of Lake Erie and Ohio River shipping, but this employment is concentrated in Ohio's border counties and is absent from the rest of the state. Truck transportation accounts for 40 percent of the sector's private employment and has a concentration 27.5 percent greater than the national average. Its growth, however, has been somewhat slower than average. Finally, warehousing and storage has enjoyed greater-than-average growth and sports an employment concentration more than 46 percent greater than average.

Transportation and Distribution Employment in Ohio's Regions

The economic diversity of Ohio's regions makes an analysis of regional transportation and distribution activity important. However, the suppression of employment data in the QCEW for confidentiality reasons includes many transportation and distribution industries in smaller counties, as well as total wholesale and transportation employment in even a number of larger ones. This is due to the fact that both wholesale trade and transportation and warehousing are part of the trade, transportation, and utilities supersector along with retail trade and utilities. Private-sector utilities employment is usually concentrated in one or two firms in each county, making its suppression necessary. If wholesale, retail, and transportation employment were all provided, the suppressed utilities employment could be found through subtraction. Thus, regional employment is estimated for transportation and distribution by using the Census Bureau's County Business Patterns database to estimate utilities employment and subtracting this and retail employment from the trade, transportation, and utilities total.

Estimated regional transportation and distribution employment is then calculated for the 13 regions that have been used consistently in these articles. These regions include the six largest Metropolitan Statistical Areas (MSAs) and seven other areas encompassing smaller MSAs and rural areas. These seven regions are designated on the basis of some level of economic similarity among adjacent counties – primarily based on manufacturing and agriculture. The regions are mapped in Figure 4.

**Figure 4
Ohio Regions**



Northwest ■ Toledo MSA ■ West North Central ■ Cleveland MSA ■ Akron MSA ■
 Northeast ■ West ■ Columbus MSA ■ East North Central ■ Dayton MSA ■
 Cincinnati MSA ■ South ■ Southeast ■

Table 3 presents each region's 2014 annual average transportation and distribution employment, the percentage of total wage and salary employment, the manufacturing employment location quotient, and employment change between 2010 and 2014.

Table 3
Estimated Regional Transportation and Distribution Employment,
Concentration, and Growth, 2010-2014

Region	Employment 2014	Location quotient	Net change, 2010-2014	
			Number	Percentage
US	10,204,155	1.000	794,033	7.8%
Ohio	402,974	1.041	32,573	8.1%
Northeast	30,290	0.892	2,795	9.2%
Southeast	7,415	0.795	1,284	17.3%
South	9,534	0.900	578	6.1%
West	22,366	1.092	1,606	7.2%
Northwest	4,361	0.825	353	8.1%
West North Central	11,523	0.730	-103	-0.9%
East North Central	7,202	0.867	980	13.6%
Akron	25,771	1.099	1,767	6.9%
Cincinnati	61,712	1.048	1,546	2.5%
Cleveland	70,410	0.951	592	0.8%
Columbus	78,490	1.098	6,049	7.7%
Dayton	22,699	0.857	2,626	11.6%
Toledo	21,250	1.003	1,535	7.2%
Total non-MSA	92,691	0.894	7,493	8.1%
Total MSA	280,332	1.018	14,115	5.0%

*Ohio counties only.

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

The location quotients indicate that while transportation and distribution activity is somewhat more heavily concentrated in the large MSAs, it is fairly well distributed around the state. This is consistent with the fact that manufacturing concentrations tend to be higher in smaller MSAs and rural areas. These factories need convenient transportation services. Growth over the four-year period was stronger in the non-MSA regions than in the large MSAs, and strongest in the Southeast. This may reflect the impact of increasing gas and oil activities in the Marcellus shale area – but not the decline in oil prices which began in late 2014. A double-digit gain was also registered in the East North Central region and the Dayton MSA. The East North Central region enjoyed above-average total employment growth over the period, but Dayton's 11.6 percent growth was a welcome relief from total employment growth much weaker than the statewide average. The two regions most seriously lagging were the West North Central region and Cleveland. Both regions were also plagued by total employment growth well below average.

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