



Environmental Scan

of Licking County, Ohio



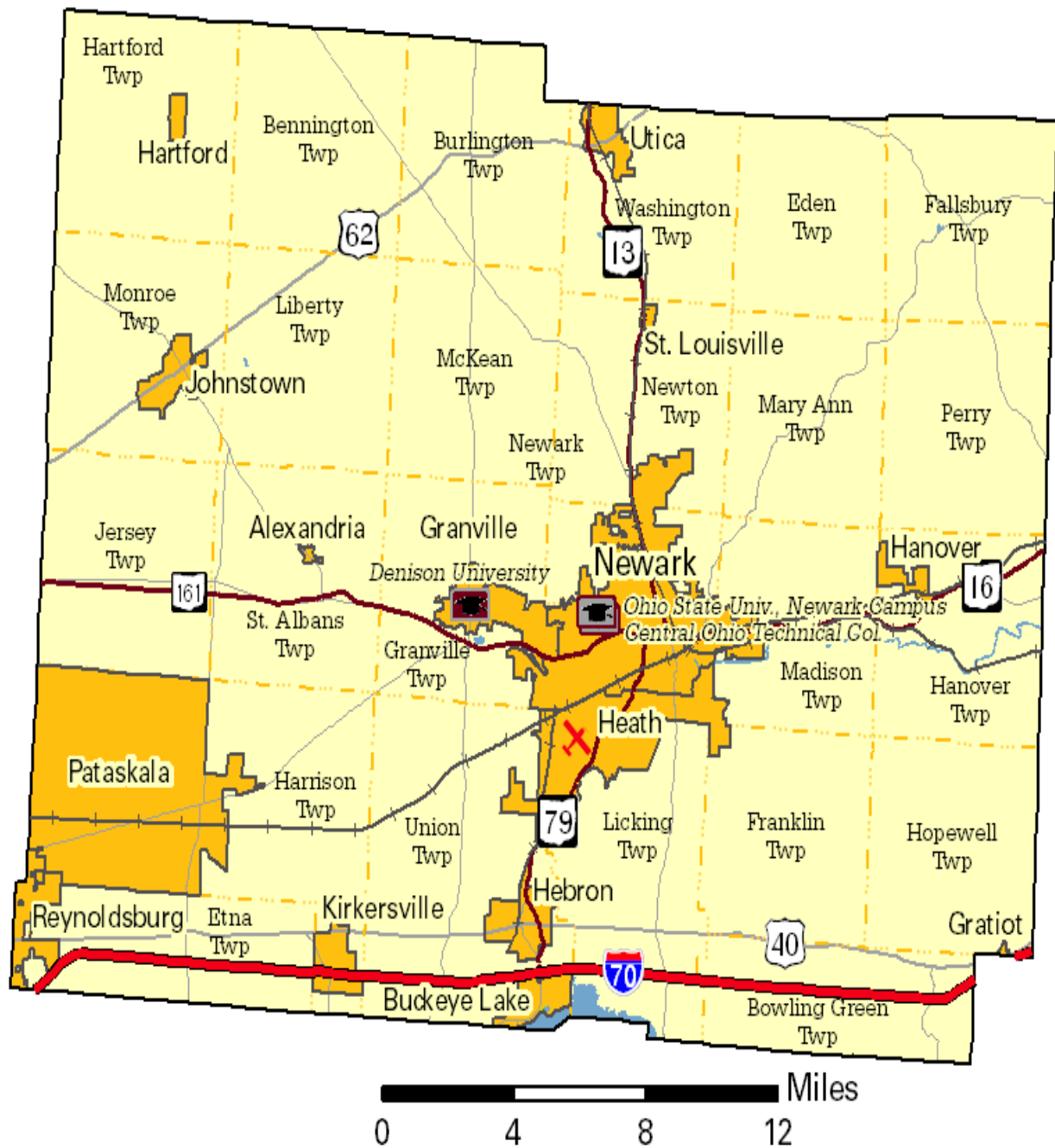
Economic Environmental Scan of Licking County, Ohio

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Map of Licking County, Ohio, and Localities



Source: Ohio Development Services Agency, Office of Research, *County Trends*, at www.development.ohio.gov/files/research/C1046.pdf.

I. Executive Summary

The *Economic Environmental Scan of Licking County, Ohio*, utilized the demographic data and commuting patterns for the county to identify the two dominant, population concentrations within the county of the contiguous Village of Granville/City of Newark/City of Heath area and the contiguous Etna Township (including part of the City of Reynoldsburg)/City of Pataskala area. The economic environmental scan also documented the impressive economic recovery of Licking County from the Great Recession of December, 2007, through June, 2009, in terms of labor force, employment, and income. Further, this report specified the recovery by Licking County economic sectors with the highest current payrolls, export sectors, and industries, businesses, and sectors which were largely unaffected by the Great Recession, that is, the most resilient parts of the local county economy. In addition, by applying employment multipliers from the Regional Input/Output Modeling System (i.e, RIMS II of the U.S. Bureau of Economic Analysis, localized for Licking County), the environmental scan determined on an objective, *ex ante* basis, the likely, relative total regional employment impacts by targeted economic sector and industry, to help economic developers and planners decide where to focus their efforts.

Hence, the economic environmental scan developed a balanced development strategy for Licking County, within the parameters of the largest economic impact sectors (based on total payroll), the export sectors (based on location quotients), the economically resilient sectors (based on the economic “stress test” of the Great Recession), and the industries with the highest employment multipliers (based on the RIMS II input/output model). As documented in the following report sections, these economic development parameters equilibrated into an economic development strategy focused on the six industry groups of (I) manufacturing; (II) retail trade; (III) finance and insurance; (IV) professional, scientific, and technical services; (V) management of companies and enterprises; and (VI) health care and social assistance.

Six Sectors for Economic Development Emphasis: (NAICS Code and Title)	Largest Economic Impact (Based on Total Wages)	Export Sectors (Based on Location Quotients)	Resilient Industries (Based on Economic "Stress Test" of the Great Recession)	Highest Employment Multipliers (Based on Input/Output Model)
31-33 Manufacturing	X	X		X
44-45 Retail Trade	X	X		
52 Finance and Insurance		X		
54 Professional, Scientific, and Technical Services			X	
55 Management of Companies and Enterprises		X		
62 Health Care and Social Assistance	X		X	

The discussion of the economic development strategy for Licking County was supported by additional analysis of the critical infrastructures by economic sector, which identified the infrastructure limitations of the relative lack of north/south 4-lane highway options in the county for truck traffic, and the lack of a local television station to facilitate communications. Other, potential limitations to economic development in Licking County related to the property tax variability among local governments, as documented in the last chapter.

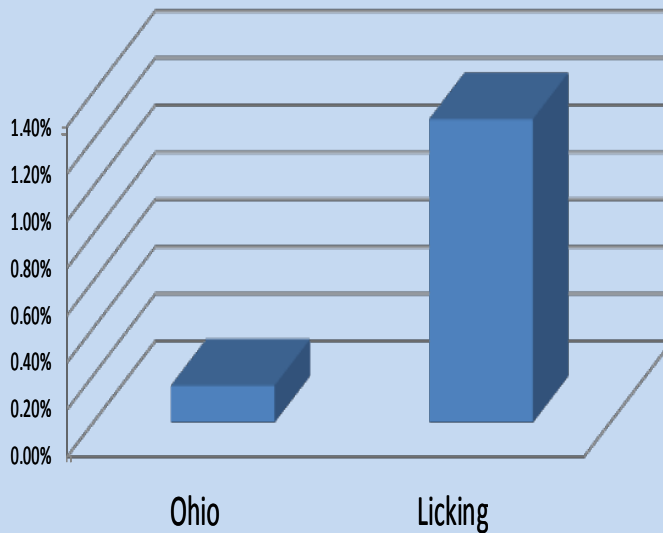
II. Demographics and Commuting Patterns of Licking County, Ohio

During the decade of 2000 through 2010, Licking County's population grew at a rate (i.e., average annual percent increase) that ranked the county as one of the leading population growth centers in Ohio.¹ Only five other counties out of 88 counties in Ohio (that is, Delaware, Fairfield, Medina, Union, and Warren counties) had population growth rates, 2000-2010, higher than the rate for Licking County.²

Census and Final Estimates of the Intercensal Population of Ohio and Licking County, 2000-2010

County Name	Census April 1, 2000	Estimate July 1, 2001	Estimate July 1, 2002	Estimate July 1, 2003	Estimate July 1, 2004	Estimate July 1, 2005	Estimate July 1, 2006	Estimate July 1, 2007	Estimate July 1, 2008	Estimate July 1, 2009	Census April 1, 2010	Average Annual Percent Increase 2000-2010
Ohio	11,353,140	11,387,404	11,407,889	11,434,788	11,452,251	11,463,320	11,481,213	11,500,468	11,515,391	11,528,896	11,536,504	0.15%
Licking	145,491	148,226	150,061	152,582	155,264	157,950	160,263	162,375	163,916	165,283	166,492	1.28%

Average Annual Percent Increase 2000-2010



Average Annual Percent Increase 2000-2010

Source: County Population Estimates time series, 1960-2010, Research Office, Ohio Development Services Agency, at www.development.ohio.gov/reports/reports_pop_est.htm

¹ County Population Estimates time series, 1960-2010, Research Office, Ohio Development Services Agency, at www.development.ohio.gov/reports/reports_pop_est.htm.

² *Ibid.*

Based on 2011 Census data for primary job workers, the demographic characteristics of Licking County were similar to the State of Ohio, with four significant exceptions. The 2011 Licking County proportion of primary job high income earners, retail trade sector employment of primary job workers, and the primary job worker race Black population and White population all diverged by 3% or more from the 2011 statewide shares for these same demographic characteristics of primary job holders, as highlighted in the following table.³

Licking County had a smaller percentage (35.5%) in 2011 of primary job high earners (defined as more than \$3,333.00 per month in earnings) than the Ohio proportion (38.8%).⁴ Licking County employed a greater proportion in 2011 of retail trade primary job workers (15.7%) than the Ohio share of primary job holders in the same retail trade sector (11.1%).⁵ Furthermore, the Black or African American Alone minority population in 2011 represented 4.4% of the total primary job workers in Licking County, but 9.8% of the 2011 Ohio total primary job holders.⁶ Concomitantly, the 2011 Licking County primary job worker race category of White Alone was 93.5%, while the comparative share for Ohio was 87.5% for White Alone primary job holders in 2011.⁷

(Source of following table: *OnTheMap*, U.S. Department of Census, at <http://onthemap.ces.census.gov>.)

³ *OnTheMap*, U.S. Department of Census, at <http://onthemap.ces.census.gov>. These four areas of differences between Licking County and Ohio (i.e., high earners, retail workers, and Black and White population proportions) were statistically significant at the level of the 95% confidence interval.

⁴ *Ibid.*

⁵ *Ibid.*

⁶ *Ibid.*

⁷ *Ibid.*

<u>Total Primary Jobs, Licking County, Ohio</u>			<u>Total Primary Jobs, State of Ohio</u>		
	<u>2011</u>			<u>2011</u>	
	<u>Count</u>	<u>Share</u>		<u>Count</u>	<u>Share</u>
Total Primary Jobs	49,415	100.00%	Total Primary Jobs	4,607,325	100.00%
Worker Age			Worker Age		
	<u>2011</u>			<u>2011</u>	
	<u>Count</u>	<u>Share</u>		<u>Count</u>	<u>Share</u>
Age 29 or younger	12,201	24.70%	Age 29 or younger	1,053,359	22.90%
Age 30 to 54	27,269	55.20%	Age 30 to 54	2,602,148	56.50%
Age 55 or older	9,945	20.10%	Age 55 or older	951,818	20.70%
Earnings			Earnings		
	<u>2011</u>			<u>2011</u>	
	<u>Count</u>	<u>Share</u>		<u>Count</u>	<u>Share</u>
\$1,250 per month or less	12,140	24.60%	\$1,250 per month or less	1,047,469	22.70%
\$1,251 to \$3,333 per month	19,718	39.90%	\$1,251 to \$3,333 per month	1,770,595	38.40%
More than \$3,333 per month	17,557	35.50%	More than \$3,333 per month	1,789,261	38.80%
NAICS Industry Sector			NAICS Industry Sector		
	<u>2011</u>			<u>2011</u>	
	<u>Count</u>	<u>Share</u>		<u>Count</u>	<u>Share</u>
Agriculture, Forestry, Fishing and Hunting	411	0.80%	Agriculture, Forestry, Fishing and Hunting	12,473	0.30%
Mining, Quarrying, and Oil and Gas Extraction	142	0.30%	Mining, Quarrying, and Oil and Gas Extraction	11,448	0.20%
Utilities	292	0.60%	Utilities	29,738	0.60%
Construction	2,598	5.30%	Construction	165,749	3.60%
Manufacturing	6,090	12.30%	Manufacturing	641,325	13.90%
Wholesale Trade	1,550	3.10%	Wholesale Trade	214,129	4.60%
Retail Trade	7,746	15.70%	Retail Trade	512,994	11.10%
Transportation and Warehousing	1,404	2.80%	Transportation and Warehousing	164,578	3.60%
Information	485	1.00%	Information	87,988	1.90%
Finance and Insurance	2,734	5.50%	Finance and Insurance	203,178	4.40%
Real Estate and Rental and Leasing	360	0.70%	Real Estate and Rental and Leasing	53,500	1.20%
Professional, Scientific, and Technical Services	1,919	3.90%	Professional, Scientific, and Technical Services	250,452	5.40%
Management of Companies and Enterprises	1,214	2.50%	Management of Companies and Enterprises	117,578	2.60%
Administration & Support, Waste Management and Remediation	2,136	4.30%	Administration & Support, Waste Management and Remediation	263,735	5.70%
Educational Services	5,530	11.20%	Educational Services	415,537	9.00%
Health Care and Social Assistance	6,652	13.50%	Health Care and Social Assistance	742,634	16.10%
Arts, Entertainment, and Recreation	478	1.00%	Arts, Entertainment, and Recreation	52,159	1.10%
Accommodation and Food Services	4,499	9.10%	Accommodation and Food Services	366,399	8.00%
Other Services (excluding Public Administration)	1,400	2.80%	Other Services (excluding Public Administration)	134,831	2.90%
Public Administration	1,775	3.60%	Public Administration	166,900	3.60%
Worker Race			Worker Race		
	<u>2011</u>			<u>2011</u>	
	<u>Count</u>	<u>Share</u>		<u>Count</u>	<u>Share</u>
White Alone	46,220	93.50%	White Alone	4,033,169	87.50%
Black or African American Alone	2,193	4.40%	Black or African American Alone	452,336	9.80%
American Indian or Alaska Native Alone	128	0.30%	American Indian or Alaska Native Alone	9,311	0.20%
Asian Alone	458	0.90%	Asian Alone	74,643	1.60%
Native Hawaiian or Other Pacific Islander Alone	10	0.00%	Native Hawaiian or Other Pacific Islander Alone	1,496	0.00%
Two or More Race Groups	406	0.80%	Two or More Race Groups	36,370	0.80%
Worker Ethnicity			Worker Ethnicity		
	<u>2011</u>			<u>2011</u>	
	<u>Count</u>	<u>Share</u>		<u>Count</u>	<u>Share</u>
Not Hispanic or Latino	48,772	98.70%	Not Hispanic or Latino	4,505,519	97.80%
Hispanic or Latino	643	1.30%	Hispanic or Latino	101,806	2.20%
Worker Educational Attainment			Worker Educational Attainment		
	<u>2011</u>			<u>2011</u>	
	<u>Count</u>	<u>Share</u>		<u>Count</u>	<u>Share</u>
Less than high school	3,097	6.30%	Less than high school	282,081	6.10%
High school or equivalent, no college	12,358	25.00%	High school or equivalent, no college	1,086,276	23.60%
Some college or Associate degree	12,187	24.70%	Some college or Associate degree	1,169,014	25.40%
Bachelor's degree or advanced degree	9,572	19.40%	Bachelor's degree or advanced degree	1,016,595	22.10%
Worker Sex			Worker Sex		
	<u>2011</u>			<u>2011</u>	
	<u>Count</u>	<u>Share</u>		<u>Count</u>	<u>Share</u>
Male	24,483	49.50%	Male	2,290,818	49.70%
Female	24,932	50.50%	Female	2,316,507	50.30%

Within Licking County, Ohio, the following places enjoyed the highest populations and demographic growth in terms of absolute and percentage change.⁸

<u>Largest Localities in Licking County, Ohio:</u>					
(UB=unincorporated balance)		<u>2000 Census</u>	<u>2010 Census</u>	<u>Absolute Change</u>	<u>% Change</u>
1.	City of Newark	46,279	47,573	1,294	2.80%
2.	Etna Township*	11,027	16,373	5,346	48.50%
3.	City of Pataskala	10,249	14,962	4,713	46.00%
4.	City of Heath	8,527	10,310	1,783	20.90%
5.	Harrison Township UB	5,974	7,036	1,062	17.80%
6.	Village of Granville	3,167	5,646	2,479	78.30%
7.	Village of Johnstown	3,440	4,632	1,192	34.70%
8.	Licking Township UB	3,870	4,630	760	19.60%

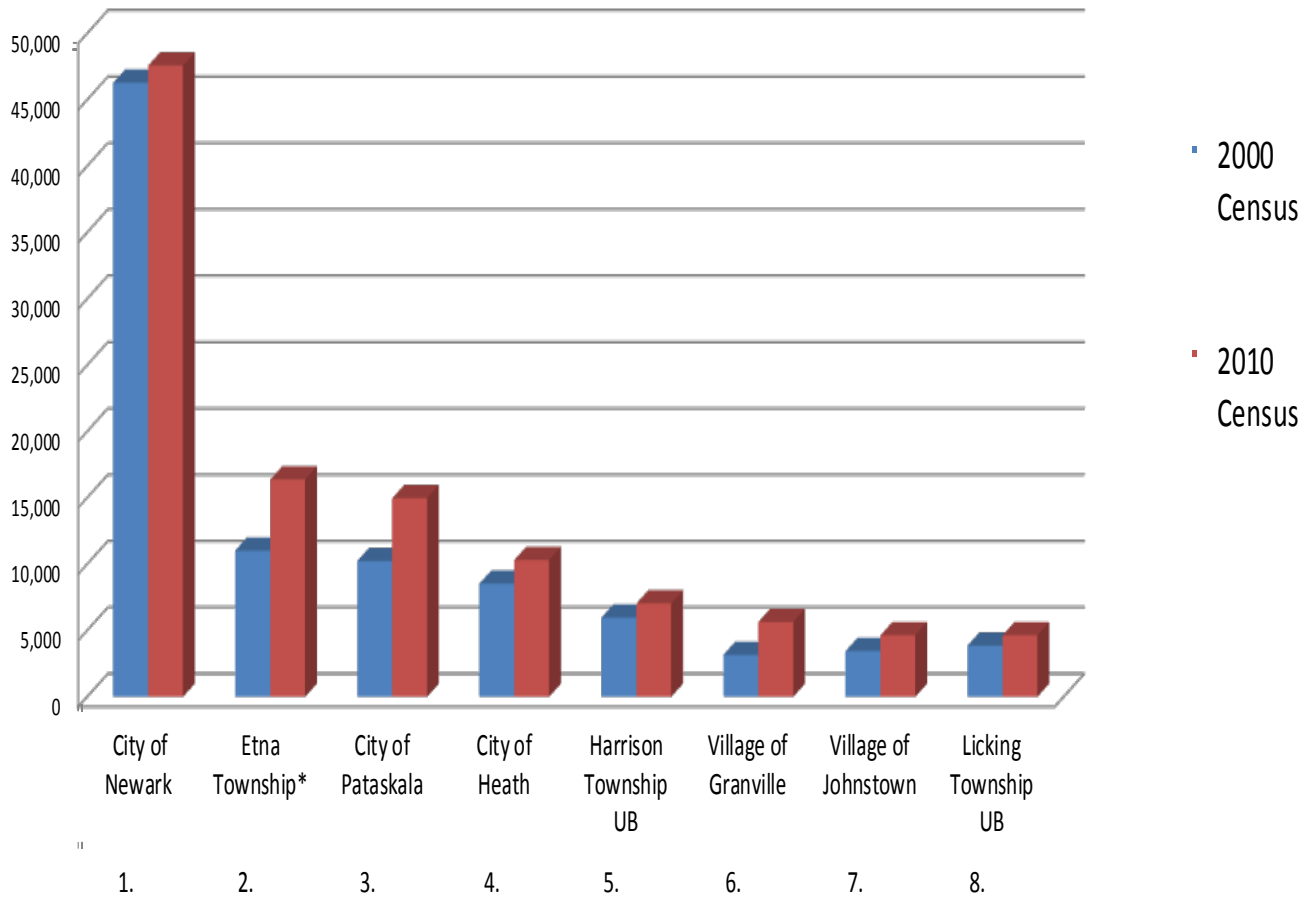
*The City of Reynoldsburg's portion of the Etna Township population was 5,617, or 51%, according to the 2000 Census. A decade later, the 2010 Census reported that the City of Reynoldsburg's share of the Etna Township population decreased slightly to 49%, or 8,062.

Source: Ohio Development Services Agency, Office of Research, *County Trends*, at www.development.ohio.gov/files/research/C1046.pdf and Population Estimates, City and Town Intercensal Estimates (2000-2010), at www.census.gov/popest/.

In the aggregate, these eight (8) largest places in Licking County represented 67% of the county's total population in 2010.

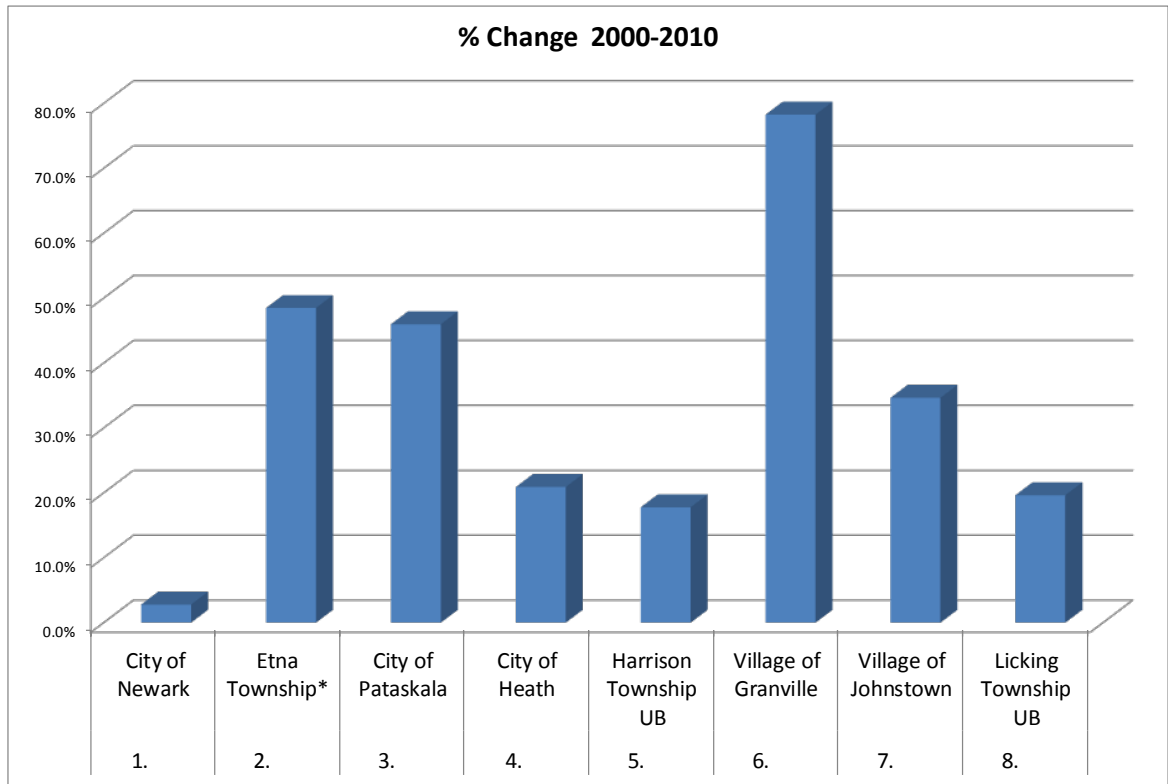
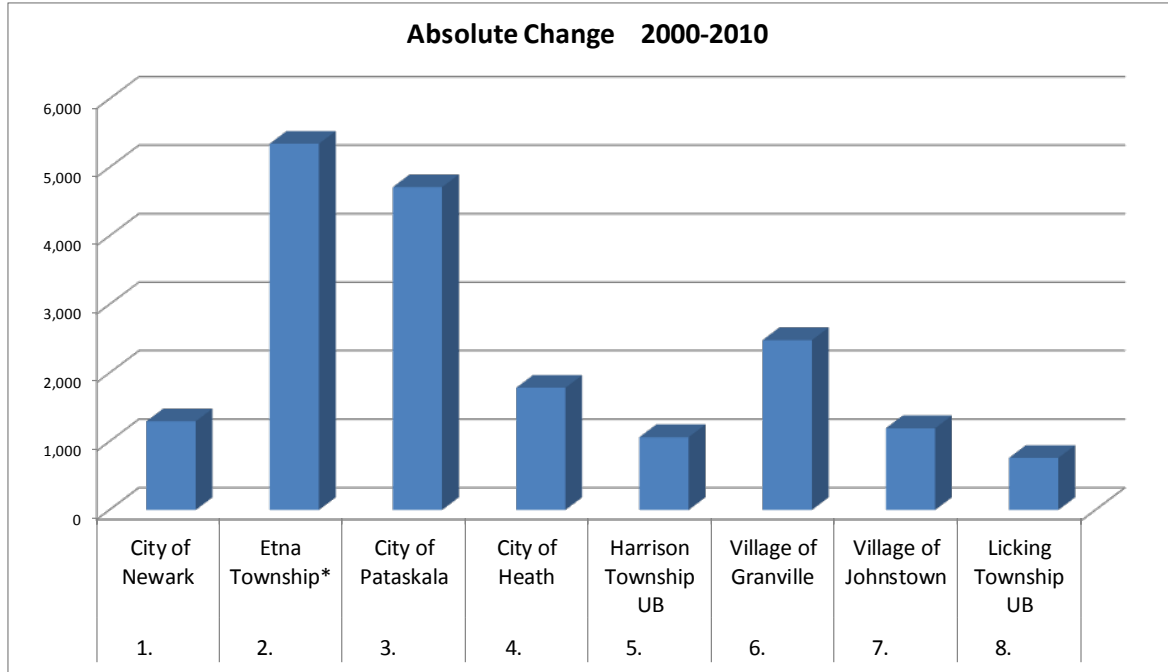
The following bar graphs displayed the interesting population shift in growth numbers and rates to the western section of Licking County, influenced by expansion of the City of Columbus and Franklin County to the contiguous, western part of Licking County.

⁸ Ohio Development Services Agency, Office of Research, *County Trends*, at www.development.ohio.gov/reports/reports_countytrends_map.htm; and Population Estimates, City and Town Intercensal Estimates (2000-2010), at www.census.gov/popest/.



(UB=unincorporated balance)

Source: Ohio Development Services Agency, Office of Research, *County Trends*, at www.development.ohio.gov/reports/reports_countytrends_map.htm; and Population Estimates, City and Town Intercensal Estimates (2000-2010), at www.census.gov/popest.



(UB = unincorporated balance) Source: Ohio Development Services Agency, Office of Research, *County Trends*, at www.development.ohio.gov/reports/reports_countytrends_map.htm; and Population Estimates, City and Town Intercensal Estimates (2000-2010), at www.census.gov/popest.

These census changes pointed to the emergence of two population concentrations in Licking County, which dominated the demographic landscape of the county. First, the contiguous Village of Granville and the cities of Newark and Heath presented the dominant concentration in Licking County, with a combined population of 63,529 (based on the 2010 Census), or 38% of the total 2010 population of Licking County.⁹ The second, important demographic concentration consisted of the contiguous areas of Etna Township (including part of the City of Reynoldsburg) and the City of Pataskala, with an aggregated, 2010 Census population total for the two areas of 31,335, or 19% of the 2010 Licking County population.¹⁰ Together, the Granville/Newark/Heath area and the Etna/Pataskala area represented over half (or 57%) of the 2010 total population for Licking County, located in only two regions of the county.

One of the most important demographic dynamics was the geographic location of most of the absolute county population gains, 2000 Census to 2010 Census, in the Etna/Pataskala sub-county area. Between 2000-2010 (according to the decennial Census), the total Licking County population gained 21,001 persons, of whom an estimated 10,059 persons, or slightly less than half (48%), resided in the Etna/Pataskala area.¹¹ In contrast, the Granville/Newark/Heath area gained an estimated 5,556 persons in total population, 2000-2010, or 26% of the Licking County absolute population increase over the same time period.¹²

The following *concentration ratios* for the Etna/Pataskala area of Licking County and the Granville/Newark/Heath area of Licking County relate the absolute population growth of these sub-county districts, 2000-2010, to the geographic size of these subdivisions of Licking County.¹³ As noted by Economist Vincenzo Spiezia in his paper about geographic concentration in OECD (Organization for Economic Cooperation and Development) countries, “New growth and trade theories have pointed out the key role of endogenous externalities in production and innovation stemming from firms clustering and labor markets pooling. As these effects tend to be localized in space, geographic concentration has returned high in the research agenda of many economists.”¹⁴ With respect to the following concentration ratios about the absolute population growth weights of sub-Licking County regions and their respective, geographic size weights, the larger the ratio, the higher the geographic concentration.¹⁵

⁹ *Ibid.*

¹⁰ *Ibid.*

¹¹ *Ibid.*

¹² *Ibid.*

¹³ Spiezia, Vincenzo, “Geographic Concentration of Production and Unemployment in OECD Countries,” *Cities and Regions*, December, 2002, p. 1, at www.oecd.org/dataoecd/43/0/15179780.doc.

¹⁴ *Ibid.* “Endogenous externalities in production and innovation” mentioned above in the quotation from OECD Economist Spiezia refer, for example, to the advantages of easy consultation, coordination, and cooperation resulting from the co-location of firms and workers, especially research-related workers.

¹⁵ *Ibid.*

Concentration Ratios: Licking County Sub-Districts			
<u>Column A</u>	<u>Column B</u>	<u>Column C</u>	<u>Column D</u>
Sub-County Regions	Absolute Regional Population Growth as Share of Total County	Regional Area as Share of Total Licking County	Concentration Ratios (Column B / Column C)
	Absolute Population Growth 2000-2010	Area	
1. Etna Township (including part of the City of Reynoldsburg)/City of Pataskala	(5,346 (Etna) + 4,713 (Pataskala)) / 21,001 (Licking Cty.) = 0.479	(23.29 sq. miles (Etna) + 28.62 sq. miles (Pataskala)) / 686.5 sq. miles (Licking Cty.) = 0.076	6.3
2. Village of Granville/City of Newark/ City of Heath	(2,479 (Granville) + 1,294 (Newark) + 1,783 (Heath)) / 21,001 (Licking Cty.) = 0.265	(4.68 sq. miles (Granville) + 20.88 sq. miles (Newark) + 10.92 sq. miles (Heath)) / 686.5 sq. miles (Licking Cty.) = 0.053	5.0
Sources: U.S. Census Bureau <i>QuickFacts</i> at http://quickfacts.census.gov/qfd/index.html ;			
and U.S. Census Bureau <i>American FactFinder</i> at http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml ;			
and the Ohio Development Services Agency Research Office, <i>County Trends</i> , at www.development.ohio.gov/files/research/C1046.pdf .			

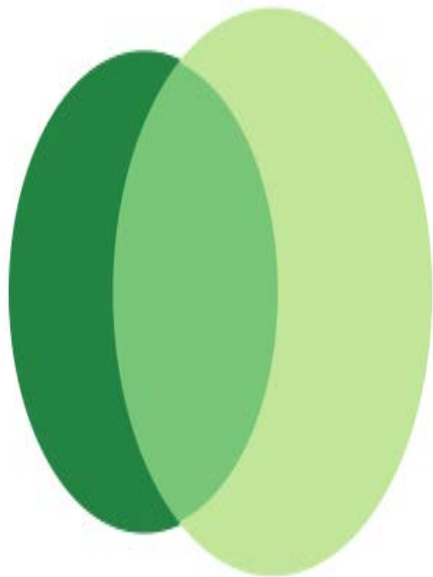
These two population concentrations are also economic centers, as reflected in the commutation patterns between Licking County and its neighboring counties of Franklin County to the west and Muskingum County to the east. As a result of the large number of workers in Licking County who live outside the county (about half of the workforce¹⁶), Licking County employers benefit especially from the larger labor pool of the combined areas of Franklin, Licking, and Muskingum counties, which takes advantage of inter-state highway I-70 (that traverses the full length east-to-west and west-to-east of Franklin, Licking, and Muskingum counties), the outer-belt of the City of Columbus in Franklin County I-270 (which links to I-70), and the four-lane highway State Route 40 (the historic National Road, which runs the full length of Licking County and connects to Franklin and Muskingum counties east-to-west and west-to-east).¹⁷

¹⁶ *OnTheMap*, U.S. Department of Census, at <http://onthemap.ces.census.gov>.

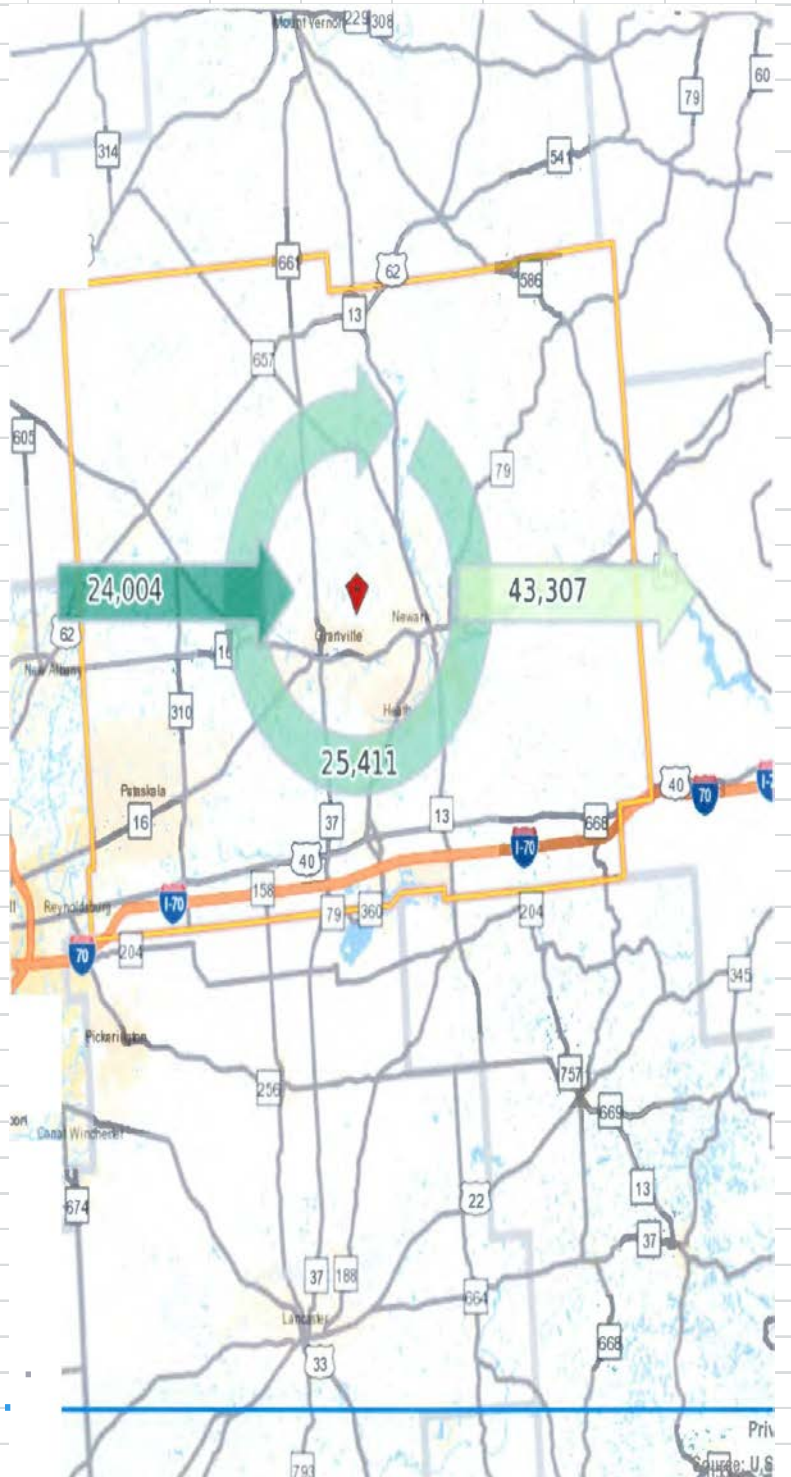
¹⁷ *Ibid.*

Inflow/Outflow Job Counts		
(Primary Jobs), Licking County	2011	
	Count	Share
Employed in the Selection Area	49,415	100.00%
Employed in the Selection Area but Living Outside	24,004	48.60%
Employed and Living in the Selection Area	25,411	51.40%
Living in the Selection Area	68,718	100.00%
Living in the Selection Area but Employed Outside	43,307	63.00%
Living and Employed in the Selection Area	25,411	37.00%

Inflow/Outflow Job Counts in 2011



- 24,004 - Employed in Selection Area, Live Outside
- 43,307 - Live in Selection Area, Employed Outside
- 25,411 - Employed and Live in Selection Area



Source: *OnTheMap*, U.S. Department of Census, at <http://onthemap.ces.census.gov>.

III. Economic Profile of Licking County, Ohio

Since the end of the most recent recession in June, 2009,¹⁸ Licking County enjoyed an impressive economic recovery, as reflected in the labor market statistics.¹⁹ The Licking

Civilian Labor Force Estimates For: Licking County				
Year	Civilian Labor Force	Employment	Unemployment	Unemployment Rate
Avg-2009	83,100	75,300	7,800	9.4
Avg-2010	85,200	77,200	8,000	9.4
Avg-2011	84,700	77,900	6,800	8.1
Avg-2012	84,800	79,300	5,500	6.5
Avg-2013 (p)	85,600	79,800	5,800	6.8

Source: Ohio Bureau of Labor Market Information, Local Area Unemployment Statistics, Civilian Labor Force Estimates, at <http://ohiolmi.com/asp/laus/LAUS.asp>. (p=preliminary)

County economic growth, following the 2009 end of the recession, involved the expansion of the labor force to estimated record annual numbers of 85,600 workers and unemployed persons actively seeking employment in 2013, an increase of 2,500 above the 2009 yearly civilian labor force average.²⁰ Similarly, the Licking County workforce achieved its highest estimated annual level of 79,800 employment in 2013.²¹ These 2013 levels of the Licking County labor force and workforce were the highest estimates for Licking County, since the start in 1970 of the Local Area Unemployment Statistics (LAUS) time series of the U.S. Bureau of Labor Statistics (BLS) and the Ohio Labor Market Information (LMI) Bureau.²²

In addition, the strength of the Licking County labor market was reflected in the decreasing unemployment rates since the start of the economic recovery in 2010. For example, the 2013 average annual Licking County unemployment rate of 6.8% (not seasonally adjusted) compared favorably with the average annual U.S. unemployment rate of 7.4% (not seasonally

¹⁸ National Bureau of Economic Research (NBER), U. S. Business Cycle Expansions and Contractions, at www.nber.org/cycles/cyclesmain.html.

¹⁹ Ohio Bureau of Labor Market Information (LMI), Local Area Unemployment Statistics (LAUS), Civilian Labor Force Estimates, at <http://ohiolmi.com/asp/laus/LAUS.asp>.

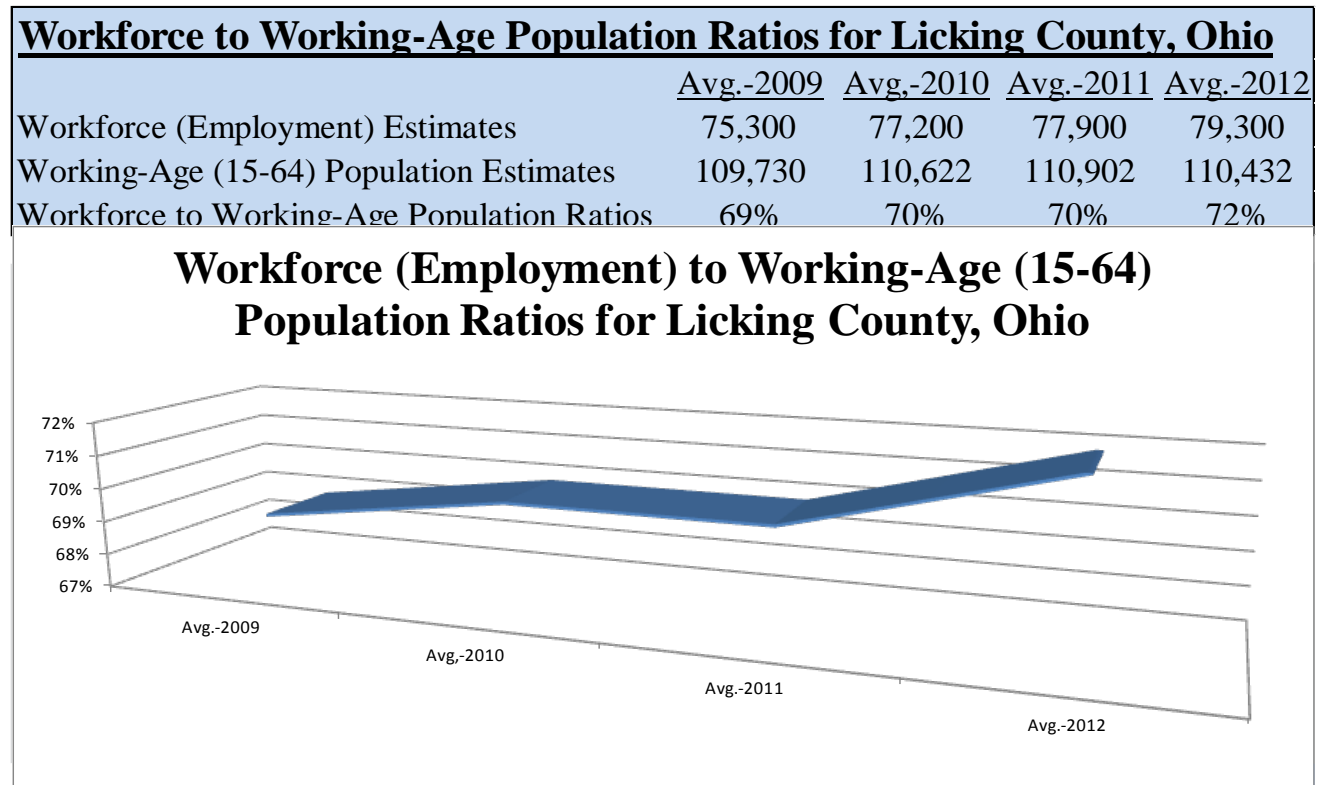
²⁰ *Ibid.*

²¹ *Ibid.*

²² *Ibid.*

adjusted) for the same time period,²³ as well as the average annual Ohio unemployment rate of 7.2% (not seasonally adjusted) also for 2013.²⁴

As an important summary indicator of the diminishing labor underutilization in the Licking County labor market (which took into account discouraged, unemployed workers who stopped looking for work), the Licking County workforce-to-working age population ratios continued to grow stronger since the end of the most recent recession.²⁵



Source: Office of Research, Ohio Development Services Agency, and the U.S. Bureau of the Census, Population Estimates Division, 2000-2010 intercensal estimates and vintage 2012 estimates.

Furthermore, the Licking County economy benefitted from its location within the Columbus Metropolitan Statistical Area (MSA) and the regional economy of central Ohio, as summarized in the *Leading Indicators* Report of the Ohio Bureau of Labor Market Information for the Columbus MSA:

“The Columbus leading indicator index rose 0.4 percent in June [2013]

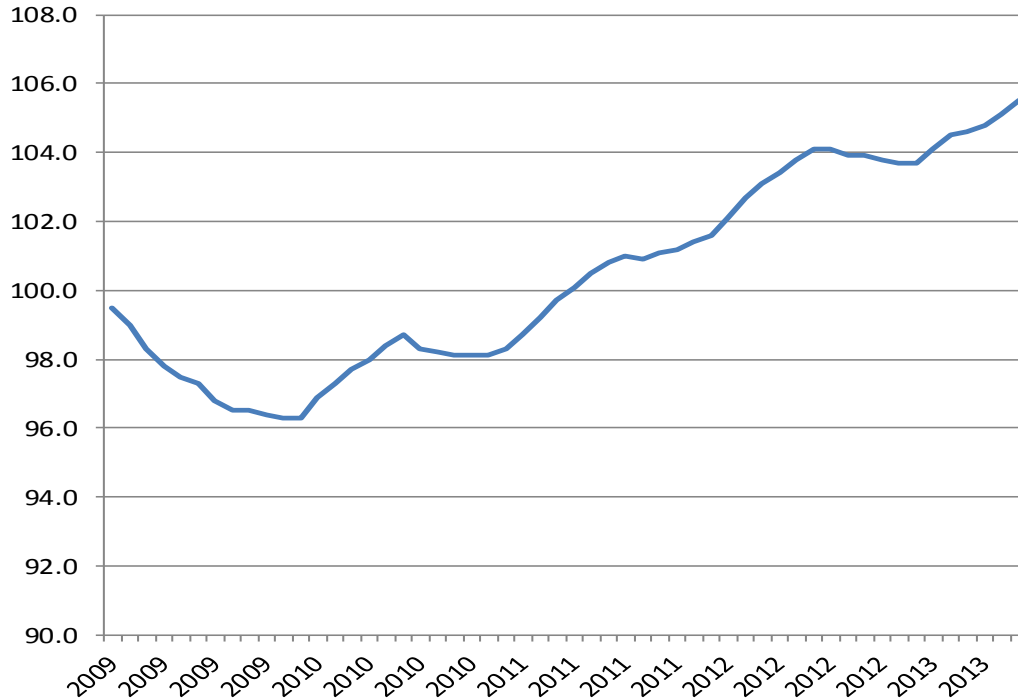
²³ U.S. Bureau of Labor Statistics (BLS), Alternative measures of labor underutilization, Table A-15, at www.bls.gov/news.release/empsit.t15.htm.

²⁴ Ohio Bureau of LMI, LAUS, Civilian Labor Force Estimates, at <http://ohiolmi.com/asp/laus/LAUS.asp>.

²⁵ Office of Research, Ohio Development Services Agency, and the U.S. Bureau of the Census, Population Estimates Division, 2000-2010 intercensal estimates and vintage 2012 estimates.

to 105.5, suggesting continuing employment growth in the coming months. It was the sixth straight month of improvement. Seasonally adjusted nonfarm employment rose 0.6 percent over the month, to 968,000 jobs, an increase of 1.7 percent over the year. Initial claims for unemployment insurance rose 4.6 percent over the month, but still fell 7.0 percent from one year ago, to 5,128 claims. Total valuation of housing permits fell 26.0 percent over the month to \$89.296 million, 6.0 percent higher than a year ago. The number of housing permits also fell, although it was 5.3 percent higher than one year ago.”²⁶

Columbus MSA Leading Indicators



Source: Ohio Bureau of Labor Market Information, *Leading Indicators*, Columbus MSA, at <http://ohiolmi.com/proj/LeadingIndicators.htm>. The *Leading Indicators* Report provided composite indices “derived from historical data on six components:

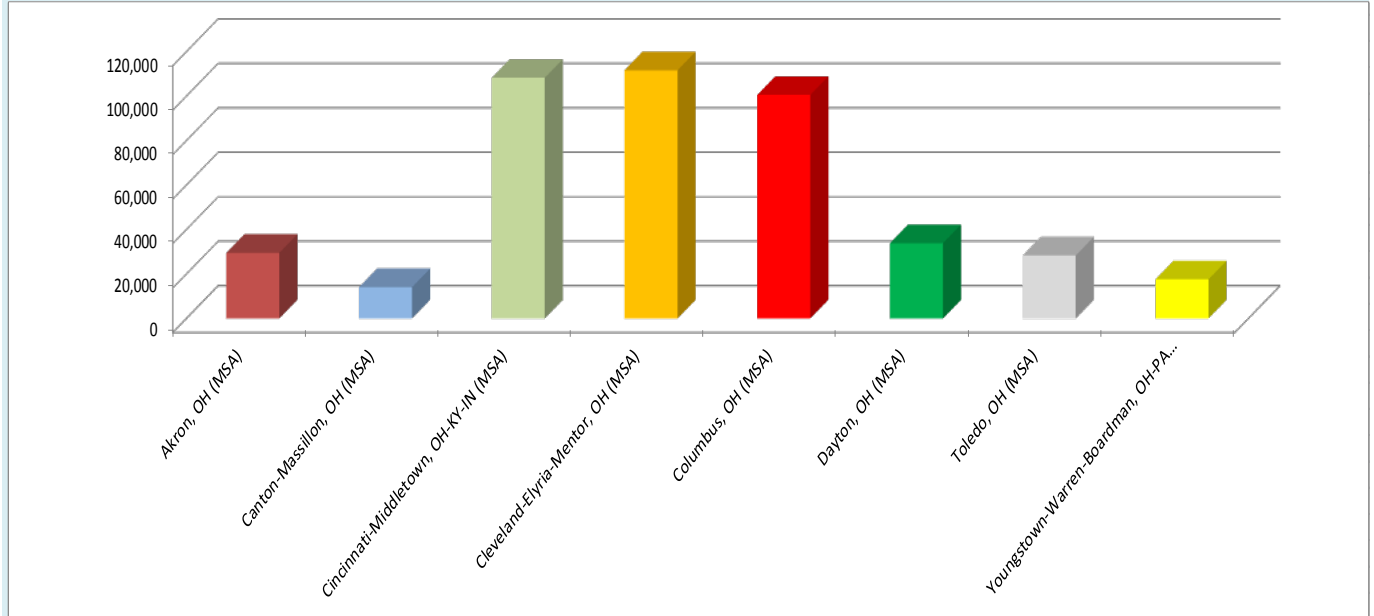
1. Valuation by [U.S. Census Bureau](#) of housing authorized by building permits.
2. Initial claims for unemployment insurance from [Current Employment Statistics](#).
3. Average weekly hours in manufacturing from [Current Employment Statistics](#).
4. Domestic automobile production from Ward's Communications, Dearborn, Michigan.
5. National composite index of economic indicators from [The Conference Board](#).
6. Yield curve (the difference between 1-year and 10-year Treasury bonds of constant maturities) from the [Federal Reserve](#). See "Treasury constant maturities" on the [Selected Interest Rates](#).”²⁷

²⁶ Ohio Bureau of Labor Market Information (LMI), *Leading Indicators*, Columbus Metropolitan Statistical Area (MSA), at <http://ohiolmi.com/proj/LeadingIndicators.htm>.

²⁷ *Ibid.*

The forecasted growth of the Columbus MSA, which includes Licking County, was especially important because of the size of the Columbus metropolitan area, the third largest regional economy in Ohio in terms of Gross Domestic Product (GDP).

Gross Domestic Product (GDP) by 8 Largest Ohio Metropolitan Areas (in millions of current dollars) - GDP by metropolitan area is the measure of the market value of all final goods and services produced within a metropolitan area in a particular period of time (2012, all industry total).



Source: Bureau of Economic Analysis (BEA), U.S. Department of Commerce, Regional Economic Accounts, at <http://www.bea.gov/regional>.

<u>(2012, in millions of current dollars)</u>		<u>(2012, in millions of current dollars)</u>	
Akron, OH (MSA)	All industry total \$ 29,466	Columbus, OH (MSA)	All industry total \$ 100,512
Canton-Massillon, OH (MSA)	All industry total \$ 14,044	Dayton, OH (MSA)	All industry total \$ 33,858
Cincinnati-Middletown, OH-KY-IN (MSA)	All industry total \$ 108,236	Toledo, OH (MSA)	All industry total \$ 28,311
Cleveland-Elyria-Mentor, OH (MSA)	All industry total \$ 111,597	Youngstown-Warren-Boardman, OH-PA (MSA)	All industry total \$ 17,563

The distribution of Licking County employment and payroll by 2-digit North American Industrial Classification System (NAICS) codes in 2012 demonstrated the significant concentration of manufacturing, retail trade, and health care and social assistance firms in the county, which were the only private sectors with over \$200 million in annual total wages, according to the Quarterly Census of Employment and Wages (QCEW) of the U.S. Bureau of Labor Statistics (BLS).²⁸

²⁸ Quarterly Census of Employment and Wages (QCEW), U.S. Bureau of Labor Statistics (BLS), and the Ohio Labor Market Information (LMI) Bureau, at <http://ohiolmi.com/asp/edeps/EdepsNAICS.htm>.

Industrial Sector Classifications for Licking County, Ohio, in CY 2012:

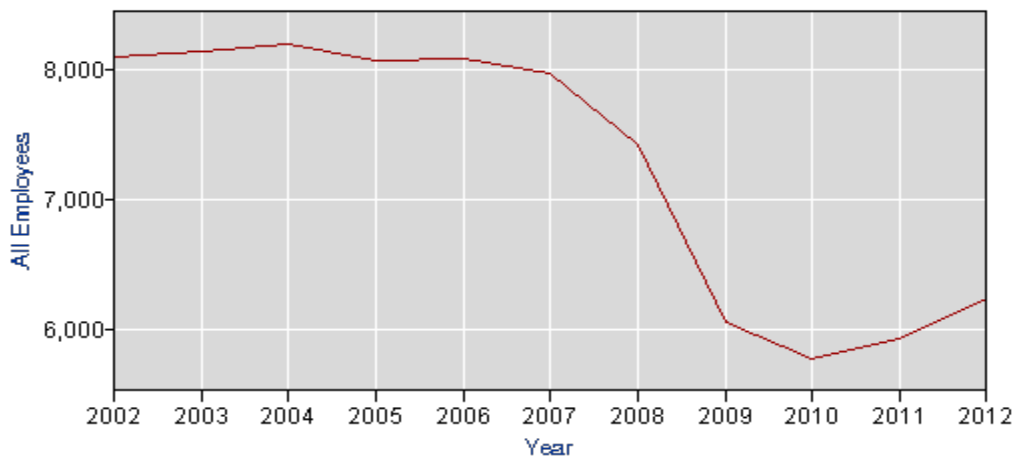
<u>NAICS Code and Title</u>	<u>Number of Establishments</u>	<u>All Employees</u>	<u>Total Wages (in thousands)</u>	<u>Av. Annual Wage</u>
Total Private Employment	3,012	44,764	\$1,599,929	\$35,742
11- Agriculture, Forestry, Fishing, and Hunting	38	458	\$12,784	\$27,923
21 - Mining, Quarrying, and Oil and Gas Extraction	21	119	\$5,460	\$46,011
22 - Utilities	8	192	\$13,270	\$69,265
23 - Construction	342	2,342	\$100,165	\$42,763
31-33 - Manufacturing	149	6,238	\$287,510	\$46,093
42 - Wholesale Trade	150	1,745	\$78,143	\$44,773
44-45 - Retail Trade	435	8,459	\$232,787	\$27,519
48-49 - Transportation and warehousing	96	1,597	\$79,526	\$49,784
51 - Information	36	388	\$15,901	\$40,964
52 - Finance and Insurance	212	2,574	\$132,488	\$51,482
53 - Real Estate and Rental and Leasing	104	390	\$11,794	\$30,247
54 - Professional, Scientific, and Technical Services	256	1,901	\$118,174	\$62,181
55 - Management of Companies and Enterprises	17	1,052	\$49,807	\$47,353
56 - Administrative and Support and Waste Management and Remediation Services	213	2,567	\$63,060	\$24,567
61 - Educational Services	32	835	\$46,750	\$55,994
62 - Health Care and Social Assistance	279	6,570	\$240,383	\$36,591
71 - Arts, Entertainment, and Recreation	60	604	\$10,695	\$17,713
72 - Accommodation and Food Services	298	5,244	\$67,873	\$12,943
81 - Other Services (except Public Administration)	259	1,475	\$33,133	\$22,462

Source: U.S. Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages (QCEW). Note: the total private employment estimates do not equal the aggregation of the above sector data, because of the absent unclassified sector NAICS 99.

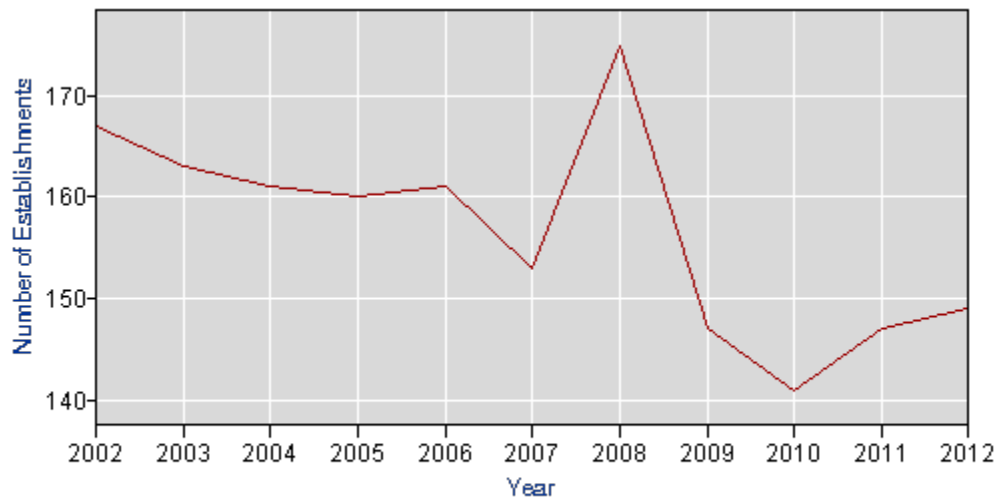
Since the start of the economic recovery in CY 2010, the trends have been positive for each of these three, dominant sectors of the Licking County economy, as shown in the following graphs starting with the manufacturing sector.²⁹

²⁹ Quarterly Census of Employment and Wages (QCEW), U.S. Bureau of Labor Statistics (BLS), at <http://data.bls.gov/pdq/SurveyOutputServlet>.

Area: Licking County, Ohio **Size:** All establishment sizes
Industry: NAICS 31-33 Manufacturing³⁰ **Type:** All Employees
Owner: Private



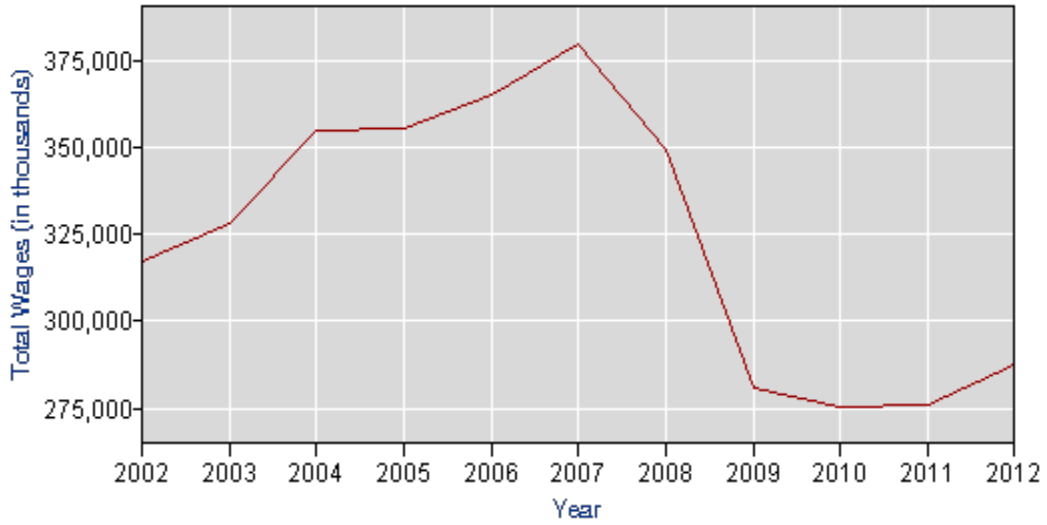
Area: Licking County, Ohio **Size:** All establishment sizes
Industry: NAICS 31-33 Manufacturing **Type:** Number of Establishments
Owner: Private



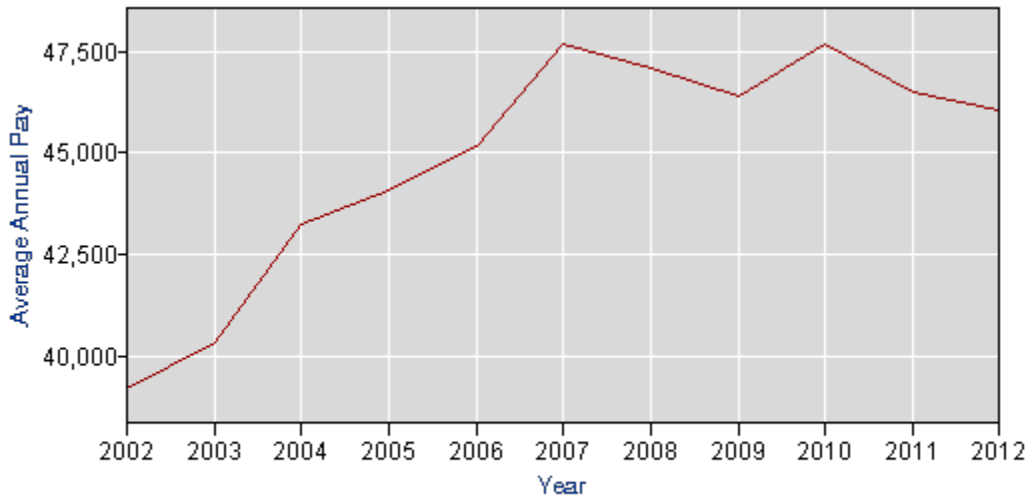
Source: Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics.

³⁰ *Ibid.*

Area: Licking County, Ohio Size: All establishment sizes
 Industry: NAICS 31-33 Manufacturing³¹ Type: Total Wages (in thousands)
 Owner: Private



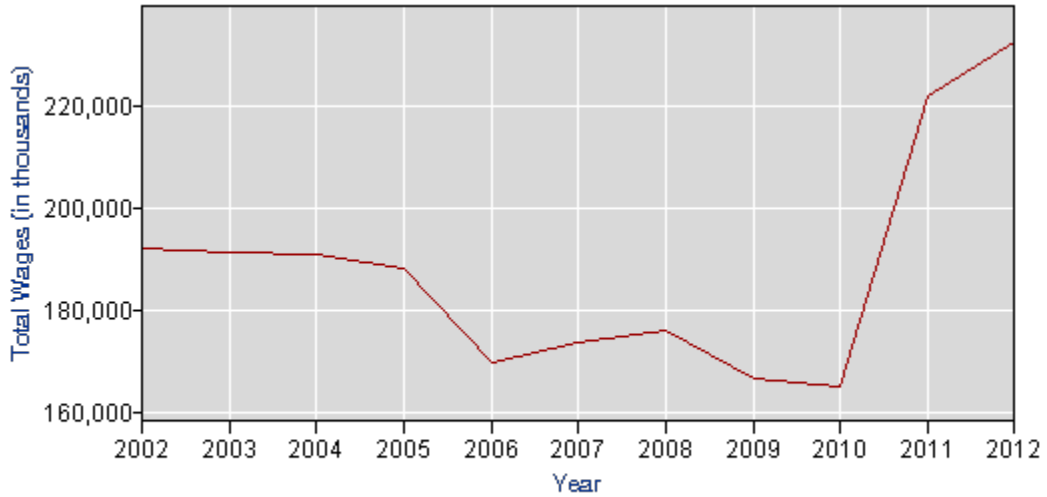
Area: Licking County, Ohio Size: All establishment sizes
 Industry: NAICS 31-33 Manufacturing Type: Average Annual Pay
 Owner: Private



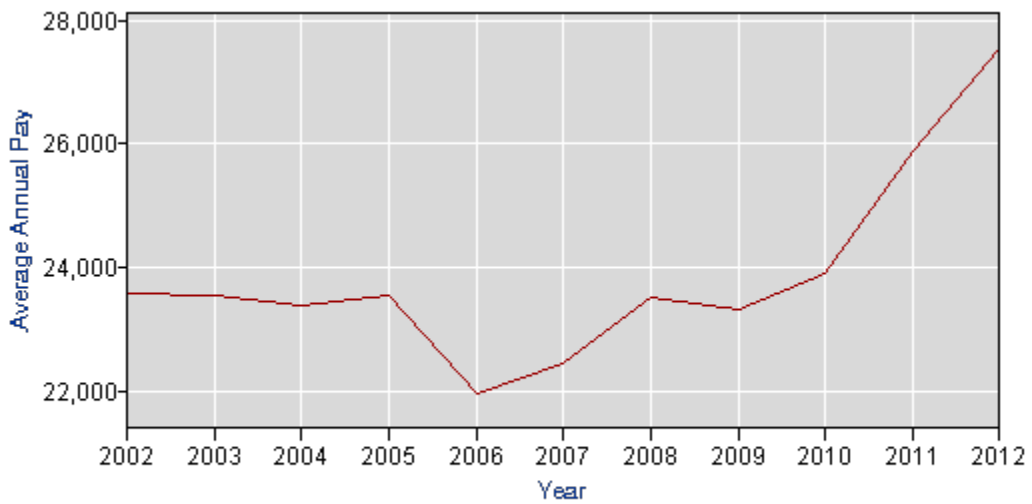
Source: Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics.

³¹ *Ibid.*

Area: Licking County, Ohio Size: All establishment sizes
 Industry: **NAICS 44-45 Retail trade**³⁴ Type: **Total Wages (in thousands)**
 Owner: Private



Area: Licking County, Ohio Size: All establishment sizes
 Industry: **NAICS 44-45 Retail trade** Type: **Average Annual Pay**
 Owner: Private

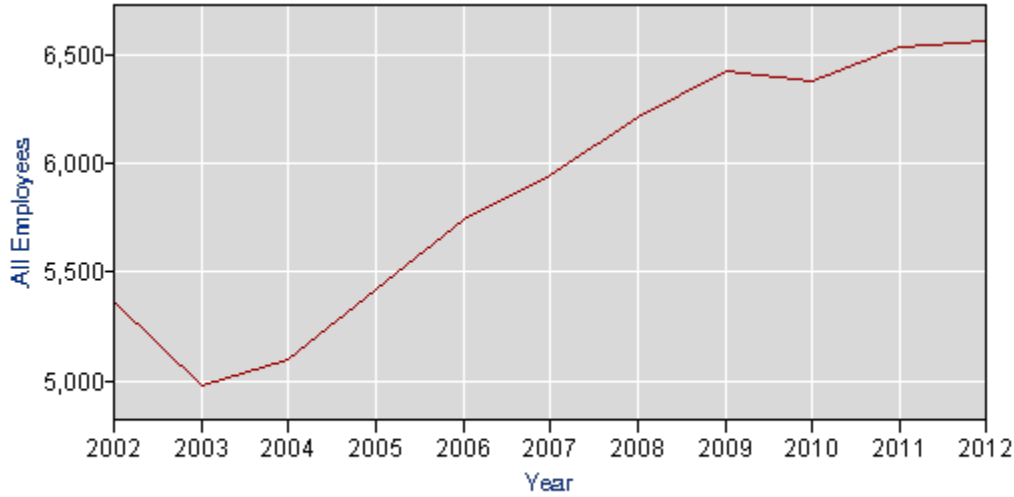


Source: Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics.

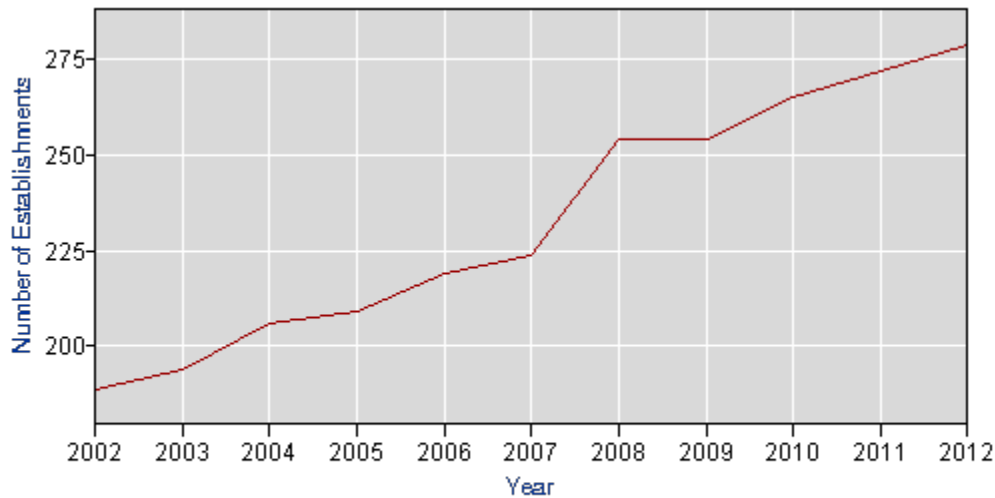
³⁴ *Ibid.*

The strong employment increases and the growth of total wages in Licking County for the health care and social assistance sector (see below) appeared almost recession-proof.

Area: Licking County, Ohio Size: All establishment sizes
 Industry: **NAICS 62 Health care and social assistance³⁵**
 Owner: Private Type: **All Employees**



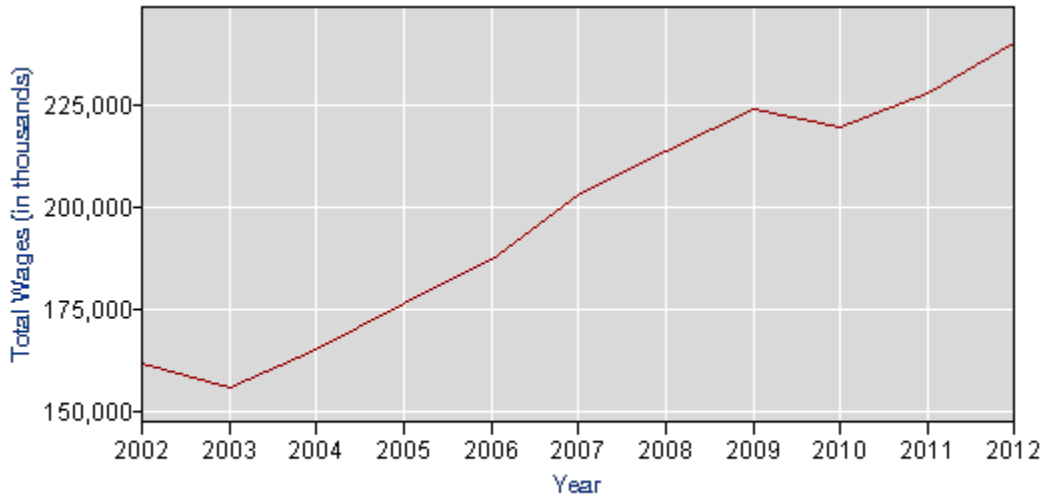
Area: Licking County, Ohio Size: All establishment sizes
 Industry: **NAICS 62 Health care and social assistance**
 Owner: Private Type: **Number of Establishments**



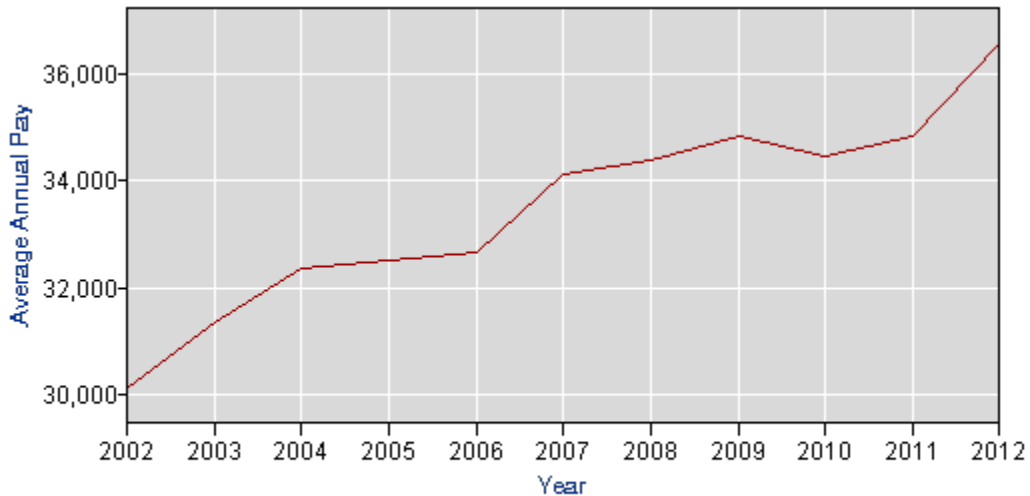
Source: Quarterly Census of Employment and Wages, U.S. Bureau of Labor Statistics.

³⁵ *Ibid.*

Area: Licking County, Ohio Size: All establishment sizes
 Industry: **NAICS 62 Health care and social assistance**³⁶
 Owner: Private Type: **Total Wages (in thousands)**



Area: Licking County, Ohio Size: All establishment sizes
 Industry: **NAICS 62 Health care and social assistance**
 Owner: Private Type: **Average Annual Pay**



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

The major sectors of the Licking County economy may be further categorized by their respective status as local or export industry divisions, based on the location quotient (LQ) statistic. The LQ compared the local concentration of employment in a sector or industry to the

³⁶ *Ibid.*

national employment concentration for the same sector or industry, according to the following definition:³⁷

Licking County employment in 2012 in sector *i*

Total Licking County employment in 2012 in all sectors

U. S. employment in 2012 in sector *i*

U.S. employment in 2012 in all sectors

An LQ greater than 1.2 was the standard usually applied by economists to indicate the likelihood of an export industrial sector, because of the higher sectoral concentration of employment in the Licking County economy than in the national economy for the same sector, probably resulting from the export of products or services by the local Licking County sector industries with high LQ's to national and international customers.³⁸ Much of the revenue from these exports was spent in the Licking County economy via the local payroll of the exporting firms. Hence, exporting industries tended to become important targets for economic development support as a means to bring outside wealth into local communities, with revenues from national or international markets. In contradistinction to export sectors or industries, the local sectors and their detailed, local industries tended to recycle wealth already residing within a local community. The following table presented the location quotients for the Licking County sectors and their corresponding designations as local or export sectors.

³⁷ Calig, Jonathan, and Newman, Sandy, and Schaff, Mark, *Ohio Health Care Employment Labor Market Trends and Challenges*, Ohio Bureau of Labor Market Information (LMI), p. 9, at <http://ohiolmi.com/research/publications/2008HealthCare.pdf>.

³⁸ Quarterly Census of Employment and Wages (QCEW), Location Quotient Calculator, U. S. Bureau of Labor Statistics (BLS), at http://data.bls.gov/location_quotient/ControllerServlet.

Local and Export Sectors of Licking County, Ohio, in CY 2012:		
NAICS Code and Title	Location Quotient (LQ)	Local or Export Sector
11- Agriculture, Forestry, Fishing, and Hunting	0.95	Local
21 - Mining, Quarrying, and Oil and Gas Extraction	0.37	Local
22 - Utilities	0.86	Local
23 - Construction	1.04	Local
31-33 - Manufacturing	1.30	Export
42 - Wholesale Trade	0.76	Local
44-45 - Retail Trade	1.41	Export
48-49 - Transportation and warehousing	0.95	Local
51 - Information	0.36	Local
52 - Finance and Insurance	1.14	Local/Export
53 - Real Estate and Rental and Leasing	0.50	Local
54 - Professional, Scientific, and Technical Services	0.59	Local
55 - Management of Companies and Enterprises	1.30	Export
56 - Administrative and Support and Waste Management and Remediation Services	0.79	Local
61 - Educational Services	0.79	Local
62 - Health Care and Social Assistance	0.97	Local
71 - Arts, Entertainment, and Recreation	0.76	Local
72 - Accommodation and Food Services	1.10	Local
81 - Other Services (except Public Administration)	0.80	Local

Source: Quarterly Census of Employment and Wages (QCEW) Location Quotient (LQ) Calculator, U.S. Bureau of Labor Statistics (BLS) at http://data.bls.gov/location_quotient/ControllerServlet. The BLS defined the LQ at the above website as follows: "Ratio of analysis-industry employment in the analysis area to base-industry employment in the analysis area divided by the ratio of analysis-industry employment in the base area to base-industry employment in the base area." Analysis Area = Licking County, Ohio; Base Area = U.S.; and Base-Industry Employment = Total, All Industries. (See Appendix A for LQ's of the Licking County sub-sector industries at the 3-digit NAICS code level of detail.)

The nature of the manufacturing process and products (NAICS codes 31-33) and the activity of the management of companies and enterprises (NAICS code 55) readily lent themselves to the exporting of manufactured goods and the management of exporting firms, resulting in the expected designations of these sectors as export sectors. The inter-state transportation network of highways, which easily connected Licking County to its contiguous counties of Franklin and Muskingum, to the City of Columbus State Capital, and to central Ohio, the state, and nation, influenced the high concentration of retail sector employment in the county,

plus the nonstore retailers,³⁹ leading to the unusual export designation for the Licking County retail sector (NAICS 44-45). The finance and insurance sector (NAICS code 52) in Licking County has been growing from a predominantly local-serving sector into an export sector, with greater numbers of businesses in this sector serving markets beyond Licking County.

The economic growth in Licking County was also reflected in the income estimates. The research office of the Ohio Department of Development Services and the U.S. Census Bureau estimated the Licking County median household income, 2007-2011, at \$54,699.00, or 14% higher than the comparable Ohio median household income for the same time period of \$48,071.00.⁴⁰ However, the Ohio Department of Development Services per capita income estimates for Licking County, at \$37,491.00 in 2011, were very close to the Ohio per capita income estimate for the same year of \$37,836.00.⁴¹

The parity in per capita income levels of Licking County and Ohio resulted from faster, relative income growth in Licking County, as described below by the Bureau of Economic Analysis (BEA) of the U.S. Department of Commerce.

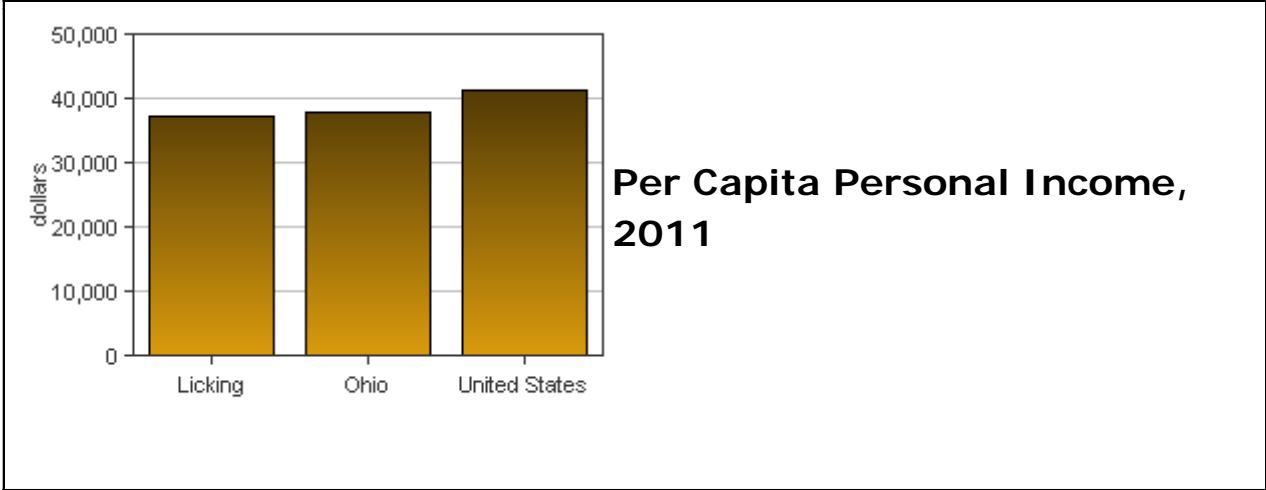
”In 2011 Licking had a per capita personal income (PCPI) of \$37,491. This PCPI ranked 17th in the state and was 99 percent of the state average, \$37,836, and 90 percent of the national average, \$41,560. The 2011 PCPI reflected an increase of 8.1 percent from 2010. The 2010-2011 state change was 5.3 percent and the national change was 4.4 percent. In 2001 the PCPI of Licking was \$28,268 and ranked 20th in the state. The 2001-2011 compound annual growth rate of PCPI was 2.9 percent. The compound annual growth rate for the state was 2.6 percent and for the nation was 2.9 percent.”⁴²

³⁹ As described by the U.S. Census Bureau, about the North American Industrial Classification System (NAICS) subsector 454 (nonstore retailers), at <http://www.census.gov/cgi-bin/sssd/naics/naicsrch?code=454&search=2012>, “Establishments in this subsector include mail-order houses, vending machine operators, home delivery sales, door-to-door sales, party plan sales, electronic shopping, and sales through portable stalls (e.g., street vendors, except food). Establishments engaged in the direct sale (i.e., nonstore) of products, such as home heating oil dealers and newspaper delivery service providers are included in this subsector.”

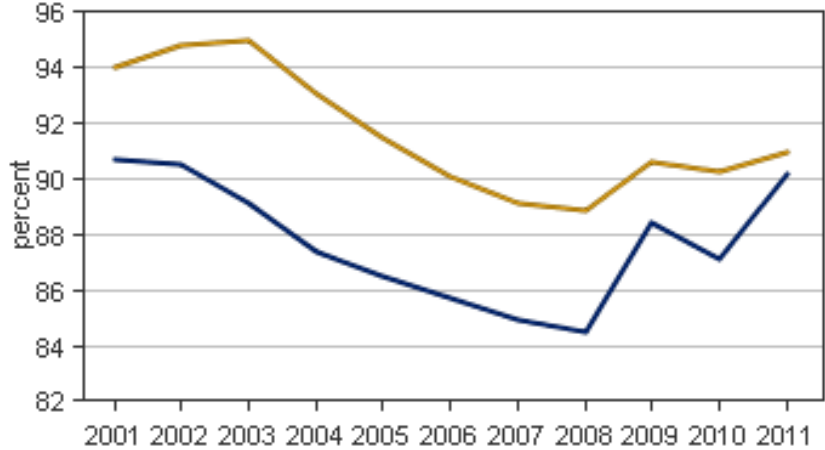
⁴⁰ Research Office of the Ohio Department of Development Services, *County Trends* for Licking County and Ohio, at http://development.ohio.gov/reports/reports_countytrends_map.htm; and U.S. Census Bureau, *State and County QuickFacts*, at <http://quickfacts.census.gov/qfd/states/39/39089.html>.

⁴¹ *Ibid.*

⁴² U.S. Bureau of Economic Analysis (BEA), *BEARFACTS* for Licking County, Ohio,, at <http://www.bea.gov/regional/bearfacts/action.cfm>.



Per Capita Income as a Percent of the United States



■ Ohio ■ Licking

Source: U.S. Bureau of Economic Analysis (BEA), *BEARFACTS* for Licking County, Ohio, at <http://www.bea.gov/regional/bearfacts/action.cfm>.

The U.S. Bureau of Economic Analysis (BEA) also noted the relative increases in the total personal income of Licking County, as follows: “In 2011 Licking had a total personal income (TPI) of \$6,270,295*. This TPI ranked 17th in the state and accounted for 1.4 percent of the state total. In 2001 the TPI of Licking was \$4,190,092* and ranked 18th in the state. *(in thousands of dollars, not adjusted for inflation)”⁴³

TOTAL PERSONAL INCOME (in thousands of dollars, not adjusted for inflation)

<i>CAGR: Compound Annual Growth Rate</i>		
	2010-11 percent change	2001-2011 CAGR
Licking	8.5 %	4.1 %
Ohio	5.4 %	2.7 %
U.S.	5.2 %	3.8 %

Components of Total Personal Income

2010-2011 percent change			
	Licking	Ohio	U.S.
Net earnings	10.1 %	5.7 %	5.7 %
Dividends, interest, and rent	7.1 %	7.3 %	7.5 %
Personal current transfer receipts	3.7 %	3.2 %	1.5 %

2001-2011 compound annual growth rate			
	Licking	Ohio	U.S.
Net earnings	3.8 %	2.3 %	3.4 %
Dividends, interest, and rent	1.0 %	0.3 %	2.9 %
Personal current transfer receipts	8.0 %	6.4 %	6.9 %

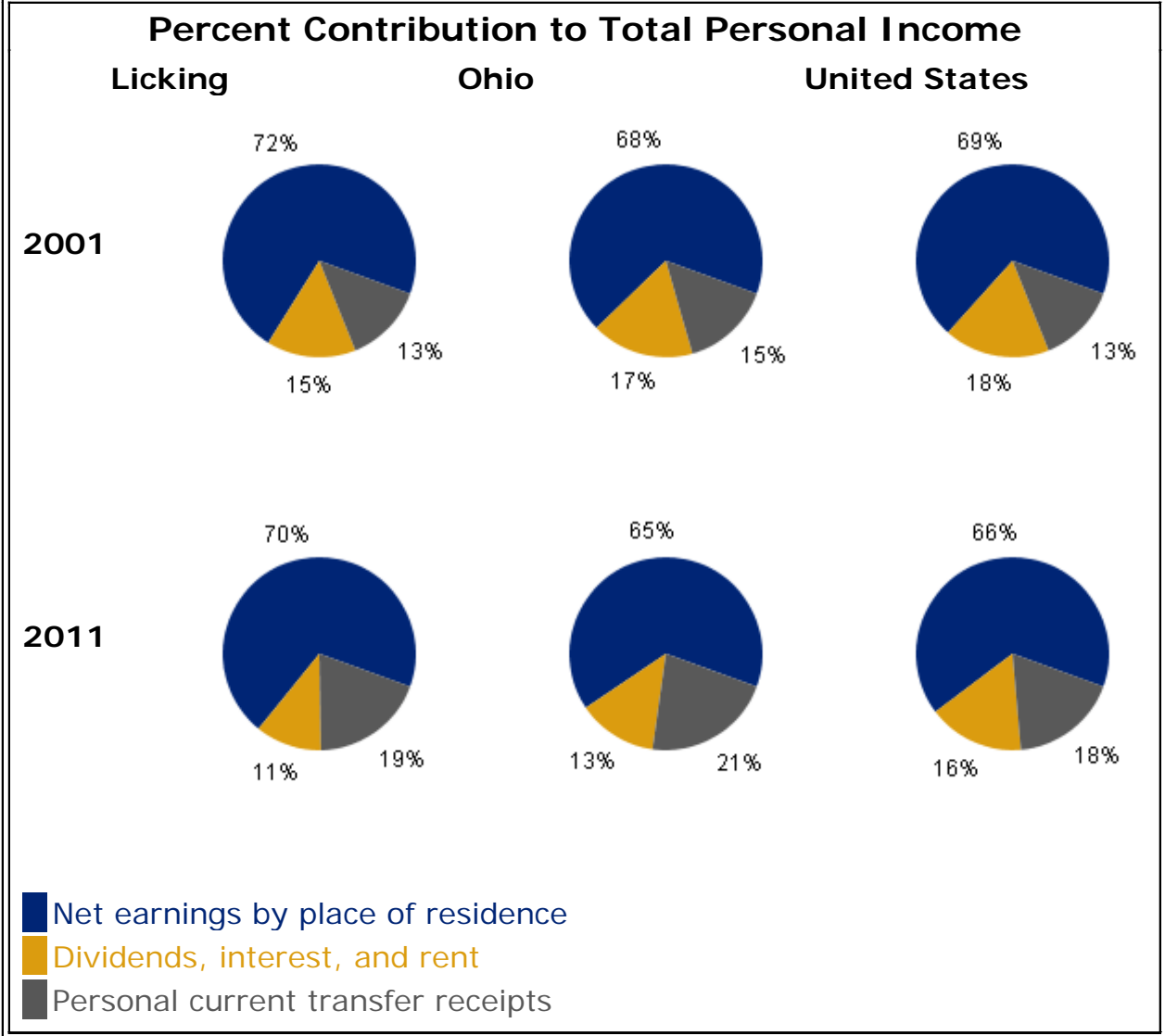
Source: U.S. Bureau of Economic Analysis (BEA), *BEARFACTS* for Licking County, Ohio, at <http://www.bea.gov/regional/bearfacts/action.cfm>.

Note: **Personal current transfer receipts**, as defined by the BEA at http://www.bea.gov/glossary/glossary_p.htm, “consist of income payments to persons for which no current services are performed and net insurance settlements. It is the sum of government social benefits and net current transfer receipts from business.”

⁴³ *Ibid.*

COMPONENTS OF TOTAL PERSONAL INCOME

Total personal income includes net earnings by place of residence; dividends, interest, and rent; and personal current transfer receipts received by the residents of Licking.



Source: U.S. Bureau of Economic Analysis (BEA), *BEARFACTS* for Licking County, Ohio, at <http://www.bea.gov/regional/bearfacts/action.cfm>.

The number of businesses in Licking County, helping to support the growing personal income levels in the county, totaled more than 2,500 firms since the recent economic recovery.

Active Businesses in Licking County, Ohio, as determined by the Research Office of the Ohio Department of Development Services: CY 2011 = 2,617 businesses; and CY 2012 = 2,560 businesses.⁴⁴

In support of these companies, the Licking County Chamber of Commerce achieved a **chamber membership/market penetration rate of about one quarter of the business community**, based on the August, 2013, chamber total memberships of 734 firms.⁴⁵

The Licking County Chamber of Commerce business market penetration rate, based on current chamber membership, can only be approximated; because of the lack of agreement among leading economic data organizations concerning business definitions and the base number of firms currently operating in Licking County. For example, the *County Business Patterns* publication of the U.S. Census Bureau listed 2,859 business establishments in Licking County with paid employees as of the pay period that included March 12, 2011, excluding sole proprietorships.⁴⁶ Furthermore, the U.S. Bureau of Labor Statistics (BLS) in their Quarterly Census of Employment and Wages (QCEW) estimated a total of 3,021 private sector business establishments operating in Licking County in 2011.⁴⁷ For the QCEW program, the BLS defined the differences between companies and establishments as follows:

An establishment is commonly understood as a single economic unit, such as a farm, a mine, a factory, or a store, that produces goods or services. Establishments are typically at one physical location and engaged in one, or predominantly one, type of economic activity for which a single industrial classification may be applied. A firm, or a company, is a business and may consist of one or more establishments, where each establishment may participate in different predominant economic activity.⁴⁸

⁴⁴ Research Office of the Ohio Department of Development Services, *County Trends* for Licking County and Ohio, at http://development.ohio.gov/reports/reports_countytrends_map.htm.

⁴⁴ Licking County, Ohio, Chamber of Commerce, Membership Lists, August 19, 2013.

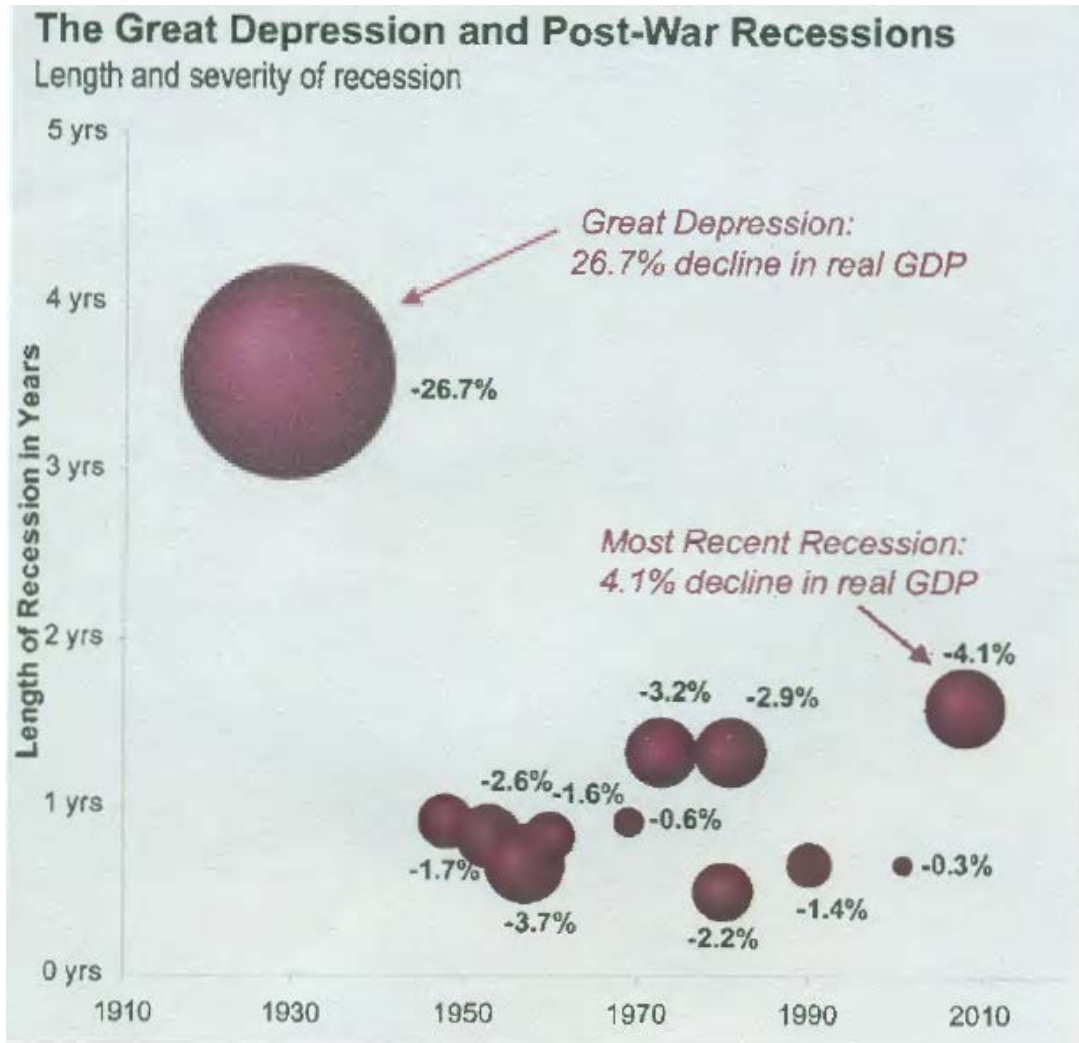
⁴⁵ U.S. Census Bureau, *County Business Patterns*, for Licking County, Ohio, in 2011, at <http://censtats.census.gov/cgi-bin/cbpnaic/cbpsect.pl>.

⁴⁶ Quarterly Census of Employment and Wages (QCEW), U.S. Bureau of Labor Statistics (BLS), and the Ohio Labor Market Information (LMI) Bureau, at <http://ohiolmi.com/asp/edeps/EdepsNAICS.htm>.

⁴⁷ U.S. Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages (QCEW), Frequently Asked Questions #20, "What is the difference between a company, a firm and an establishment in QCEW data?," at <http://www.bls.gov/cew/cewfaq.htm#Q20>.

IV. Economic “Stress Test” for the Industries of Licking County

The National Bureau of Economic Research (NBER) designated the peak-to-trough period of the most recent recession from December, 2007, through June, 2009.⁴⁹ This 18-month economic contraction represented the worst recession since the Great Depression. As a result, economists began to refer to the 2007-2009 contraction as the Great Recession, as demonstrated graphically in the following display.⁵⁰



Source: NBER, BEA, J.P. Morgan Asset Management.

Bubble size reflects the severity of the recession, which is calculated as the decline in real GDP from the peak quarter to the trough quarter except in the case of the Great Depression, where it is calculated from the peak year (1929) to the trough year (1933), due to a lack of available quarterly data. Data are as of 9/30/10.

⁴⁹ National Bureau of Economic Research (NBER), US Business Cycle Expansions and Contractions, Business Cycle Reference Dates, at <http://www.nber.org/cycles/cyclesmain.html>.

⁵⁰ J.P. Morgan Asset Management, *Guide to the Markets*, 4th Qrt., 2010, p. 13.

In Licking County, Ohio, the Great Recession hurt the local economy significantly as shown below, in terms of the loss of employment, establishments, and payroll.⁵¹

Summary Profile for: Licking County Total Private Employment⁵²			
Year	Number of Establishments	All Employees	Total Wages (in thousands)
2007	3,041	46,318	\$1,523,531
2009	3,023	43,303	\$1,477,087
Absolute Change	-18	-3,015	-\$46,444
Percent Change	-0.6%	-6.5%	-3.0%

Source: U.S. Bureau of Labor Statistics (BLS) and the Ohio Bureau of Labor Market Information (LMI), Quarterly Census of Employment and Wages (QCEW).

In addition, the Great Recession also provided a uniquely realistic (albeit extreme), economic “stress test” of the industries in Licking County, which identified the most resilient sectors of the local economy. Of all the economic sectors that composed the Licking County economy, only 2 sectors remained stable (i.e., no declines) or continued growing during the most recent recession (2007-2009), in terms of total wages, number of establishments, average annual wage, and private employment - namely, the sectors of professional, scientific, and technical services (NAICS code 54), and health care and social assistance (NAICS code 62).⁵³

By comparing the resilience of Licking County economic sectors against the high standard of stability or growth in all four criteria of private employment and number of establishments and total wages and average annual pay during the Great Recession years of 2007-2009, based on the annual data from the Quarterly Census of Employment and Wages (QCEW),⁵⁴ the economic stress test of the most recent recession became a filter through which to identify the Licking County sectors, industries, and businesses which were largely unaffected by

⁵¹ Ohio Bureau of Labor Market Information, Quarterly Census of Employment and Wages (QCEW), at <http://ohiolmi.com/asp/edeps/EdepsDisplay.asp?area=39089Licking%20County>.

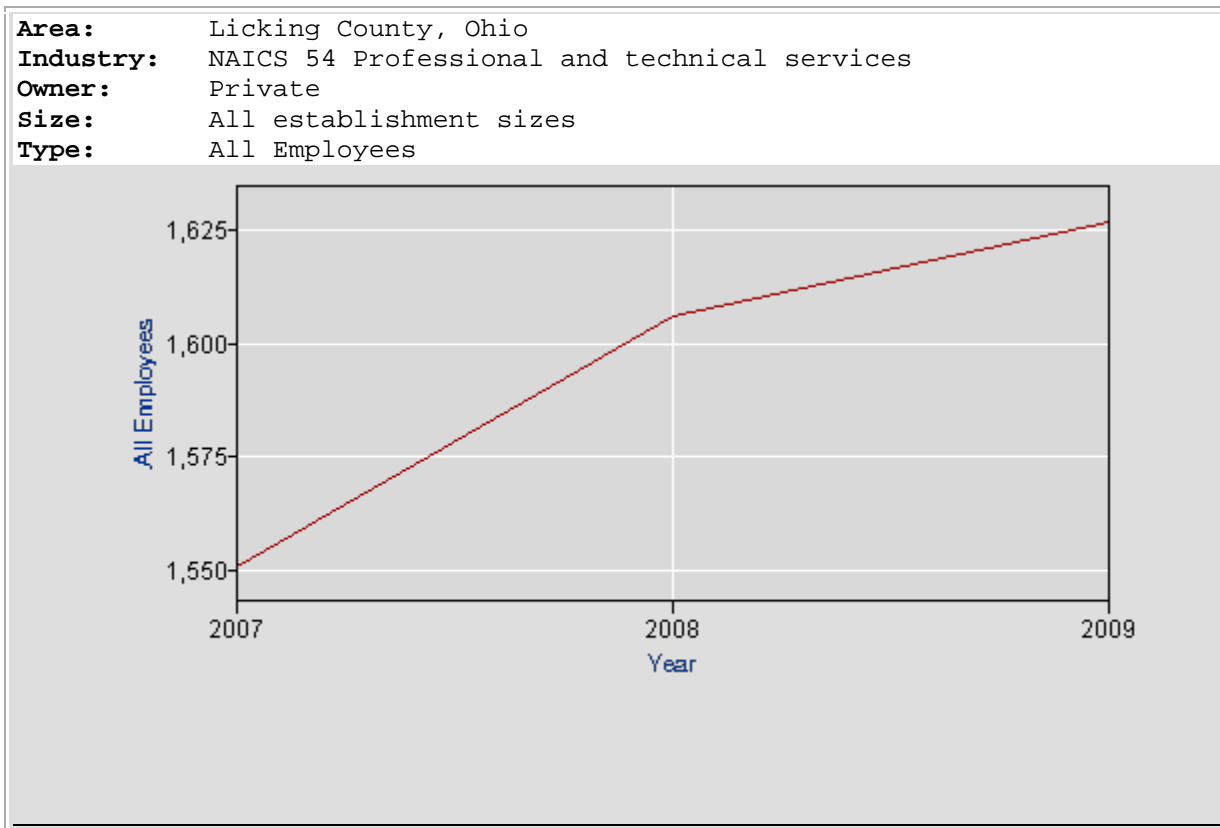
⁵² *Ibid.*

⁵³ *Ibid.*

⁵⁴ U. S. Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages (QCEW), multi-screen data search, at <http://www.bls.gov/cew/>.

the Great Recession, that is, the most resilient parts of the local county economy. The following BLS graphs displayed the economic growth and stability of the Licking County sectors NAICS 54 (professional, scientific, and technical services) and NAICS 62 (health care and social assistance) during the last recession.⁵⁵

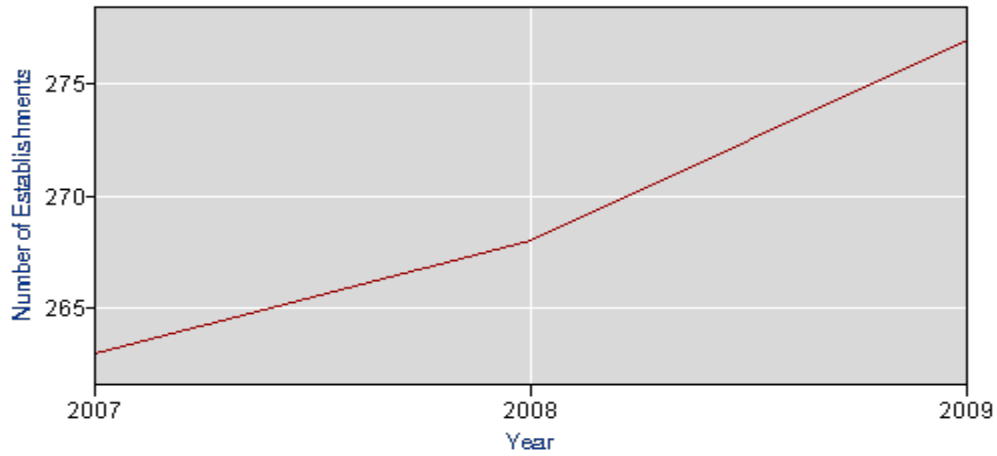
Source: Quarterly Census of Employment and Wages (QCEW), U.S. Bureau of Labor Statistics (BLS)⁵⁶



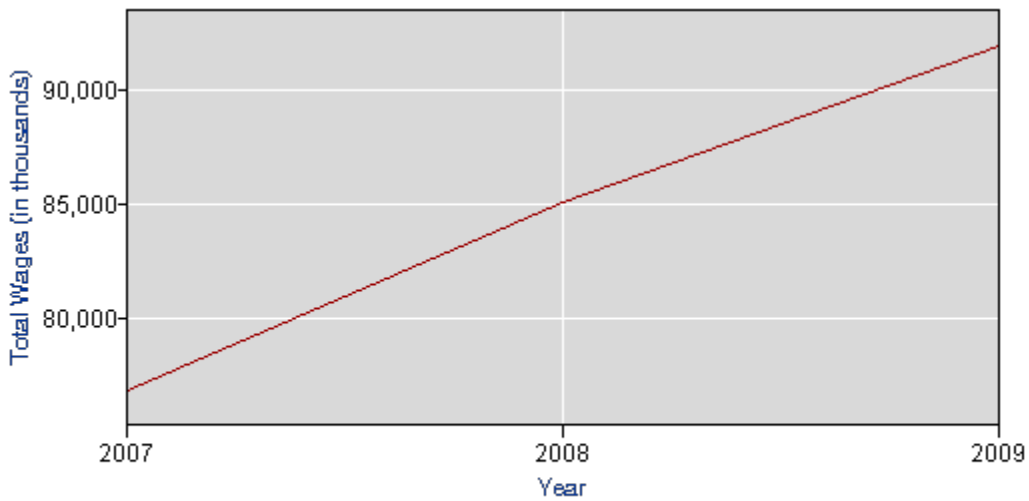
⁵⁵ *Ibid.* The QCEW data about the resilient sectors of Licking County are also provided by detailed industry at the following websites of the Ohio Bureau of Labor Market Information (LMI) and the U.S. Bureau of Labor Statistics (BLS), respectively: Ohio Bureau of Labor Market Information, Quarterly Census of Employment and Wages (QCEW), at <http://ohiolmi.com/asp/edepts/EdeptsDisplay.asp?area=39089Licking%20County>; and the U. S. Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages (QCEW), multi-screen data search, at <http://www.bls.gov/cew/>. The industry data may be broken down further for specific firms by industry, township, village, city, county, metropolitan area, and state at the Employer Locator website of the U. S. Employment and Training Administration (ETA) at <http://www.careerinfonet.org/employerlocator/employerlocator.asp>.

⁵⁶ U. S. Bureau of Labor Statistics (BLS), Quarterly Census of Employment and Wages (QCEW), multi-screen data search, at <http://www.bls.gov/cew>.

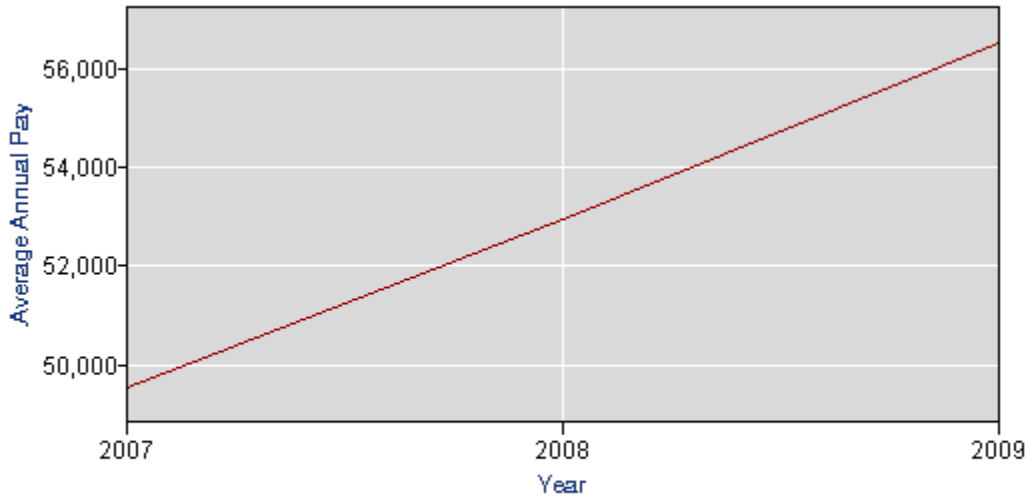
Area: Licking County, Ohio
Industry: NAICS 54 Professional and technical services
Owner: Private
Size: All establishment sizes
Type: Number of Establishments



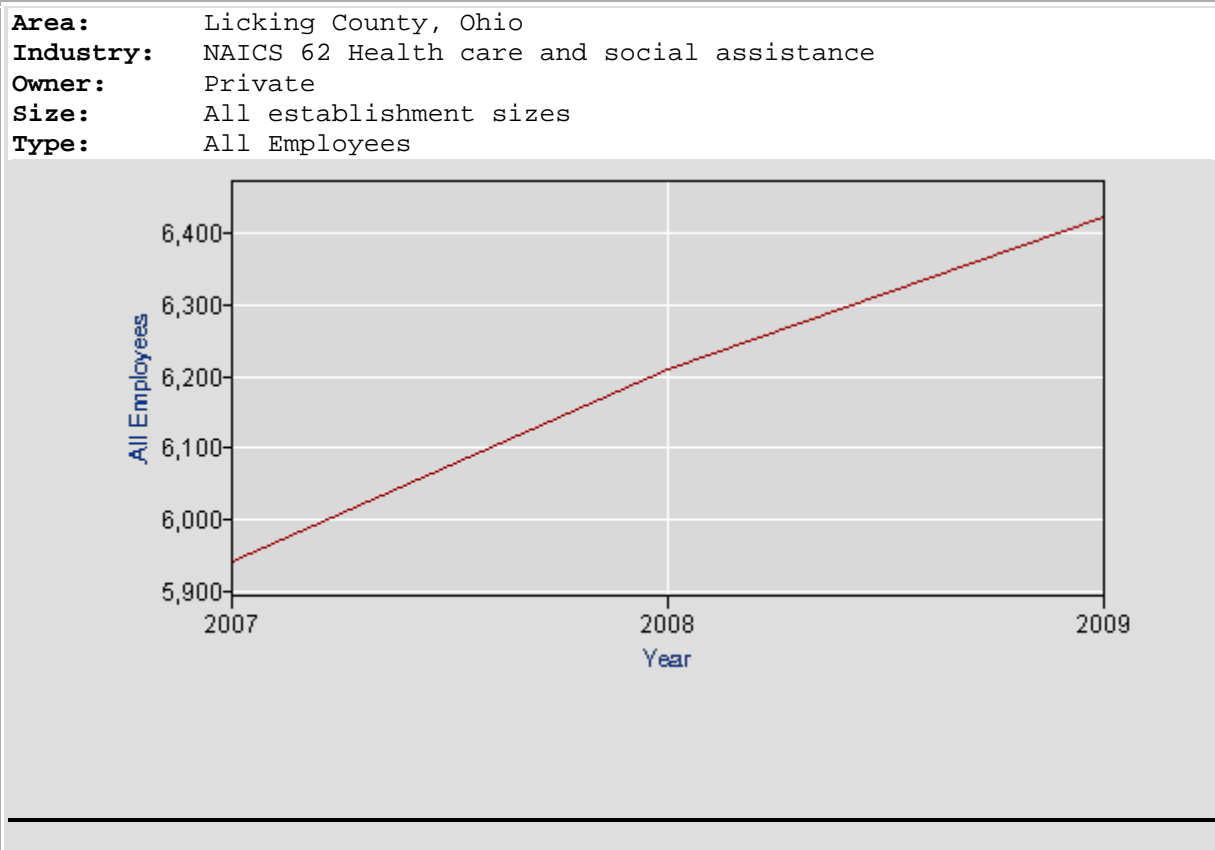
Area: Licking County, Ohio
Industry: NAICS 54 Professional and technical services
Owner: Private
Size: All establishment sizes
Type: Total Wages (in thousands)



Area: Licking County, Ohio
Industry: NAICS 54 Professional and technical services
Owner: Private
Size: All establishment sizes
Type: Average Annual Pay

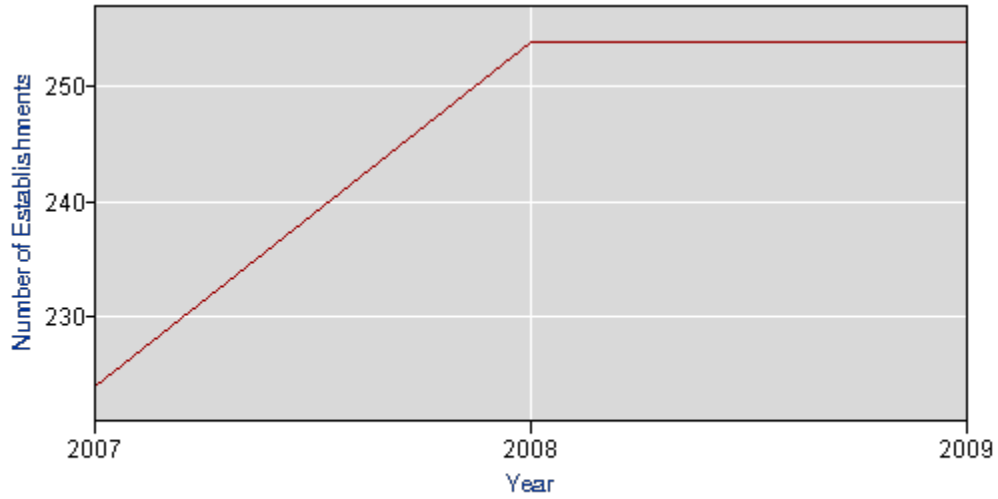


Source: Quarterly Census of Employment and Wages (QCEW), U.S. Bureau of Labor Statistics (BLS)⁵⁷

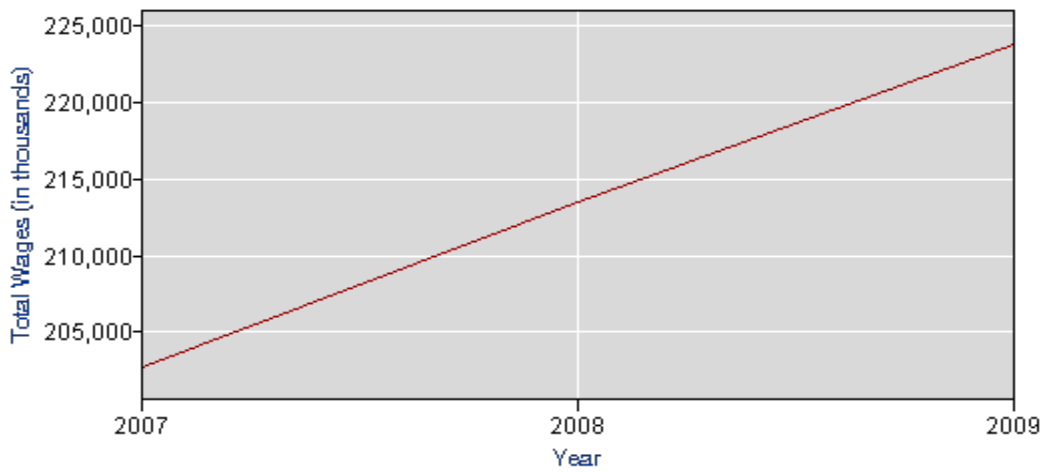


⁵⁷ *Ibid.*

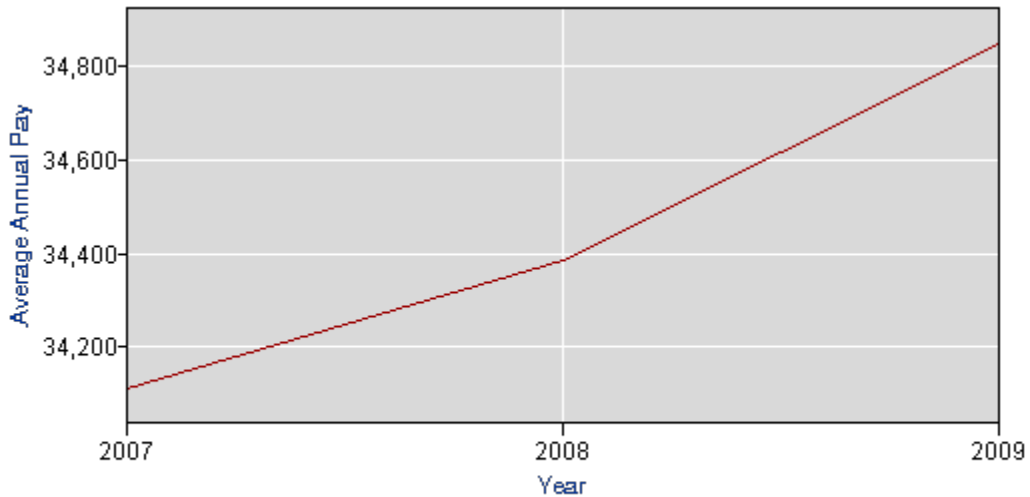
Area: Licking County, Ohio
Industry: NAICS 62 Health care and social assistance
Owner: Private
Size: All establishment sizes
Type: Number of Establishments



Area: Licking County, Ohio
Industry: NAICS 62 Health care and social assistance
Owner: Private
Size: All establishment sizes
Type: Total Wages (in thousands)



Series Id: ENU3908950562
State: Ohio
Area: Licking County, Ohio
Industry: NAICS 62 Health care and social assistance
Owner: Private
Size: All establishment sizes
Type: Average Annual Pay



Although the professional, scientific, and technical services sector (NAICS 54) and the health care and social assistance sector (NAICS 62) in Licking County shared characteristics of economic resilience, the health sector had a larger payroll and workforce; while the professional, scientific, and technical sector had more establishments and a higher average annual wage, at the end of the Great Recession in 2009.⁵⁸

⁵⁸ Ohio Bureau of Labor Market Information, Quarterly Census of Employment and Wages (QCEW), at <http://ohiolmi.com/asp/edeps/EdepsDisplay.asp?area=39089Licking%20County>.

Summary Profile for: Licking County NAICS Code: 54 - Professional, Scientific, and Technical Services ⁵⁹				
Year	Number of Establishments	All Employees	Total Wages (in thousands)	Average Annual Wage
2009	277	1,627	\$91,949	\$56,526

Summary Profile for: Licking County NAICS Code: 62 - Health Care and Social Assistance ⁶⁰				
Year	Number of Establishments	All Employees	Total Wages (in thousands)	Average Annual Wage
2009	254	6,423	\$223,841	\$34,850

National economic trends contributed to the economic resilience of sectors 54 and 62 in Licking County, Ohio. As reported by the analysts of the U.S. Bureau of Labor Statistics (BLS) for their national employment projections, 2010-2020,

Employment in professional, scientific, and technical services is projected to grow by 29 percent, adding about 2.1 million new jobs by 2020. Employment in computer systems design and related services is expected to increase by 47 percent, driven by growing demand for sophisticated computer network and mobile technologies. Employment in management, scientific, and technical consulting services is anticipated to expand, at 58 percent. Demand for these services will be spurred by businesses' continued need for advice on planning and logistics, the implementation of new technologies, and compliance with workplace safety, environmental, and employment regulations. Combined, the two industries—computer systems design and related services and management, scientific, and technical consulting services—will account for more than half of all new jobs in professional, scientific, and technical services.⁶¹

In the health care and social assistance sector of the U.S. economy for the same time period, 2010-2020, the BLS analysts emphasized the increased demands for health care services of the aging population:

⁵⁹ *Ibid.*

⁶⁰ *Ibid.*

⁶¹ U.S. Bureau of Labor Statistics (BLS), *Occupational Outlook Handbook* (OOH), 2010-2020, "Employment change by industry," at <http://www.bls.gov/ooh/About/Projections-Overview.htm>.

The healthcare and social assistance industry is projected to create about 28 percent of all new jobs created in the U.S. economy. This industry—which includes public and private hospitals, nursing and residential care facilities, and individual and family services—is expected to grow by 33 percent, or 5.7 million new jobs. Employment growth will be driven by an aging population and longer life expectancies, as well as new treatments and technologies.⁶²

⁶² *Ibid.*

V. *Ex Ante* Employment Multipliers for Licking County, Ohio, Target Industries

The prior chapters of this economic environmental scan identified the largest economic impact sectors based on payroll (chapter III), the export sectors based on location quotients (chapter III), and the most economically resilient sectors as tested by the Great Recession (chapter IV) in Licking County, Ohio. These critical economic sectors for Licking County may also be evaluated based on the relative standing of their respective employment multipliers.

Based on regional input/output models of the relationships between industries producing goods and services for final users (direct output impacts), and intermediate goods and services as inputs for other industries (indirect input impacts), plus the tertiary effects of the increased income and spending of workers resulting from new economic development projects (induced impacts related to purchases made by employees), the likely, total local regional employment impacts by economic sector and industry may be determined on an *ex ante* basis, to help economic developers and planners decide where to focus their efforts. This chapter relied upon type II 2010 employment multipliers from the Regional Input-Output Modeling System (RIMS II) of the U. S. Bureau of Economic Analysis (BEA).⁶³ The type II multipliers included the induced impacts, as well as the direct and indirect impacts.⁶⁴

As defined by the regional product division of the BEA, the RIMS II input-output multipliers “show how local demand shocks affect total gross output, value added, earnings, and employment in the region.”⁶⁵ Examples of “local demand shocks” included new business expansions, or large business closings, or major public works projects. This report reviewed the employment multipliers to gauge the relative, potential impacts of new business development in Licking County for the economic sectors with the largest payroll, greatest export quotients, and most robust economic resiliency. These type II employment multipliers included both part-time and full-time employment.⁶⁶

In using the RIMS II employment multipliers to gauge future employment impacts of economic development projects, certain methodologies and assumptions of the RIMS II input/output (I-O) model were accepted. The BEA analysts described these modeling methods and assumptions as follows:

⁶³ Regional Input-output Modeling System (RIMS II), Regional Product Division, U. S. Bureau of Economic Analysis (BEA) at <https://www.bea.gov/regional/rims/rimsii/>.

⁶⁴ RIMS II Order and Delivery System, Frequently Asked Questions, at <https://www.bea.gov/regional/rims/rimsii/help.aspx#WhatAreType>.

⁶⁵ Regional Input-output Modeling System (RIMS II), U. S. Bureau of Economic Analysis (BEA), *op. cit.*, at <https://www.bea.gov/regional/rims/rimsii/>.

⁶⁶ *Ibid.*

RIMS II is based on an accounting framework called an I-O table. For each industry, an I-O table shows the industrial distribution of inputs purchased and outputs sold. A typical I-O table in RIMS II is derived mainly from two data sources: BEA's national [I-O table \(PDF\)](#), which shows the input and output structure of nearly 500 U.S. industries, and BEA's regional economic accounts, which are used to adjust the national I-O table to show a region's industrial structure and trading patterns.⁶⁷

The BEA regional division staff described the major steps of the input/output analysis in the following manner:⁶⁸

RIMS II uses BEA's benchmark and annual I-O tables for the nation. Since a particular region may not contain all the industries found at the national level, some direct input requirements cannot be supplied by that region's industries. Input requirements that are not produced in a study region are identified using BEA's regional economic accounts.

The RIMS II method for estimating regional I-O multipliers can be viewed as a three-step process. In the first step, the producer portion of the national I-O table is made region-specific by using six-digit NAICS location quotients (LQs). The LQs estimate the extent to which input requirements are supplied by firms within the region. RIMS II uses LQs based on two types of data: BEA's personal income data (by place of residence) are used to calculate LQs in the service industries; and BEA's wage-and-salary data (by place of work) are used to calculate LQs in the nonservice industries.

In the second step, the household row and the household column from the national I-O table are made region-specific. The household row coefficients, which are derived from the value-added row of the national I-O table, are adjusted to reflect regional earnings leakages resulting from individuals working in the region but residing outside the region. The household column coefficients, which are based on the personal consumption expenditure column of the national I-O table, are

⁶⁷ Regional Input-Output Modeling System (RIMS II), Regional Product Division, U. S. Bureau of Economic Analysis (BEA), "Regional Multipliers from the Regional Input-Output Modeling System (RIMS II): A Brief Description, Overview," at https://www.bea.gov/regional/rims/brfdesc.cfm#RIMS_Meth.

⁶⁸ Regional Input-output Modeling System (RIMS II), Regional Product Division, U.S. Bureau of Economic Analysis (BEA), "Regional Multipliers from the Regional Input-Output Modeling System (RIMS II): A Brief Description, RIMS II Methodology, at https://www.bea.gov/regional/rims/brfdesc.cfm#RIMS_Meth. NAICS referred to the North American Industrial Classification System.

adjusted to account for regional consumption leakages stemming from personal taxes and savings.

In the last step, the Leontief inversion approach is used to estimate multipliers. This inversion approach produces output, earnings, and employment multipliers, which can be used to trace the impacts of changes in final demand on directly and indirectly affected industries.⁶⁹

The RIMS II input/output model imposed the following assumptions:⁷⁰

- (1) backward linkages, which referred to an increased demand for output resulting in added demand for inputs;
- (2) fixed purchase patterns, which is the assumption that industries and sectors do not change the mix of inputs needed to produce outputs, and that these same industries must double their inputs in order to double the magnitude of their respective outputs;
- (3) homogeneity of businesses in the same industry, which is the assumption that all business firms in the same industry utilize the same production process;
- (4) fixed price model, meaning that businesses are assumed to be able to purchase needed inputs of any magnitude without encountering higher prices;
- (5) lack of regional feedback between businesses in different regions; and,
- (6) no time dimension for the completion of the change in economic activity.⁷¹

Because of the limiting assumptions contained within the input/output model as noted above, especially the fixed purchase patterns, the RIMS II employment multipliers should be considered upper limits of the economic impacts.⁷² Nonetheless, the accuracy of the RIMS II multipliers compared well with more expensive multipliers from regional input/output models with extensive business surveys.⁷³

The following tables summarized the relative employment impacts for the critical economic sectors with the largest payroll, greatest export location quotients, and most robust economic resiliency in the face of the Great Recession, in Licking County, Ohio, based on the type II employment multipliers from the RIMS II input/output model, starting with the largest payroll sectors. Among the payroll sectors of greatest magnitude in Licking County (i.e., \$200 million plus annual payrolls), the manufacturing division produced the largest employment multipliers. For example, if a new manufacturing plant for motor vehicles, body, trailer, and parts manufacturing were to begin operations in Licking County, on an *ex*

⁶⁹ *Ibid.*

⁷⁰ Regional Input-Output Modeling System (RIMS II), Regional Product Division, U. S. Bureau of Economic Analysis (BEA), *RIMS II User's Guide*, at http://www.bea.gov/regional/pdf/rims/RIMSII_User_Guide.pdf, pp. 2-1 through 2-4.

⁷¹ *Ibid.*

⁷² *Ibid.*; and RIMS II Assumptions at <https://www.bea.gov/regional/rims/rimsii/illustrativetables.aspx>.

⁷³ *Ibid.*; and RIMS II Brief Description at <https://www.bea.gov/regional/rims/brfdesc.cfm>.

ante basis, the RIMS II input/output model predicted that for each new manufacturing job in the new motor vehicles plant, the Licking County economy overall would gain 2.3985 jobs. In other words, a hypothetical, new motor vehicles plant with 100 new jobs would create a total estimate of 240 jobs for the Licking County economy in all industries, based on the direct, indirect, and induced economic impacts. Among the large payroll sectors in Licking County – each with annual payrolls of more than \$200 million annually – only the manufacturing division had type II employment multipliers for jobs that were greater than 2, which were highlighted in the table below. (See Appendix B for recent case studies.)

RIMS II Multipliers (2010/2010)	
Total Multipliers for Employment by Industry Aggregation	Type II
Licking County, Ohio	Multipliers
INDUSTRY	Employment (jobs)*
I. Largest Economic Impact Based on Payroll in 2012	
A. Manufacturing	
Wood product manufacturing	1.7563
Nonmetallic mineral product manufacturing	2.1160
Primary metal manufacturing	2.3348
Fabricated metal product manufacturing	1.7872
Machinery manufacturing	1.8025
Computer and electronic product manufacturing	1.4276
Electrical equipment and appliance manufacturing	1.7506
Motor vehicle, body, trailer, and parts manufacturing	2.3985
Other transportation equipment manufacturing	3.0597
Furniture and related product manufacturing	1.5768
Miscellaneous manufacturing	1.8892
Food, beverage, and tobacco product manufacturing	3.7576
Textile and textile product mills	1.6552
Paper manufacturing	1.8689
Printing and related support activities	1.6314
Petroleum and coal products manufacturing	2.5677
Chemical manufacturing	2.5454
Plastics and rubber products manufacturing	1.7549
I. Largest Economic Impact Based on Payroll in 2012	
B. Retail Trade	
	1.2746
I. Largest Economic Impact Based on Payroll in 2012	
C. Health Care and Social Assistance	
Ambulatory health care services	1.4866
Hospitals	1.5369
Nursing and residential care facilities	1.2523
Social assistance	1.2099

SOURCE: RIMS II multipliers, Regional Product Division of the Bureau of Economic Analysis (BEA), 1/25/2014, at <https://www.bea.gov/regional/rims>. As noted by the BEA staff, "Multipliers are based on the 2010 Annual Input-Output Table for the Nation and 2010 regional data."

*The analysts for the RIMS II/Bureau of Economic Analysis (at <https://www.bea.gov/regional/rims>) defined these employment multipliers as "the total change in number of jobs in all industries for each additional job in the industry corresponding to the entry."

For the Licking County economic sectors indicated as export sectors by high location quotients, the second table below again displayed the higher employment multipliers for the export manufacturing sectors (highlighted) than other export sectors.

RIMS II Multipliers (2010/2010)	
Total Multipliers for Employment by Industry Aggregation	Type II
Licking County, Ohio	Multipliers
INDUSTRY	Employment (jobs)*
II. Export Sectors (CY 2012)	
A. Manufacturing	
Wood product manufacturing	1.7563
Nonmetallic mineral product manufacturing	2.1160
Primary metal manufacturing	2.3348
Fabricated metal product manufacturing	1.7872
Machinery manufacturing	1.8025
Computer and electronic product manufacturing	1.4276
Electrical equipment and appliance manufacturing	1.7506
Motor vehicle, body, trailer, and parts manufacturing	2.3985
Other transportation equipment manufacturing	3.0597
Furniture and related product manufacturing	1.5768
Miscellaneous manufacturing	1.8892
Food, beverage, and tobacco product manufacturing	3.7576
Textile and textile product mills	1.6552
Paper manufacturing	1.8689
Printing and related support activities	1.6314
Petroleum and coal products manufacturing	2.5677
Chemical manufacturing	2.5454
Plastics and rubber products manufacturing	1.7549
II. Export Sectors (CY 2012)	
B. Retail Trade	
	1.2746
II. Export Sectors (CY 2012)	
C. Finance and Insurance	
Federal Reserve banks, credit intermediation and related services	1.9547
Securities, commodity contracts, investments	1.3323
Insurance carriers and related activities	1.6425
II. Export Sectors (CY 2012)	
D. Management of Companies and Enterprise	
	1.9436

SOURCE: RIMS II multipliers, Regional Product Division of the Bureau of Economic Analysis (BEA), 1/25/2014, at <https://www.bea.gov/regional/rims>. As noted by the BEA staff, "Multipliers are based on the 2010 Annual Input-Output Table for the Nation and 2010 regional data."

*The analysts for the RIMS II/Bureau of Economic Analysis (at <https://www.bea.gov/regional/rims>) defined these employment multipliers as "the total change in number of jobs in all industries for each additional job in the industry corresponding to the entry."

The sectors in Licking County which proved most resilient to the economic pressures of the Great Recession, as shown in the following table, did not produce type II employment multipliers as large as the manufacturing industries.

RIMS II Multipliers (2010/2010)	
Total Multipliers for Employment by Industry Aggregation	Type II
Licking County, Ohio	Multipliers
INDUSTRY	Employment (jobs)*
III. Most Resilient Economic Sectors	
A. Professional, Scientific, and Technical Services	1.6344
III. Most Resilient Economic Sectors	
B. Health Care and Social Assistance	
Ambulatory health care services	1.4866
Hospitals	1.5369
Nursing and residential care facilities	1.2523
Social assistance	1.2099

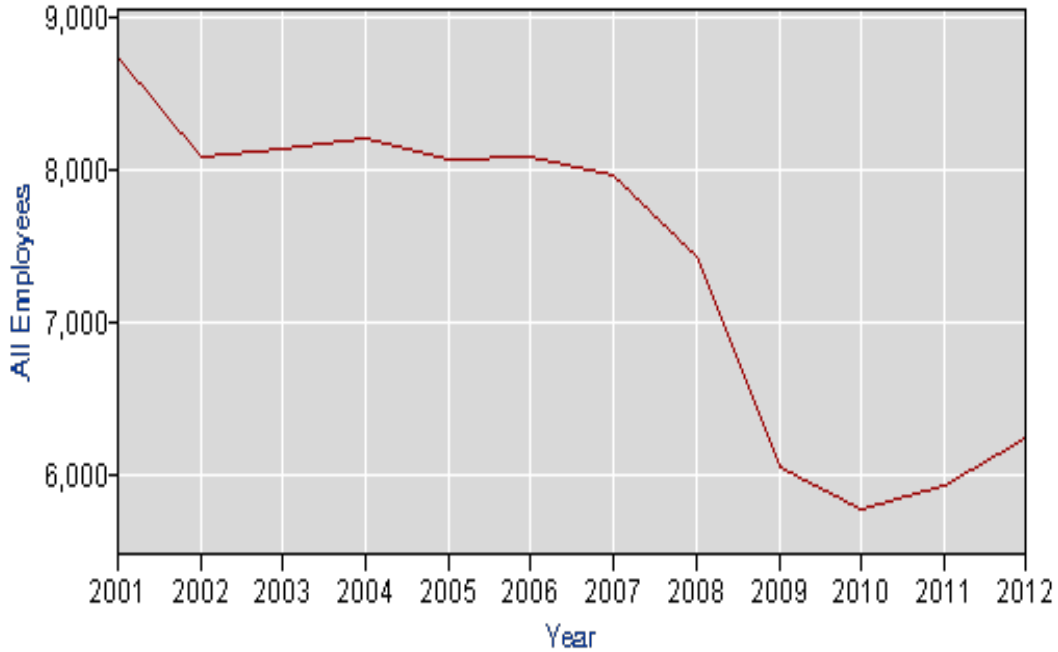
SOURCE: RIMS II multipliers, Regional Product Division of the Bureau of Economic Analysis (BEA), 1/25/2014, at <https://www.bea.gov/regional/rims>. As noted by the BEA staff, "Multipliers are based on the 2010 Annual Input-Output Table for the Nation and 2010 regional data."

*The analysts for the RIMS II/Bureau of Economic Analysis (at <https://www.bea.gov/regional/rims>) defined these employment multipliers as "the total change in number of jobs in all industries for each additional job in the industry corresponding to the entry."

Although the short-run, employment multipliers point to the strengths of the manufacturing sector in Licking County, Ohio, the long-term employment trends reflect the productivity improvements made by manufacturers that enabled these firms to produce more output with less labor inputs, that is, with fewer workers. The following graph and table (which utilized data from the Quarterly Census of Employment and Wages) displayed the long-term shrinking of the manufacturing workforce in Licking County.

Quarterly Census of Employment and Wages (QCEW)

State: Ohio
Area: Licking County, Ohio
Industry: Manufacturing
Owner: Private
Size: All establishment sizes
Type: All Employees



Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2001	9208	9135	9110	8790	8725	8696	8673	8598	8482	8518	8495	8492	8744
2002	8206	8074	7985	8070	8187	8191	7794	8173	8173	8155	8040	8025	8089
2003	8142	8059	8155	8150	8258	8356	8053	8137	8111	8095	8050	8111	8140
2004	8071	8111	8141	8201	8249	8254	8158	8228	8244	8242	8238	8280	8201
2005	8085	8099	8044	8108	8141	8177	8078	8139	8114	7987	7970	7905	8071
2006	8006	8069	8061	8114	8107	8171	8083	8202	8112	8104	7996	7954	8082
2007	7973	7944	7967	7959	7991	8033	8035	7958	7972	7937	7905	7939	7968
2008	7773	7766	7626	7581	7520	7566	7496	7440	7286	7124	6986	6930	7425
2009	6536	6308	6003	6049	6061	6077	5916	5968	5969	5951	5839	5961	6053
2010	5769	5802	5730	5699	5764	5789	5818	5821	5775	5814	5820	5820	5785
2011	5786	5801	5881	5955	5911	5991	6041	6029	6013	5964	5957	5857	5932
2012	6017	6133	6176	6180	6265	6308	6279	6303	6320	6320	6278	6272	6238
2013	6395(P)	6439(P)	6432(P)	6459(P)	6519(P)	6536(P)							

P : Preliminary.

Source: Quarterly Census of Employment and Wages (QCEW), U. S. Bureau of Labor Statistics (BLS), at <http://data.bls.gov/pdq/SurveyOutputServlet>.

Hence, the need developed for a balanced economic development strategy for Licking County, within the parameters of the largest economic impact sectors (based on total payroll), the export sectors (based on location quotients), the economically resilient sectors (based on the economic “stress test” of the Great Recession), and the industries with the highest employment multipliers (based on the RIMS II input/output model). As documented in the previous report sections, these economic development parameters equilibrated into an economic development strategy focused on the six industry groups of (I) manufacturing; (II) retail trade; (III) finance and insurance; (IV) professional, scientific, and technical services; (V) management of companies and enterprises; and (VI) health care and social assistance.

Six Sectors for Economic Development Emphasis: <i>(NAICS Code and Title)</i>	<u>Largest Economic Impact (Based on Total Wages)</u>	<u>Export Sectors (Based on Location Quotients)</u>	<u>Resilient Industries (Based on Economic "Stress Test" of the Great Recession)</u>	<u>Highest Employment Multipliers (Based on Input/Output Model)</u>
31-33 Manufacturing	X	X		X
44-45 Retail Trade	X	X		
52 Finance and Insurance		X		
54 Professional, Scientific, and Technical Services			X	
55 Management of Companies and Enterprises		X		
62 Health Care and Social Assistance	X		X	

VI. Licking County, Ohio, Critical Infrastructure for Economic Development

The transportation infrastructure played a critical support role in the economic development of Licking County. The Licking County Planning and Development Department described the vast county transportation network as follows:

Licking County is located in Central Ohio on Interstate-70, which spans the County from east to west. Licking County is also served by U.S. Route 40 (National Road) from east to west, and U.S. Route 62 crossing the northwest quadrant of the County. Major Ohio Highways include...Route 161 from Granville to New Albany, Route 16, eastern Licking County to Newark (County seat) and southwest to Pataskala, Route 79 southern Licking County through Heath and Newark and northeast, Route 13 south to north from Thornville through Newark to Utica, Route 661 Granville north to the Knox County line, and Route 37 south to north from Buckeye Lake through Granville to Johnstown. Licking County is within one day's drive of 60% of the US population and 50% of the Canadian population. Licking County is rail served with multiple carrier track access. The Aviation Works, Licking County's Public Airport is in the City of Heath, centrally located, featuring a 5-thousand foot runway and support facilities for corporate aircraft. Licking County also benefits from the nearby Port Columbus and Rickenbacker International Airports. Plus, the County's rail advantages are further enhanced by Norfolk-Southern's new Rail Intermodal facility, located just south of nearby Columbus. This hub is a national resource connecting the east coast with the Midwest.⁷⁴

These transportation resources were highlighted geographically on the following map of Licking County.

⁷⁴ Licking County Planning and Development Department, Economic Development, at http://www.lcounty.com/planning/econ_dev.

Map of Licking County, Ohio, Transportation Network⁷⁵

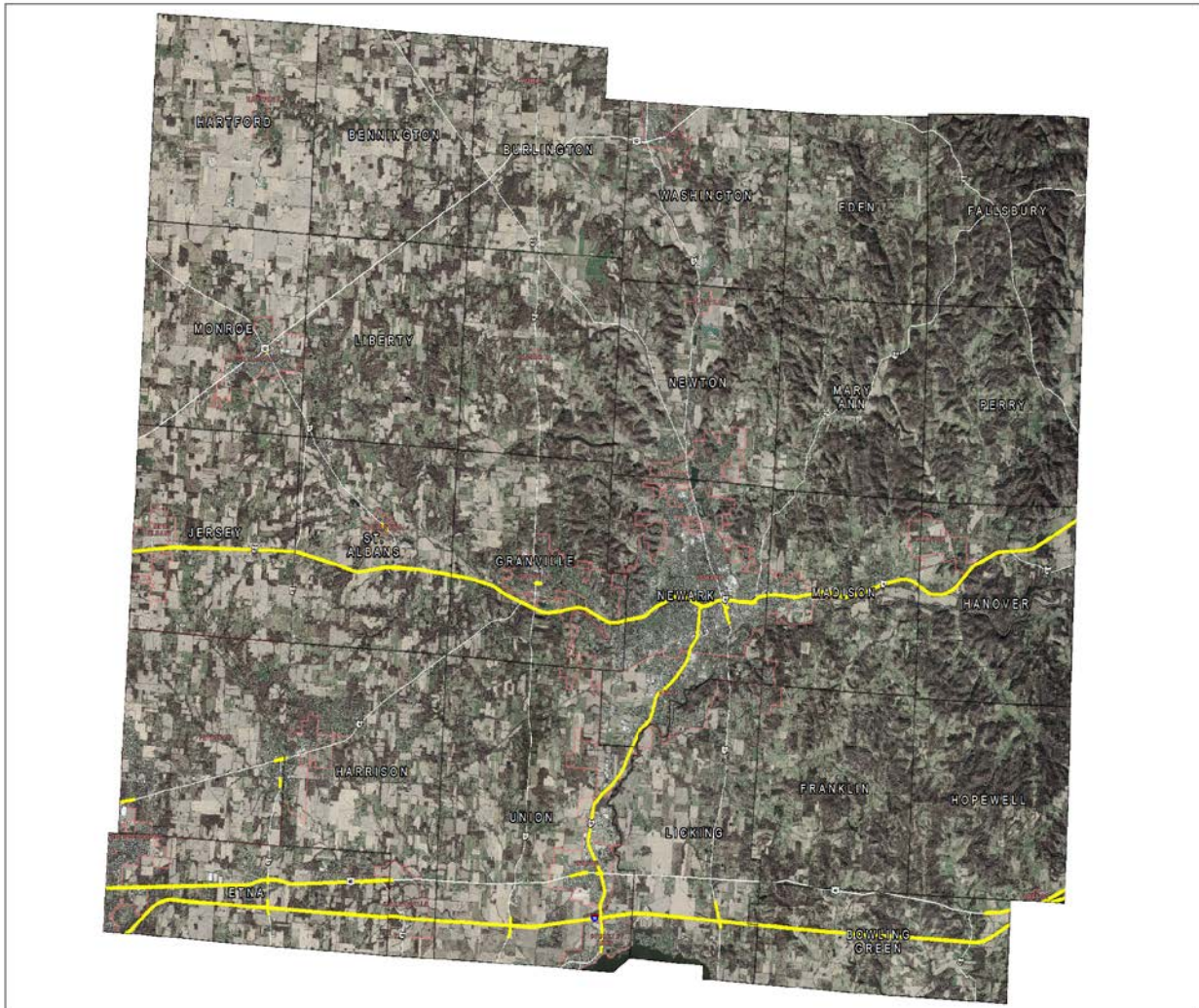


Source: Ohio Department of Transportation (ODOT) and *Grow Licking County*, Licking County map, at <http://www.growlickingcounty.org/site-selectors>. (Northern direction = ^)

As displayed by the preceding, transportation map, the quantity of the Licking County truck transportation going east-to-west and west-to-east dominated any north-to-south and south-to-north truck traffic. The dominance of east-to-west and west-to-east truck traffic resulted from the relative dearth of four-lane highways in Licking County providing truck transportation in a northerly or southern direction. All of Interstate Highway 70 (I-70), and part of the historic National Road (State Route 40, western section), were four-lane highways, which traversed the length of Licking County east-to-west and west-to-east near the southern border of the county. In addition, State Route (St. Rt.) 161/16 was four-lane highway in the middle of Licking County. Only St. Rt. 79 provided a four-lane highway connection to I-70 in a north/south and south/north

⁷⁵ Ohio Department of Transportation (ODOT) and *Grow Licking County*, Site Selectors, Licking County map, at <http://www.growlickingcounty.org/site-selectors>.

direction, from Newark to Hebron. The aerial map below displayed the Licking County four-lane highways (in yellow) – that is, the east/west and west/east I-70, the western portion of National Road, and St. Rt. 161/16; as well as the north/south and south/north St. Rt. 79.⁷⁶

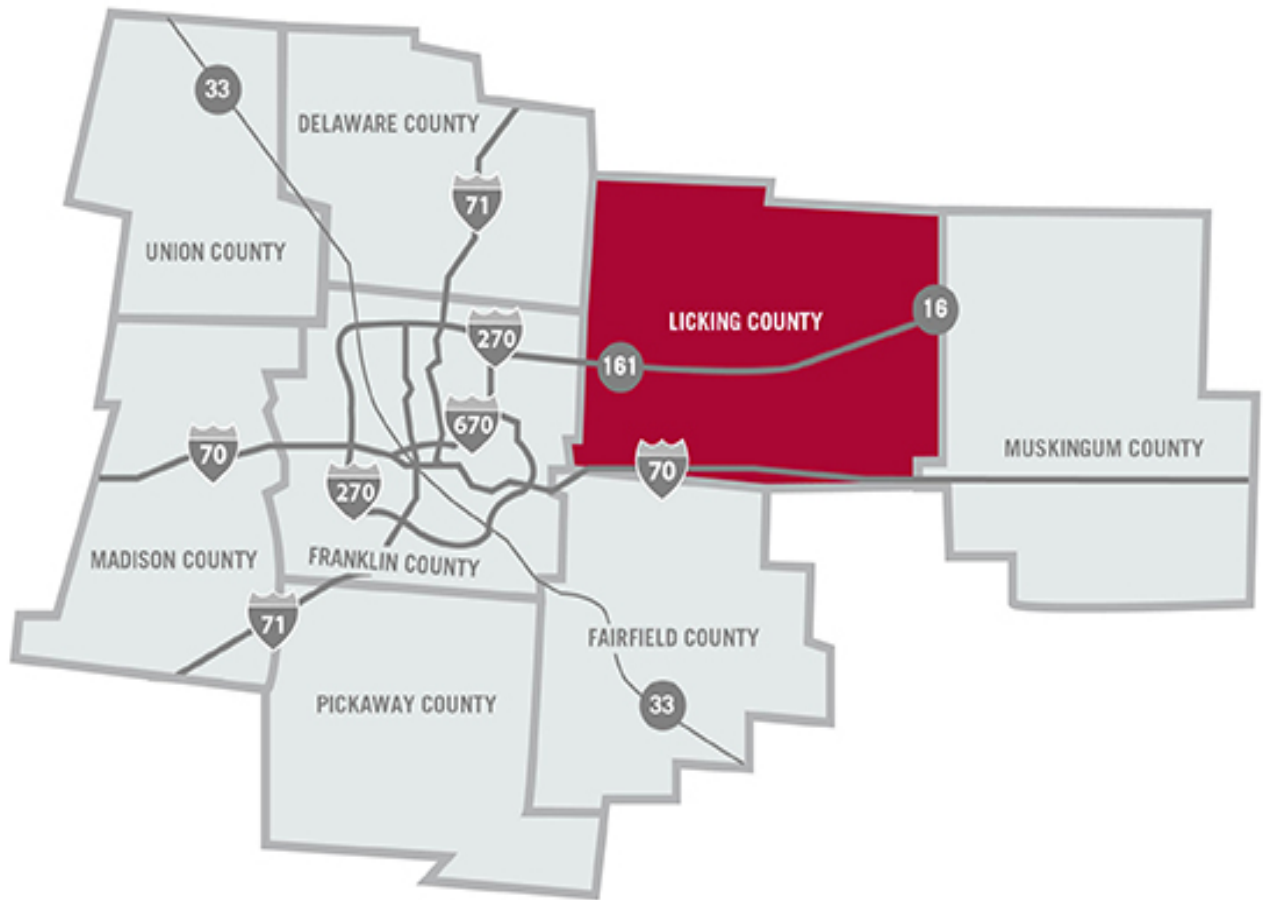


Source: Licking County Planning Commission, “Highways in Licking County that are 4-Lanes or more,” 2/24/14. (Northern direction = ^)

The following, Central Ohio map of major truck transportation routes summarized geographically the relative lack of north/south or south/north, four-lane highway truck traffic options in Licking County vis-à-vis the contiguous counties of Franklin and Delaware.⁷⁷

⁷⁶ Licking County Planning Commission, David Starr (LCATS, GIS Data Resource Manager), “Highways in Licking County that are 4-Lanes or more,” 2/24/14.

⁷⁷ *Grow Licking County*, Site Selectors, Regional Maps, at <http://www.growlickingcounty.org/site-selectors>.



Source: *Grow Licking County, Site Selectors, Regional Maps*, at <http://www.growlickingcounty.org/site-selectors>.

As documented by the Ohio Department of Transportation, the prodigious truck traffic on the four-lane highways of the I-70/National Road corridor in Licking County exceeded 14,000 trucks per day during calendar year (CY) 2012.⁷⁸ The magnitude of the east/west or west/east truck traffic through the I-70/National Road corridor placed an economic development premium upon quick access (that is, four-lane access) to the I-70 and National Road highways. The dominant I-70/National Road truck transportation corridor also encouraged economic development in the southern half of Licking County.

Of great importance to manufacturers, Licking County is well served by the railroad infrastructure. As shown by the following maps, the Ohio Central Railroad and the

⁷⁸ Ohio Department of Transportation (ODOT), District 5, PowerPoint Presentation 10/13/13.



Source: Grow Licking County at <http://www.growlickingcounty.org/site-selectors>.
 (OHCR= Ohio Central Railroad)

Columbus and Ohio River Railroad provide good north/south and east/west rail connections for Licking County.⁷⁹



Source: Grow Licking County at <http://www.growlickingcounty.org/site-selectors>. (CUOH= Columbus & Ohio River Railroad)

⁷⁹ *Grow Licking County, Site Selectors*, at <http://www.growlickingcounty.org/site-selectors>.

In addition to the economic benefits from the transportation infrastructure, the growth of the Licking County economy also depended upon the educational and health infrastructures in the county. For instance, the four Licking County postsecondary educational institutions of Denison University, the Ohio State University (OSU) Newark Campus, the Central Ohio Technical College (COTC), and the Career-Technical Education Centers (C-TEC) of Licking County all improved the skill levels of the Licking County labor force, as indicated by the following profiles of each of these postsecondary institutions:

Denison University⁸⁰
100 West College Rd., Granville, Ohio 43023-0713

Website:	www.denison.edu
Type:	4-year, Private not-for-profit
Awards offered:	Bachelor's degree
Campus setting:	Suburb: Small
Campus housing:	Yes
Student population:	2,339 (all undergraduate)
Student-to-faculty ratio:	10 to 1

Ohio State University-Newark Campus⁸¹
1179 University Dr., Newark, Ohio 43055

Website:	www.newark.osu.edu
Type:	4-year, primarily associate's, Public
Awards offered:	Associate's degree Bachelor's degree Master's degree
Campus setting:	Suburb: Small
Campus housing:	Yes
Student population:	2,390 (2,301 undergraduate)
Student-to-faculty ratio:	24 to 1

⁸⁰ U. S. Department of Education, National Center for Education Statistics (NCES), *College Navigator*, at <http://nces.ed.gov/collegenavigator>.

⁸¹ *Ibid.*

Central Ohio Technical College⁸²
 1179 University Drive, Newark, Ohio 43055-1767

Website:	www.cotc.edu
Type:	2-year, Public
Awards offered:	One but less than two years certificate Associate's degree
Campus setting:	Suburb: Small
Campus housing:	No
Student population:	3,746 (all undergraduate)
Student-to-faculty ratio:	16 to 1

Career and Technology Education Centers of Licking County⁸³
 150 Price Rd., Newark, Ohio 43055-3399

Website:	www.c-tec.edu
Type:	2-year, Public
Awards offered:	Less than one year certificate One but less than two years certificate Two but less than 4 years certificate
Campus setting:	Suburb: Small
Campus housing:	No
Student population:	248 (all undergraduate)
Student-to-faculty ratio:	10 to 1

Additional, important educational facts for Licking County include the following:⁸⁴

⁸² *Ibid.*

⁸³ *Ibid.*

⁸⁴ Ohio Development Services Agency, Research Office, *County Trends*, "Licking County Profile," at http://development.ohio.gov/reports/reports_countytrends_map.htm.

Licking County, Ohio, Education Facts:

Public School Buildings (2011-12) = 55
Public School Students (i.e., Average Daily Membership, 2011-12) = 27,153
Public School Full-Time Equivalent Teachers (2011-12) = 1,605.3
Public School Expenditures Per Student (2010-11) = \$9,235.00
Public School Graduation Rate (2010-11) = 89.8
Non-Public Schools (2012-13) = 7
Non-Public School Students (2012-13) = 1,108

Source: Ohio Development Services Agency, *Ohio and County Trends*, at http://development.ohio.gov/reports/reports_countytrends_map.htm.

The Licking County expenditures per student in 2010-11 were less than the average expenditures per student for the State of Ohio for the same year; but the Licking County graduation rate, 2010-11, was higher than the comparable state graduation rate.⁸⁵

Comparative Educational Facts:

	<u>Licking County</u>	<u>Ohio</u>
Public School Expenditures Per Student (2010-11)	\$9,235.00	\$10,508.00
Public School Graduation Rate (2010-11)	89.8	84.5

Source: Ohio Development Services Agency, *Ohio and County Trends*, at http://development.ohio.gov/reports/reports_countytrends_map.htm.

Also critical to the economy of Licking County was the health care infrastructure, which consisted in 2012 of 213 physicians (i.e., medical doctors and doctors of osteopathy), one comprehensive hospital with emergency services – that is, the Licking Memorial Hospital, with 227 beds – plus 12 licensed nursing homes with a total of 1,154 beds, and 7 licensed residential care facilities with 385 beds.⁸⁶ The Licking County Memorial Hospital enjoyed its centennial anniversary in 1998.⁸⁷

As the flagship of the health care sector in Licking County, the Licking Memorial Hospital was one of the largest employers in the county, with 1,155 full-time equivalent workers in 2012.⁸⁸ The

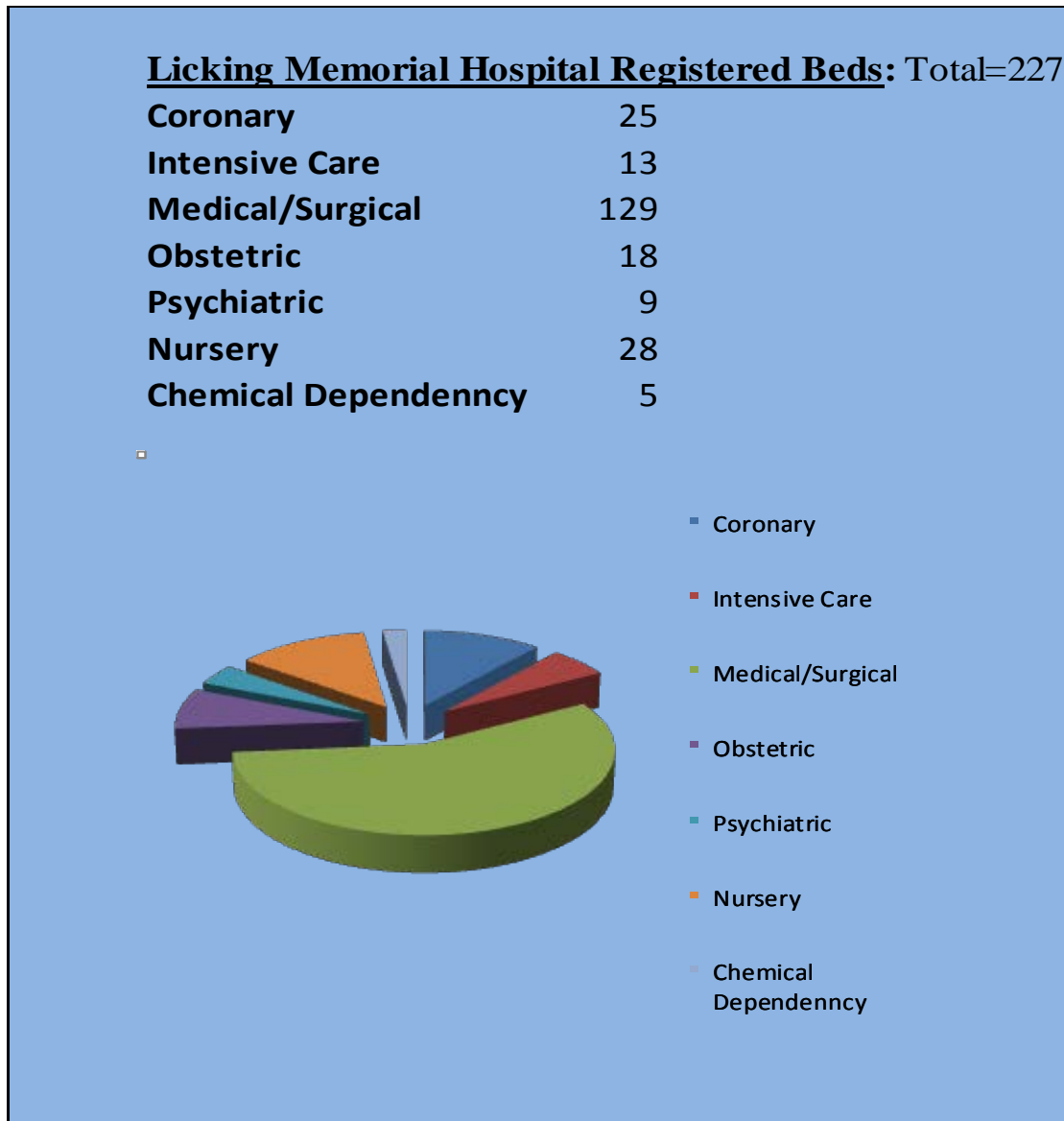
⁸⁵ Ohio Development Services Agency, *op.cit.*, “Licking County Profile,” and “Ohio Profile” at http://development.ohio.gov/reports/reports_countytrends_map.htm.

⁸⁶ Ohio Development Services Agency, *op. cit.*, “Licking County Profile,” at http://development.ohio.gov/reports/reports_countytrends_map.htm; and the Licking Memorial Health Systems, “About Us,” at <http://www.lmhealth.org/aboutus/aboutus.aspx>.

⁸⁷ Licking Memorial Health Systems, *op. cit.*, “About Us, History,” at <http://www.lmhealth.org/aboutus/aboutus.aspx>.

⁸⁸ Licking Memorial Health Systems, “About Us, Fast Facts,” at <http://www.lmhealth.org/aboutus/aboutus.aspx>.

economic impact of this hospital on the Licking County economy was reflected in recent hospital operating statistics for 2012, shown below.



Source: Licking County Memorial Health Systems, 2012 Statistics, at <http://www.lmhealth.org/pdf/LMHfacts.pdf>.

The salaries and benefits of the Licking Memorial Hospital staff in 2012 totaled \$75,274,257.00; and the 2012 operating expenses were \$133,954,524.00.⁸⁹ In addition, the Licking Memorial Hospital provided “\$37.9 million in uncompensated care at standard charges, including charity, during 2012.”⁹⁰

⁸⁹ *Ibid.*

⁹⁰ *Ibid.*

Complementing these Licking Memorial Hospital operating statistics, the Licking Memorial Health Professionals (consisting of 99 physicians and 347 full-time equivalent employees) had salaries and benefits of \$44,839,371.00 in 2012, plus 2012 operating expenses of \$54,475,188.00.⁹¹ Further, these Licking Memorial Health Professionals provided “\$6.1 million in uncompensated care at standard charges, including charity, during 2012.”⁹²

All of these aforementioned infrastructures for transportation (especially highways, railroads, and air), education, and health care received support from the Licking County financial infrastructure, consisting of 3 Federal Deposit Insurance Corporation (FDIC) insured institutions (i.e., the Park National Bank, the First Federal Savings and Loan Association, and the Pataskala Banking Company) with assets of \$6,725,266,000 as of Dec. 31, 2013, with headquarters located in Licking County, according to FDIC.⁹³ Licking County was also served by 53 branch offices of 13 financial institutions as March 27, 2014, as reported by the FDIC.⁹⁴

Further, the communications infrastructure in Licking County facilitated the economic functioning of all other economic sectors in the county. In that communications effort, Licking County benefitted from 4 radio stations, 1 daily newspaper with circulation of 13,200, and 4 weekly newspapers with circulation of 31,798, in 2012, as noted by the Ohio Development Services Agency research office.⁹⁵ However, Licking County communications were limited by the lack of a local television station.⁹⁶

⁹¹ *Ibid.*

⁹² *Ibid.*

⁹³ Federal Deposit Insurance Corporation (FDIC), Dec. 31, 2013, at <http://www2.fdic.gov/idasp/main.asp>.

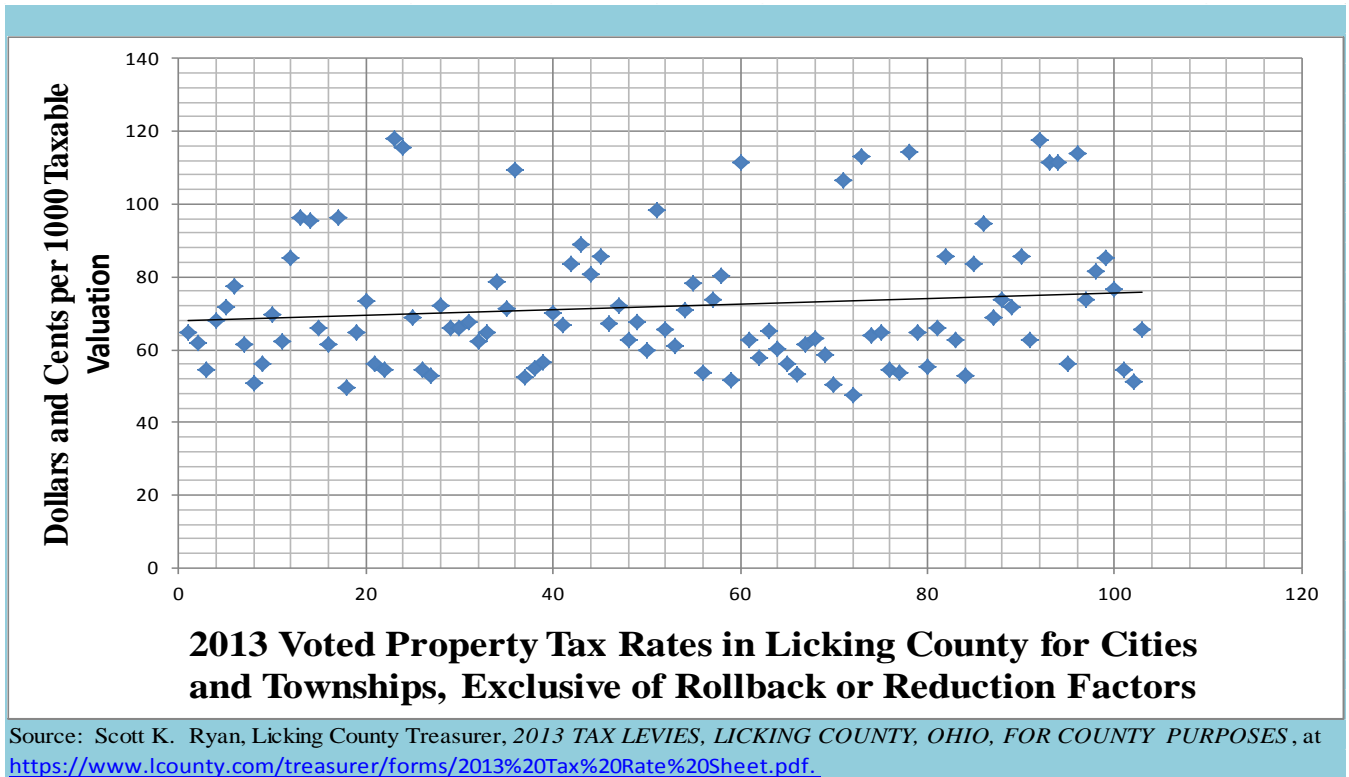
⁹⁴ Federal Deposit Insurance Corporation (FDIC), March 27, 2014, at <http://www2.fdic.gov/idasp/main.asp>.

⁹⁵ Research Office, Ohio Development Services Agency, *County Profiles*, at <http://development.ohio.gov/files/research/C1046.pdf>.

⁹⁶ *Ibid.*

VII. Tax Rates and Revenue Sources of Licking County-Wide Government and Licking County Local Government

Because federal and state taxes of businesses were consistently applied throughout Ohio for all employers, Licking County economic development prospect firms faced much of their tax variability at the level of local government (i.e., county, municipalities, and townships) property taxes. The property tax table of the Licking County Treasurer’s office for 2013 taxes (below and next page) documented the local tax variability for Licking County and its cities and townships.⁹⁷ These county, city, and township voted property tax rates (expressed in dollars and cents per 1,000 taxable valuation, exclusive of reduction and rollback factors) included low rates, such as \$49.44 in Fallsbury Township, and relatively high rates, such as \$118.06 in Granville Township. (All Licking County municipal and township voted tax rates included \$7.70 for county-wide, property taxes in their respective, total voted tax rates.)⁹⁸



⁹⁷ Ryan, Scott, Licking County Treasurer, 2013 Tax Levies, Licking County, Cities, and Townships, at <https://www.lcounty.com/treasurer/forms/2013%20Tax%20Rate%20Sheet.pdf>.

⁹⁸ *Ibid.* The variability of the 2013 voted property tax rates in Licking County for cities and townships, exclusive of rollback and/or reduction factors, is reflected in the following statistics for the Licking County 2013 voted property tax rates: median = 65.78; mean = 71.96; minimum = 47.61; maximum = 118.06; standard deviation = 18.26; average absolute deviation from the mean = 14.31.

<u>City or Township in Licking County</u>	<u>Voted Rate</u>	<u>City or Township in Licking County</u>	<u>Voted Rate</u>
001 BENNINGTON T-NRDGE LSD	64.63	040 LIBERTYT-JOHNSTOWN-MONROE LSD	60.91
002 BENNINGTON T-CENTERBURG LSD	62.02	041 LICKING T-LAKEWOOD LSD	70.92
003 BOWLING GREEN T-NORTHERN LSD	54.65	042 LICKING T-HEATH CSD	78.16
004 BOWLING GREEN T-WEST MUSK LSD	68.15	043 LICKING T-NORTHERN LSD	53.75
005 BOWLING GREEN T-LAKEWOOD LSD	71.82	098 LICKING T-HEATH CTY-LKWD LSD	73.72
074 BUCKEYE LAKV-LKWD LSD	77.42	405 LICKING T-BUCK LK VL-LAKEWOOD LSD	80.22
006 BURLINGTON T-NRDGE LSD	61.63	046 MCKEAN T-NORTH FORK LSD	51.71
007 BURLINGTON T-NORTH FORK LSD	50.71	047 MCKEAN T-GRANVILLE EVSD	111.51
008 EDEN T-NORTH FORK LSD	56.11	085 MCKEAN T-NRDGE LSD	62.63
009 EDEN T-E KNOX LSD-MTVLD	69.66	048 MADISON T-UCKING VALLEY LSD	57.69
010 ETNA T-SW LICKING LSD-WWFD	62.18	049 MADISON T-NEWARK CSD	65.26
011 ETNA T-UCKING HGHTS LSD-WLJFD	85.12	485 MADISON T-HAN VILL-LICK VALLEY LSD	60.19
012 ETNA T REYNOLDSB. CSD-WWFD	96.25	050 MARY ANN T-UCKING VALLEY LSD	56.03
013 ETNAT-REYNOLDSB. C&CSD-WWFD	95.65	051 MARY ANN T-NORTH FORK LSD	53.21
099 ETNA T-KRKSVL V-SWLICK	65.78	052 MONROET-JOHNSTOWN-MONROE LSD	61.61
107 ETNA T-REY. C-SW LICK-WLJFD	61.58	053 MONROE T-JOHTN V-JOHTN-MNR LSD	62.91
115 ETNA T-REYNOLDSB.C&CSD-WLJFD	96.21	054 NEWARK CITY-NEWARK CSD	58.4
014 FALLSBURY T-RIVERVIEW LSD	49.55	055 NEWARK CITY-LICKING VALLEY LSD	50.33
015 FALLSBURY T-E KNOX LSD-MTVLD	64.66	056 NEWARK CITY-GRANVILLE EVSD	106.71
016 FRANKLIN T-LAKEWOOD LSD	73.22	088 NEWARK CITY-NORTH FORK LSD	47.61
017 FRANKLIN T-NORTHERN LSD	56.05	057 NEWARK T-GRANVILLE EVSD	113.26
018 FRANKLIN T-UCKING VALLEY LSD	54.33	058 NEWARK T-NEWARK CSD	63.85
019 GRANVILLE T-GRANVILLE EVSD	118.06	096 NEWARK T-NEWARK CITY & CSD	64.85
020 GRANVILLE T - GRANVILLE V&EVSD	115.51	059 NEWTON T-NORTH FORK LSD	54.41
021 GRANVILLE T-NEWARK CSD	68.65	060 NEWTON T-ST LOUISV V-NFRK LSD	53.51
022 HANOVER T-UCKING VALLEY LSD	54.43	061 NEWTON T-GRANVILLE EVSD	114.21
023 HANOVER T-HANOVER VIL-LKVSD	52.83	062 NEWTON T-NEWARK CSD	64.8
024 HARRISON T-NRDGE LSD-WWFD	72.13	079 NEWTON T-NEWARK-NFRK LSD	55.11
025 HARRISON T-SW LK LSD-WLJFD	65.78	081 NEWTON T-NEWARK-NRK CSD	65.9
026 HARRISON T-KIRK V SW LK WLJFD	65.78	063 PATASKALA LK HGHTS LSD-WLJFD	85.72
027 HARTFORD T-NRDGE LSD	67.43	064 PATASKALA SW-LK LSD-WLJFD	62.78
028 HARTFORD T-HTFD V NRDGE LSD	62.43	065 PERRY T-UCKING VALLEY LSD	52.83
029 HARTFORD T-CENTERBURG LSD	64.82	087 REYNOLDSB.C-LK HGHTS LSD-WLJFD	83.52
030 HEATH CITY-HEATH CITY CSD	78.66	090 REYNOLDS.CTY & CSD-WLJFD	94.65
080 HEATH CITY-LAKEWOOD LSD	71.42	066 ST ALBANS T-NRDGE LSD	68.87
091 HEATH CITY-GRANVILLE EVSD	109.21	665 ST ALBANS T-ALEX V-NRDGE LSD	73.67
092 HEATH CITY LICKING VALLEY (D)	52.53	067 ST ALBANS T-ALEX V-NRDGE LSD	71.67
030 HOPEWELL T-UCKING VALLEY LSD	54.93	068 ST ALBANS T-LK HGHTS LSD	85.46
032 HOPEWELL T-NORTHERN LSD	56.65	069 ST ALBANS T-SW LICKING LSD	62.52
033 HOPEWELL T-W MUSKINGUM LSD	70.15	070 ST ALBANS T-GRANVILLE EVSD	117.75
034 HOPEWELL T-GRATIOT V WMSK LSD	66.95	071 UNION T-GRANVILLE EVSD	111.51
035 JERSEY T-LICKING HEIGHTS LSD	83.72	715 UNION T-GRANVILLE VILL-GRAN EVSD	111.51
082 JERSEY T-LK HGHTS LSD-WLJFD	88.72	072 UNION T-SOUTHWEST LICKING LSD	56.28
093 JERSEY T-N ALB C-LK HTS LSD	80.82	725 UNION T-HEATH CITY-GRANVILLE EVSD	114.01
094 JERSEY T-N AL C-LHTS LSD WLJFD	85.82	073 UNION T-LAKEWOOD LSD	73.72
036 JERSEY T-NRDGE LSD	67.13	075 UNION T-HEBRON V-LKWD LSD	81.62
083 JERSEY T-NRDGE LSD-WLJFD	72.13	078 UNION T-HEBRON V-LKWD LSD	85.02
037 JERSEY T-JOHNSTOWN-MONROE LSD	62.61	097 UNION T-HEATH CITY & LKWD LSD	76.52
084 JERSEY T-JNSTN MNROE LSD-WLJFD	67.61	076 WASHINGTON T-NORTH FORK LSD	54.66
095 JERSEY T-N ALB C-JNSTWN MR LSD	59.71	077 WASHINGTON T-UTICA V-NFRK LSD	51.26
038 JERSEY T-PLAIN LSD	98.43	086 WASHINGTON T-NRDGE LSD	65.58
039 LIBERTYT-NRDGE LSD	65.43		

The different types of local government in Licking County (that is, county-wide, city, and township), plus the different types of taxing districts (e.g., local school districts, vocational school districts, fire districts, park districts, and libraries) contributed to the variability of voted property tax rates throughout the county.

In contrast to the property tax variability, the bifurcation of income tax revenues between businesses and individuals suggested stable proportions of tax revenues over time from each source. For example, as displayed in the following table and graph,⁹⁹ the largest city in Licking County, that is, the City of Newark with a 2010 Census population of 47,573, received stable income tax revenue flows from corporations and business partnerships of city and non-city residents (that had self-employment income and/or rentals in the city) ranging from 8-10 % of total business and individual income tax revenues during the past five years.¹⁰⁰ For the same time period of economic recovery from the Great Recession, 2009-2013, the City of Newark income tax receipts from residents stayed between 11-12% of the total business and individual tax income.¹⁰¹ Also, during 2009-2013, the City of Newark tax revenue from all types of withholding dominated these three revenue streams at a steady 79-80% of total business and individual income tax revenues.¹⁰²

Analysis of these tax revenue data for the City of Newark required several important caveats regarding the definitions of businesses, residents, and individuals, because of the large number of sole proprietary firms and non-residents with rental properties in the City of Newark. Hence, the breakdown of the withholding revenues between businesses and individuals became a concern, resulting in the need for conservative interpretations of the dichotomy between local government income tax revenue streams from businesses and individuals. Further, the auditing stipulations for local governments do not normally require a dichotomous presentation of revenue data for the separate categories of business-derived, income tax revenues and individual-derived, income tax revenues, which resulted in classification questions with respect to these financial data.¹⁰³

⁹⁹ Jobs, Barb, Tax Administrator, City of Newark, spreadsheet, March 8, 2014.

¹⁰⁰ *Ibid.*

¹⁰¹ *Ibid.*

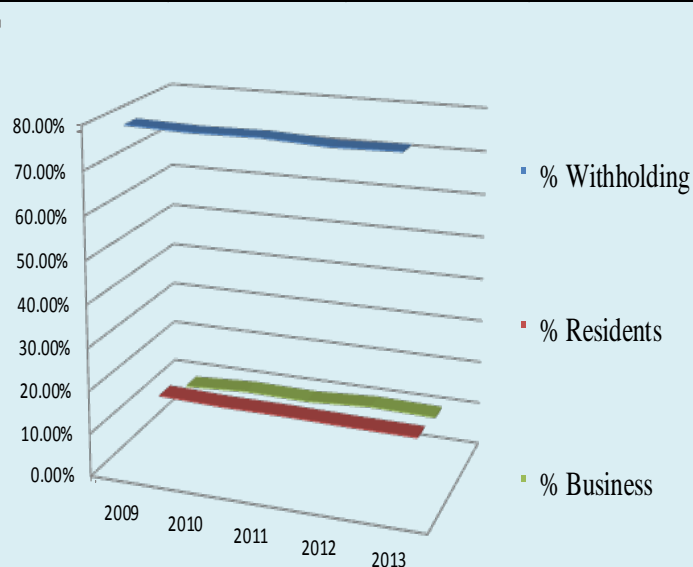
¹⁰² *Ibid.*

¹⁰³ Discussions with City of Newark Tax Administrator Barb Jobs, March 7, 2013.

5 Years of City of Newark Tax Revenue Streams from Businesses and Individuals

Business Tax Revenues	2009	2010	2011	2012	2013
Business	\$ 1,264,276.33	\$ 1,389,250.79	\$ 1,407,060.08	\$ 1,645,185.63	\$ 1,564,373.50
Non-Resident	\$ 303,236.84	\$ 329,947.26	\$ 328,082.73	\$ 329,074.56	\$ 342,094.66
Sub-Total	\$ 1,567,513.17	\$ 1,719,198.05	\$ 1,735,142.81	\$ 1,974,260.19	\$ 1,906,468.16
Individual Tax Revenues					
Resident	\$ 1,684,679.92	\$ 1,360,223.40	\$ 1,400,715.32	\$ 1,498,236.44	\$ 1,459,154.79
Resident 1/4%	\$ 593,218.97	\$ 824,005.63	\$ 850,439.48	\$ 778,574.71	\$ 794,339.03
Withholding	\$ 7,135,649.74	\$ 6,926,713.35	\$ 7,318,417.59	\$ 7,521,658.36	\$ 7,618,823.33
Sub-Withholding	\$ 7,414,474.10	\$ 7,441,556.45	\$ 7,499,113.31	\$ 7,596,852.16	\$ 7,492,984.10
Resident W/H 1/4%	\$ 484,566.58	\$ 503,706.47	\$ 576,627.68	\$ 615,897.47	\$ 610,273.71
Sub-Total	\$ 17,312,589.31	\$17,056,205.30	\$17,645,313.38	\$ 18,011,219.14	\$ 17,975,574.96
<u>Total Business and Individual Tax Revenues</u>	\$ 18,880,102.48	\$18,775,403.35	\$19,380,456.19	\$ 19,985,479.33	\$ 19,882,043.12
<u>% Withholding</u>	79.63%	79.21%	79.43%	78.73%	79.08%
<u>% Residents</u>	12.07%	11.63%	11.62%	11.39%	11.33%
<u>% Business</u>	8.30%	9.16%	8.95%	9.88%	9.59%

Business = Corporations and partnerships;
Non-Resident = Individuals who are not residents that have self-employment income or rentals in the city;
Resident = Newark residents paying 1.75% tax;
Resident 1/4% = Newark residents paying 0.75% tax, because they work in another city;
Withholding = Employer withholding for businesses within the City of Newark, Ohio;
Sub-Withholding = Employer withholding at 1.75% by non-profit businesses located in the city, and employers out of any city withholding 1.75% as a courtesy;
Resident W/H 1/4% = Employer withholding at 0.75% for residents working in other cities as a courtesy.



(Source: Barb Jobses, Newark City Tax Administrator, City of Newark, Ohio, March 8, 2014.)

Appendix A: Location Quotients for Industry Sub-Sectors at the 3-Digit North American Industry Classification System (NAICS) Code Level of Detail for Licking County, Ohio.
 (Source – Quarterly Census of Employment and Wages, Location Quotient Calculator, U.S. Bureau of Labor Statistics (BLS),
 at http://data.bls.gov/location_quotient/ControllerServlet;jsessionid=1B87D80D200E2F86F5E13909D07608D5.tc_instance3.)

Employment, Percentage and Location Quotients calculated from Quarterly Census of Employment and Wages (QCEW) Data

Data Year:	2012
Data Period:	Annual Average
Datatype:	All Employees
Ownership:	Local/State/Federal Government and Private
Establishment Sizes:	All establishment sizes
Base Industry:	Base Industry: Total, all industries
Base Area:	U.S. TOTAL

Employment calculated from Quarterly Census of Employment and Wages Data		
Industry	U.S. TOTAL	Licking County, Ohio
Base Industry: Total, all industries	110,645,869	44,764
NAICS 111 Crop production	543,075	201
NAICS 112 Animal production and aquaculture	236,308	237
NAICS 113 Forestry and logging	55,497	ND
NAICS 114 Fishing, hunting and trapping	8,208	NC
NAICS 115 Agriculture and forestry support activities	346,899	ND
NAICS 211 Oil and gas extraction	188,003	89
NAICS 212 Mining, except oil and gas	218,061	ND
NAICS 213 Support activities for mining	392,069	ND
NAICS 221 Utilities	549,681	192
NAICS 236 Construction of buildings	1,228,040	367
NAICS 237 Heavy and civil engineering construction	849,216	511
NAICS 312 Beverage and tobacco product manufacturing	191,271	ND
NAICS 313 Textile mills	117,933	NC
NAICS 314 Textile product mills	115,462	15
NAICS 315 Apparel manufacturing	148,309	NC
NAICS 316 Leather and allied product manufacturing	29,437	NC
NAICS 321 Wood product manufacturing	338,977	362
NAICS 322 Paper manufacturing	379,519	ND

Employment calculated from Quarterly Census of Employment and Wages Data

Industry	U.S. TOTAL	Licking County, Ohio
NAICS 238 Specialty trade contractors	3,509,297	1,464
NAICS 311 Food manufacturing	1,459,847	387
NAICS 337 Furniture and related product manufacturing	350,802	18
NAICS 339 Miscellaneous manufacturing	577,252	151
NAICS 423 Merchant wholesalers, durable goods	2,824,395	737
NAICS 424 Merchant wholesalers, nondurable goods	1,957,332	828
NAICS 425 Electronic markets and agents and brokers	874,990	181
NAICS 441 Motor vehicle and parts dealers	1,735,275	969
NAICS 442 Furniture and home furnishings stores	439,232	58
NAICS 443 Electronics and appliance stores	508,554	139
NAICS 444 Building material and garden supply stores	1,160,947	634
NAICS 445 Food and beverage stores	2,863,986	1,248
NAICS 446 Health and personal care stores	998,263	293
NAICS 323 Printing and related support activities	459,148	75
NAICS 324 Petroleum and coal products manufacturing	111,436	ND
NAICS 325 Chemical manufacturing	785,489	152
NAICS 326 Plastics and rubber products manufacturing	644,816	999
NAICS 327 Nonmetallic mineral product manufacturing	366,052	872
NAICS 331 Primary metal manufacturing	399,980	ND
NAICS 332 Fabricated metal product manufacturing	1,404,203	1,185
NAICS 333 Machinery manufacturing	1,097,739	117
NAICS 334 Computer and electronic product manufacturing	1,090,791	ND
NAICS 335 Electrical equipment and appliance mfg.	372,725	ND
NAICS 336 Transportation equipment manufacturing	1,463,757	1,026
NAICS 533 Lessors of nonfinancial intangible assets	24,325	NC
NAICS 541 Professional and technical services	7,897,429	1,901
NAICS 551 Management of companies and enterprises	2,003,075	1,052
NAICS 561 Administrative and support services	7,618,142	2,391
NAICS 562 Waste management and remediation services	368,992	176
NAICS 611 Educational services	2,608,143	835
NAICS 621 Ambulatory health care services	6,300,626	2,246
NAICS 622 Hospitals	4,733,740	ND
NAICS 623 Nursing and residential care facilities	3,186,324	1,808
NAICS 624 Social assistance	2,576,183	ND
NAICS 447 Gasoline stations	841,381	638

Employment calculated from Quarterly Census of Employment and Wages Data

Industry	U.S. TOTAL	Licking County, Ohio
NAICS 448 Clothing and clothing accessories stores	1,391,402	294
NAICS 451 Sports, hobby, music instrument, book stores	584,589	304
NAICS 452 General merchandise stores	3,104,195	1,410
NAICS 453 Miscellaneous store retailers	795,097	298
NAICS 454 Nonstore retailers	442,025	2,175
NAICS 481 Air transportation	458,782	NC
NAICS 482 Rail transportation	675	NC
NAICS 483 Water transportation	64,772	NC
NAICS 484 Truck transportation	1,341,366	644
NAICS 485 Transit and ground passenger transportation	436,086	ND
NAICS 486 Pipeline transportation	43,707	41
NAICS 487 Scenic and sightseeing transportation	28,571	NC
NAICS 488 Support activities for transportation	576,822	510
NAICS 491 Postal service	4,878	NC
NAICS 492 Couriers and messengers	526,028	ND
NAICS 493 Warehousing and storage	676,360	ND
NAICS 511 Publishing industries, except Internet	734,521	182
NAICS 512 Motion picture and sound recording industries	371,721	ND
NAICS 515 Broadcasting, except Internet	287,022	ND
NAICS02 516 Internet publishing and broadcasting	NC	NC
NAICS 517 Telecommunications	855,015	131
NAICS 518 Data processing, hosting and related services	253,815	ND
NAICS 519 Other information services	175,130	8
NAICS 521 Monetary authorities - central bank	17,286	NC
NAICS 522 Credit intermediation and related activities	2,581,377	796
NAICS 523 Securities, commodity contracts, investments	813,016	68
NAICS 524 Insurance carriers and related activities	2,064,422	1,710
NAICS 525 Funds, trusts, and other financial vehicles	87,551	NC
NAICS 531 Real estate	1,410,355	241
NAICS 532 Rental and leasing services	508,616	149
NAICS 711 Performing arts and spectator sports	410,197	108
NAICS 712 Museums, historical sites, zoos, and parks	136,220	84
NAICS 713 Amusements, gambling, and recreation	1,429,437	412
NAICS 721 Accommodation	1,815,617	406
NAICS 722 Food services and drinking places	9,947,844	4,839

Employment calculated from Quarterly Census of Employment and Wages Data

Industry	U.S. TOTAL	Licking County, Ohio
NAICS 811 Repair and maintenance	1,185,410	454
NAICS 812 Personal and laundry services	1,312,178	485
NAICS 813 Membership associations and organizations	1,327,261	468
NAICS 814 Private households	723,936	69
NAICS 999 Unclassified	171,936	16

Footnotes:

[\(ND\)](#) Not Disclosable

[\(NC\)](#) Not Calculable, the data does not exist or it is zero

[Percentage of Employment](#) calculated from Quarterly Census of Employment and Wages Data

Industry	U.S. TOTAL	Licking County, Ohio
Base Industry: Total, all industries	100.00%	100.00%
NAICS 111 Crop production	0.49%	0.45%
NAICS 112 Animal production and aquaculture	0.21%	0.53%
NAICS 113 Forestry and logging	0.05%	ND%
NAICS 114 Fishing, hunting and trapping	0.01%	NC
NAICS 115 Agriculture and forestry support activities	0.31%	ND%
NAICS 211 Oil and gas extraction	0.17%	0.20%
NAICS 212 Mining, except oil and gas	0.20%	ND%
NAICS 213 Support activities for mining	0.35%	ND%
NAICS 221 Utilities	0.50%	0.43%
NAICS 236 Construction of buildings	1.11%	0.82%
NAICS 237 Heavy and civil engineering construction	0.77%	1.14%
NAICS 312 Beverage and tobacco product manufacturing	0.17%	ND%
NAICS 313 Textile mills	0.11%	NC
NAICS 314 Textile product mills	0.10%	0.03%
NAICS 315 Apparel manufacturing	0.13%	NC
NAICS 316 Leather and allied product manufacturing	0.03%	NC
NAICS 321 Wood product manufacturing	0.31%	0.81%
NAICS 322 Paper manufacturing	0.34%	ND%
NAICS 238 Specialty trade contractors	3.17%	3.27%
NAICS 311 Food manufacturing	1.32%	0.86%
NAICS 337 Furniture and related product manufacturing	0.32%	0.04%
NAICS 339 Miscellaneous manufacturing	0.52%	0.34%

Percentage of Employment calculated from Quarterly Census of Employment and Wages Data

Industry	U.S. TOTAL	Licking County, Ohio
NAICS 423 Merchant wholesalers, durable goods	2.55%	1.65%
NAICS 424 Merchant wholesalers, nondurable goods	1.77%	1.85%
NAICS 425 Electronic markets and agents and brokers	0.79%	0.40%
NAICS 441 Motor vehicle and parts dealers	1.57%	2.16%
NAICS 442 Furniture and home furnishings stores	0.40%	0.13%
NAICS 443 Electronics and appliance stores	0.46%	0.31%
NAICS 444 Building material and garden supply stores	1.05%	1.42%
NAICS 445 Food and beverage stores	2.59%	2.79%
NAICS 446 Health and personal care stores	0.90%	0.65%
NAICS 323 Printing and related support activities	0.41%	0.17%
NAICS 324 Petroleum and coal products manufacturing	0.10%	ND%
NAICS 325 Chemical manufacturing	0.71%	0.34%
NAICS 326 Plastics and rubber products manufacturing	0.58%	2.23%
NAICS 327 Nonmetallic mineral product manufacturing	0.33%	1.95%
NAICS 331 Primary metal manufacturing	0.36%	ND%
NAICS 332 Fabricated metal product manufacturing	1.27%	2.65%
NAICS 333 Machinery manufacturing	0.99%	0.26%
NAICS 334 Computer and electronic product manufacturing	0.99%	ND%
NAICS 335 Electrical equipment and appliance mfg.	0.34%	ND%
NAICS 336 Transportation equipment manufacturing	1.32%	2.29%
NAICS 533 Lessors of nonfinancial intangible assets	0.02%	NC
NAICS 541 Professional and technical services	7.14%	4.25%
NAICS 551 Management of companies and enterprises	1.81%	2.35%
NAICS 561 Administrative and support services	6.89%	5.34%
NAICS 562 Waste management and remediation services	0.33%	0.39%
NAICS 611 Educational services	2.36%	1.87%
NAICS 621 Ambulatory health care services	5.69%	5.02%
NAICS 622 Hospitals	4.28%	ND%
NAICS 623 Nursing and residential care facilities	2.88%	4.04%
NAICS 624 Social assistance	2.33%	ND%
NAICS 447 Gasoline stations	0.76%	1.43%
NAICS 448 Clothing and clothing accessories stores	1.26%	0.66%
NAICS 451 Sports, hobby, music instrument, book stores	0.53%	0.68%
NAICS 452 General merchandise stores	2.81%	3.15%

Percentage of Employment calculated from Quarterly Census of Employment and Wages Data

Industry	U.S. TOTAL	Licking County, Ohio
NAICS 453 Miscellaneous store retailers	0.72%	0.67%
NAICS 454 Nonstore retailers	0.40%	4.86%
NAICS 481 Air transportation	0.41%	NC
NAICS 482 Rail transportation	0.00%	NC
NAICS 483 Water transportation	0.06%	NC
NAICS 484 Truck transportation	1.21%	1.44%
NAICS 485 Transit and ground passenger transportation	0.39%	ND%
NAICS 486 Pipeline transportation	0.04%	0.09%
NAICS 487 Scenic and sightseeing transportation	0.03%	NC
NAICS 488 Support activities for transportation	0.52%	1.14%
NAICS 491 Postal service	0.00%	NC
NAICS 492 Couriers and messengers	0.48%	ND%
NAICS 493 Warehousing and storage	0.61%	ND%
NAICS 511 Publishing industries, except Internet	0.66%	0.41%
NAICS 512 Motion picture and sound recording industries	0.34%	ND%
NAICS 515 Broadcasting, except Internet	0.26%	ND%
NAICS02 516 Internet publishing and broadcasting	NC	NC
NAICS 517 Telecommunications	0.77%	0.29%
NAICS 518 Data processing, hosting and related services	0.23%	ND%
NAICS 519 Other information services	0.16%	0.02%
NAICS 521 Monetary authorities - central bank	0.02%	NC
NAICS 522 Credit intermediation and related activities	2.33%	1.78%
NAICS 523 Securities, commodity contracts, investments	0.73%	0.15%
NAICS 524 Insurance carriers and related activities	1.87%	3.82%
NAICS 525 Funds, trusts, and other financial vehicles	0.08%	NC
NAICS 531 Real estate	1.27%	0.54%
NAICS 532 Rental and leasing services	0.46%	0.33%
NAICS 711 Performing arts and spectator sports	0.37%	0.24%
NAICS 712 Museums, historical sites, zoos, and parks	0.12%	0.19%
NAICS 713 Amusements, gambling, and recreation	1.29%	0.92%
NAICS 721 Accommodation	1.64%	0.91%
NAICS 722 Food services and drinking places	8.99%	10.81%
NAICS 811 Repair and maintenance	1.07%	1.01%
NAICS 812 Personal and laundry services	1.19%	1.08%

Percentage of Employment calculated from Quarterly Census of Employment and Wages Data

Industry	U.S. TOTAL	Licking County, Ohio
NAICS 813 Membership associations and organizations	1.20%	1.05%
NAICS 814 Private households	0.65%	0.15%
NAICS 999 Unclassified	0.16%	0.04%

Footnotes:

(ND) Not Disclosable

(NC) Not Calculable, the data does not exist or it is zero

Percentage of Employment: Ratio of industry employment to base-industry employment times 100.

Location Quotients calculated from Quarterly Census of Employment and Wages Data

Location Quotient: Ratio of analysis-industry employment in the analysis area to base-industry employment in the analysis area divided by the ratio of analysis-industry employment in the base area to base-industry employment in the base area.

Industry	Licking County, Ohio
Base Industry: Total, all industries	1.00
NAICS 111 Crop production	0.91
NAICS 112 Animal production and aquaculture	2.48
NAICS 113 Forestry and logging	ND
NAICS 114 Fishing, hunting and trapping	NC
NAICS 115 Agriculture and forestry support activities	ND
NAICS 211 Oil and gas extraction	1.17
NAICS 212 Mining, except oil and gas	ND
NAICS 213 Support activities for mining	ND
NAICS 221 Utilities	0.86
NAICS 236 Construction of buildings	0.74
NAICS 237 Heavy and civil engineering construction	1.49
NAICS 312 Beverage and tobacco product manufacturing	ND
NAICS 313 Textile mills	NC
NAICS 314 Textile product mills	0.32
NAICS 315 Apparel manufacturing	NC
NAICS 316 Leather and allied product manufacturing	NC
NAICS 321 Wood product manufacturing	2.64
NAICS 322 Paper manufacturing	ND
NAICS 238 Specialty trade contractors	1.03

Location Quotients calculated from Quarterly Census of Employment and Wages Data

Location Quotient: Ratio of analysis-industry employment in the analysis area to base-industry employment in the analysis area divided by the ratio of analysis-industry employment in the base area to base-industry employment in the base area.

Industry	Licking County, Ohio
NAICS 311 Food manufacturing	0.66
NAICS 337 Furniture and related product manufacturing	0.13
NAICS 339 Miscellaneous manufacturing	0.65
NAICS 423 Merchant wholesalers, durable goods	0.64
NAICS 424 Merchant wholesalers, nondurable goods	1.05
NAICS 425 Electronic markets and agents and brokers	0.51
NAICS 441 Motor vehicle and parts dealers	1.38
NAICS 442 Furniture and home furnishings stores	0.33
NAICS 443 Electronics and appliance stores	0.68
NAICS 444 Building material and garden supply stores	1.35
NAICS 445 Food and beverage stores	1.08
NAICS 446 Health and personal care stores	0.73
NAICS 323 Printing and related support activities	0.40
NAICS 324 Petroleum and coal products manufacturing	ND
NAICS 325 Chemical manufacturing	0.48
NAICS 326 Plastics and rubber products manufacturing	3.83
NAICS 327 Nonmetallic mineral product manufacturing	5.89
NAICS 331 Primary metal manufacturing	ND
NAICS 332 Fabricated metal product manufacturing	2.09
NAICS 333 Machinery manufacturing	0.26
NAICS 334 Computer and electronic product manufacturing	ND
NAICS 335 Electrical equipment and appliance mfg.	ND
NAICS 336 Transportation equipment manufacturing	1.73
NAICS 533 Lessors of nonfinancial intangible assets	NC
NAICS 541 Professional and technical services	0.59
NAICS 551 Management of companies and enterprises	1.30
NAICS 561 Administrative and support services	0.78
NAICS 562 Waste management and remediation services	1.18
NAICS 611 Educational services	0.79
NAICS 621 Ambulatory health care services	0.88
NAICS 622 Hospitals	ND
NAICS 623 Nursing and residential care facilities	1.40

Location Quotients calculated from Quarterly Census of Employment and Wages Data

Location Quotient: Ratio of analysis-industry employment in the analysis area to base-industry employment in the analysis area divided by the ratio of analysis-industry employment in the base area to base-industry employment in the base area.

Industry	Licking County, Ohio
NAICS 624 Social assistance	ND
NAICS 447 Gasoline stations	1.87
NAICS 448 Clothing and clothing accessories stores	0.52
NAICS 451 Sports, hobby, music instrument, book stores	1.29
NAICS 452 General merchandise stores	1.12
NAICS 453 Miscellaneous store retailers	0.93
NAICS 454 Nonstore retailers	12.16
NAICS 481 Air transportation	NC
NAICS 482 Rail transportation	NC
NAICS 483 Water transportation	NC
NAICS 484 Truck transportation	1.19
NAICS 485 Transit and ground passenger transportation	ND
NAICS 486 Pipeline transportation	2.32
NAICS 487 Scenic and sightseeing transportation	NC
NAICS 488 Support activities for transportation	2.19
NAICS 491 Postal service	NC
NAICS 492 Couriers and messengers	ND
NAICS 493 Warehousing and storage	ND
NAICS 511 Publishing industries, except Internet	0.61
NAICS 512 Motion picture and sound recording industries	ND
NAICS 515 Broadcasting, except Internet	ND
NAICS02 516 Internet publishing and broadcasting	NC
NAICS 517 Telecommunications	0.38
NAICS 518 Data processing, hosting and related services	ND
NAICS 519 Other information services	0.11
NAICS 521 Monetary authorities - central bank	NC
NAICS 522 Credit intermediation and related activities	0.76
NAICS 523 Securities, commodity contracts, investments	0.21
NAICS 524 Insurance carriers and related activities	2.05
NAICS 525 Funds, trusts, and other financial vehicles	NC
NAICS 531 Real estate	0.42
NAICS 532 Rental and leasing services	0.72

Location Quotients calculated from Quarterly Census of Employment and Wages Data

Location Quotient: Ratio of analysis-industry employment in the analysis area to base-industry employment in the analysis area divided by the ratio of analysis-industry employment in the base area to base-industry employment in the base area.

Industry	Licking County, Ohio
NAICS 711 Performing arts and spectator sports	0.65
NAICS 712 Museums, historical sites, zoos, and parks	1.52
NAICS 713 Amusements, gambling, and recreation	0.71
NAICS 721 Accommodation	0.55
NAICS 722 Food services and drinking places	1.20
NAICS 811 Repair and maintenance	0.95
NAICS 812 Personal and laundry services	0.91
NAICS 813 Membership associations and organizations	0.87
NAICS 814 Private households	0.24
NAICS 999 Unclassified	0.23

Footnotes:

(ND) Not Disclosable

(NC) Not Calculable, the data does not exist or it is zero

Appendix B: Recent Economic Development Case Studies with Applications of the Employment Multipliers from the Regional Input-Output Modeling System (RIMS II) of the U.S. Bureau of Economic Analysis (BEA), Localized for Licking County, Ohio.

Recent newspaper accounts for Licking County, Ohio, reported about the new development of two auto suppliers in the county.¹⁰⁴

Southgate Corp. speculated a year ago on the need for a 50,000-square-foot manufacturing facility, and the bet paid off - twice. The company not only found an occupant for the Hebron building it completed in the spring, but also for a 50,000-square-foot Heath speculative facility still under construction, Southgate President Robert O'Neill said Tuesday. Both companies are automobile suppliers who will begin production here next year with about 80 employees combined, O'Neill said. Both made long-term commitments beyond 10 years. O'Neill said he could not yet reveal the company names,

One of these two new companies will be a research and development firm; and the other company will be a German auto parts manufacturer.¹⁰⁵ Assuming that the 80 new employees for both new companies (reported above by Southgate President O'Neill) are evenly divided between these two firms, with application of the RIMS II employment multiplier of 2.3985 (see p. 46 of the Licking County economic environmental scan) for the input/output manufacturing industry of motor vehicle, body trailer, and parts manufacturing, economic developers and planners can derive an objective, good upper limit estimate of the total jobs in all industries that will result from the new development of the German auto parts manufacturer in Licking County, described in the preceding newspaper article. The type II employment multipliers included the direct and indirect impacts, plus the induced impacts. As a result of the estimate of 40 employees for the new German auto parts manufacturing firm, developers and planners would expect *ex ante* 96 total, added employment in Licking County (40 X 2.3985) in all county industries as the total regional employment impact from the direct output impacts (i.e., industries producing goods and services for final users), the indirect output impacts (that is, the intermediate goods and services as inputs for other industries), and the induced impacts related to purchases made by employees (the tertiary effects of the increased income and spending of workers at the new Licking County auto parts manufacturing plant).

¹⁰⁴ Mallett, Kent, Newark *Advocate* Newspaper, "Southgate finds auto suppliers for spec buildings," Oct. 23, 2013.

¹⁰⁵ Hottinger, Cheri, "Licking County to Welcome 2 New Companies," Success Stories, Oct. 23, 2013, Workonomics website at www.workonomics.com.

