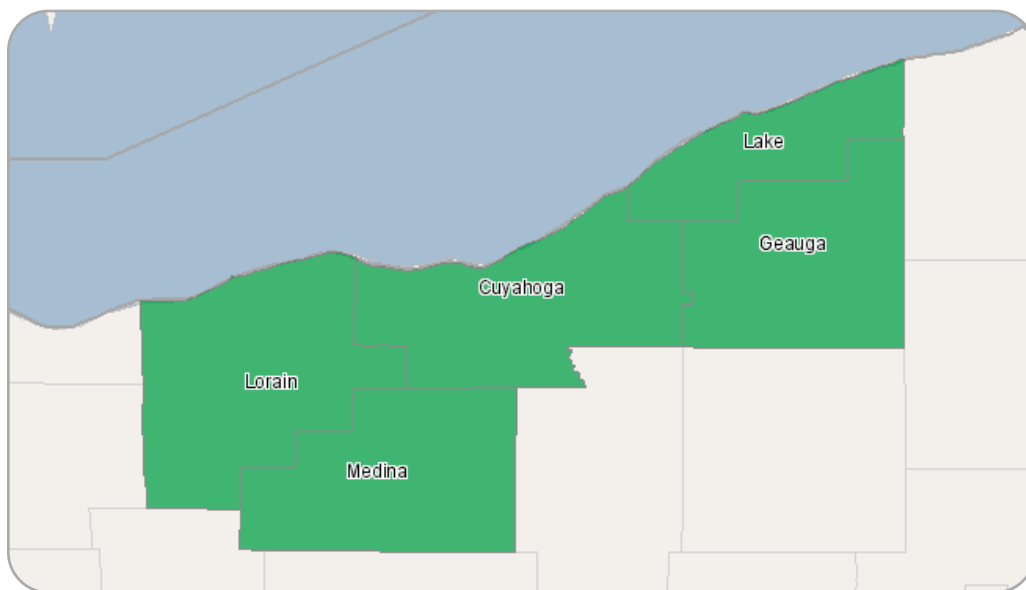


Manufacturing Overview

Region: Cleveland MSA

Timeframe: 2006-2008; 2006-2011



April 21, 2009

Introduction

Region

*Cleveland Metropolitan
Statistical Area, Ohio*

Timeframe

*Historical Industry Overview: January 2006
through December of 2008
Occupational Outlook: 2006 through 2011*

Purpose and Goals

This report was assembled to help supplement the planning activities of Lorain County Community College. The goal is to provide solid and timely data about the manufacturing sector to augment their first hand knowledge and in doing so, equip the college to allocate resources more effectively and drive regional collaboration around needed skills training for manufacturing.

Because of the amount of economic turmoil in the past few months, the past three years of historical data were chosen for the first part of this report about the Manufacturing sector. The point was to provide perspective on what has actually happened in the region and highlight how those changes might affect the work of the college.

The second portion of the report considers the Manufacturing workforce and looks forward 3 years to provide some perspective on the employment outlook for occupations within the field. With the amount of change that has occurred, these projections should be taken with a grain of salt and vetted both by applying the reader's local knowledge, and by conversations with with local stakeholders.

Background

This report integrates data from multiple perspectives to assess regional wages, growth, and industry employment patterns.

The report is driven by a proprietary database created by Economic Modeling Specialists, Inc. that is based on data from over 90 government sources (including the federal Bureau of Labor Statistics, Bureau of Economic Analysis, Bureau of the Census, and individual state agencies). The goal is to produce a simple and concrete source of regional economic information.

Note: Based on the fact that we are including so many data sources EMSI's data will usually differ from what is published by any single government agency. For more information, see the final page of this report.

Terms and Definitions

Understanding the following terms is crucial to interpreting the data included in this report.

Jobs: Annual average full-time and part-time positions (not unduplicated head-count of workers) for nearly all types of workers (payroll employees, proprietors, railroad workers, military personnel, and more) in both the public and private sector.

Industry: A category of business activity defined by the North American Industry Classification System (NAICS).

Occupation: A category of workers defined by the Standard Occupational Classification (SOC).

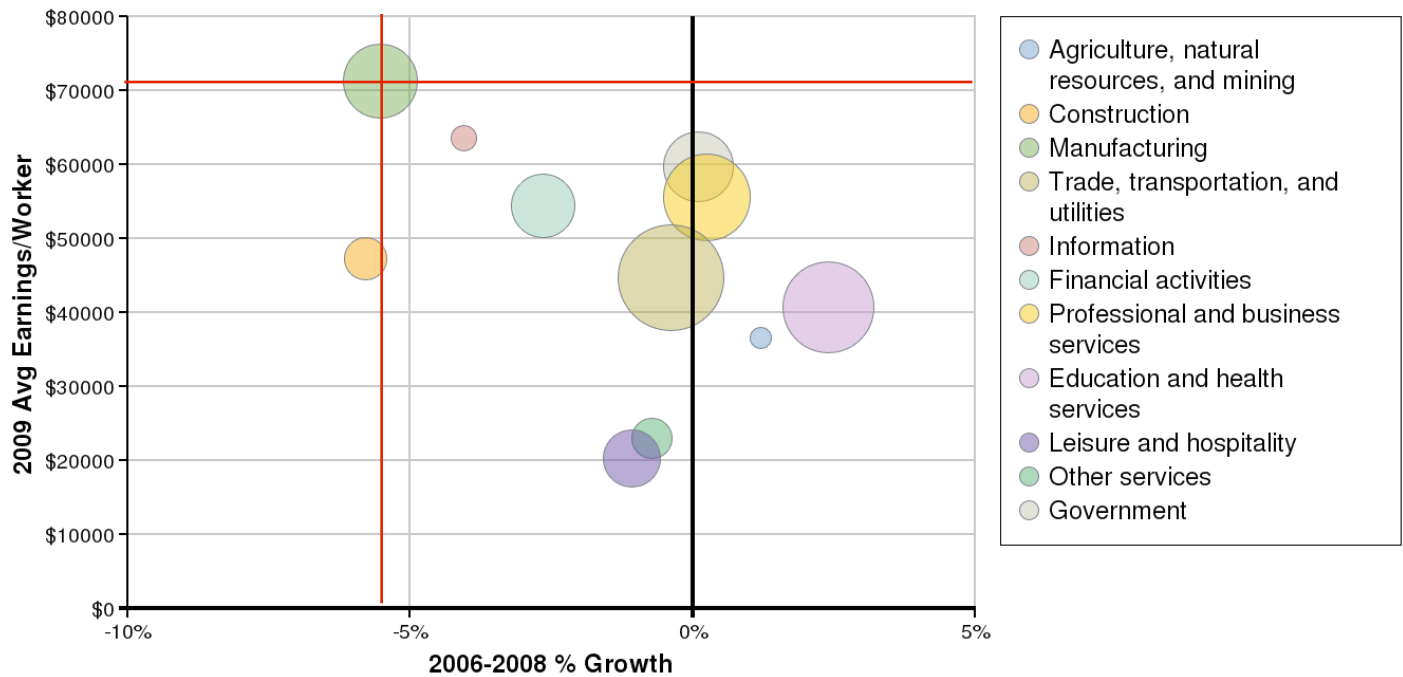
Wage: Occupational wages are reported as median hourly wage only.

Projections/Forecasts: Estimates of future job numbers based on (1) recent historical regional trends and (2) published forecasts created by a consensus of state and federal agencies.

State: For region/state comparisons, regions that include portions of multiple states are compared to the aggregate data for all states. Regions that include an entire state are compared to the nation only.

Industry Size and Growth

This section highlights the changes in primary economic sectors within the Cleveland MSA (CMSA) from 2006-2008. The Manufacturing sector is highlighted by the red “cross hairs” within the chart.



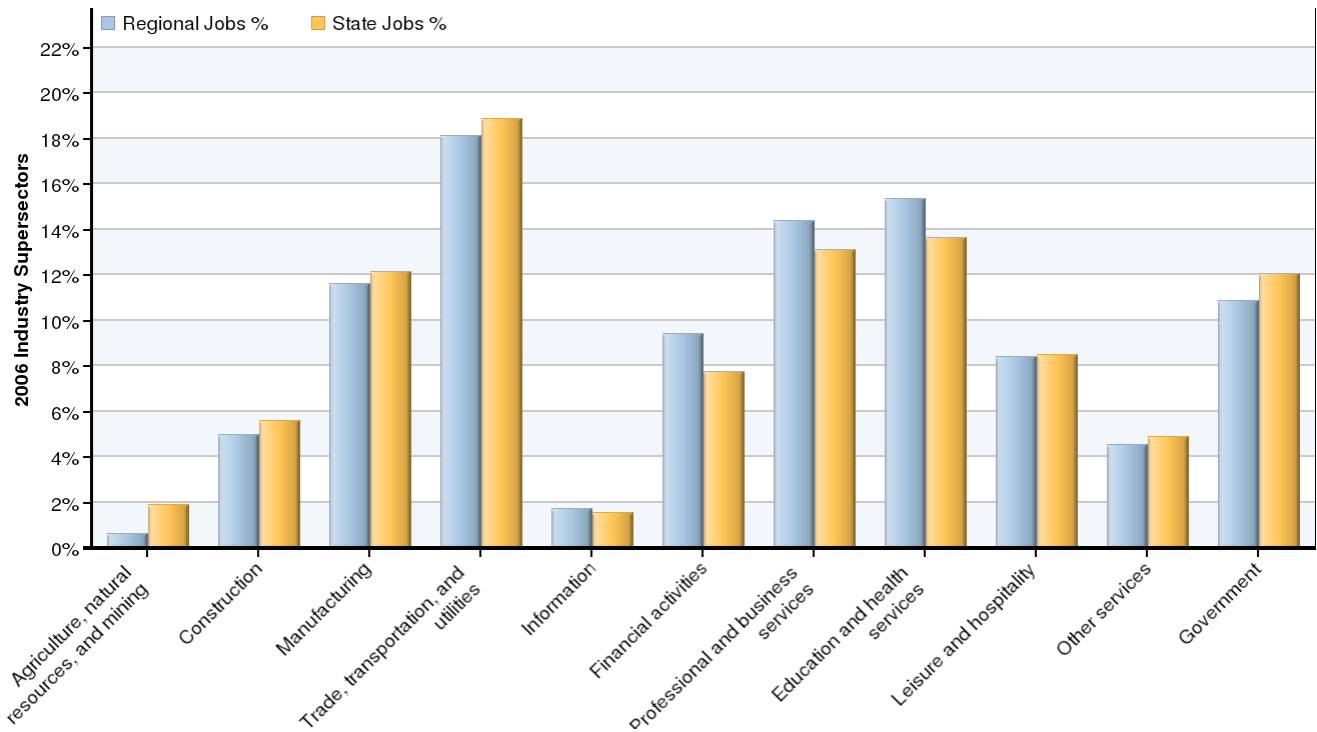
*Bubble size represents 2006 jobs in each supersector.

Description	2006 Jobs	2008 Jobs	Growth	% Growth	2009 EPW
Agriculture, natural resources, and mining	8,241	8,340	99	1%	\$36,597
Construction	64,907	61,152	(3,755)	(6%)	\$47,225
Manufacturing	151,195	142,823	(8,371)	(6%)	\$71,236
Trade, transportation, and utilities	236,126	235,226	(900)	0%	\$44,773
Information	22,078	21,186	(893)	(4%)	\$63,593
Financial activities	122,924	119,659	(3,264)	(3%)	\$54,376
Professional and business services	187,477	187,949	472	0%	\$55,591
Education and health services	200,152	204,954	4,803	2%	\$40,679
Leisure and hospitality	109,256	108,067	(1,188)	(1%)	\$20,227
Other services	59,082	58,654	(428)	(1%)	\$22,964
Government	141,627	141,767	139	0%	\$59,784
	1,303,064	1,289,776	(13,287)	(1%)	

Source: EMSI Complete Employment - Spring 2009

Sectoral Composition

This section compares the CMSA to the state data for 2006.



Description	2006 Regional Jobs	% Regional Jobs	2006 State Jobs	% State Jobs
Agriculture, natural resources, and mining	8,241	0.60%	127,612	1.90%
Construction	64,907	5.00%	376,223	5.60%
Manufacturing	151,195	11.60%	817,292	12.10%
Trade, transportation, and utilities	236,126	18.10%	1,273,052	18.90%
Information	22,078	1.70%	104,141	1.50%
Financial activities	122,924	9.40%	522,692	7.80%
Professional and business services	187,477	14.40%	883,284	13.10%
Education and health services	200,152	15.40%	918,272	13.60%
Leisure and hospitality	109,256	8.40%	573,557	8.50%
Other services	59,082	4.50%	329,908	4.90%
Government	141,627	10.90%	812,018	12.10%

Source: EMSI Complete Employment - Spring 2009

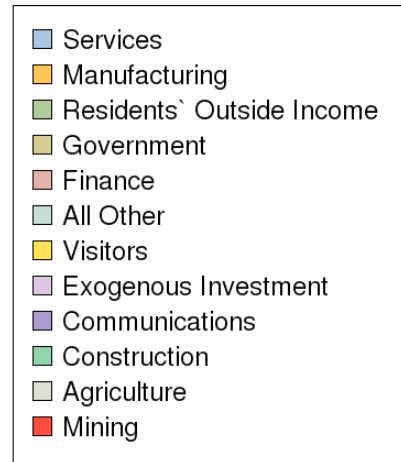
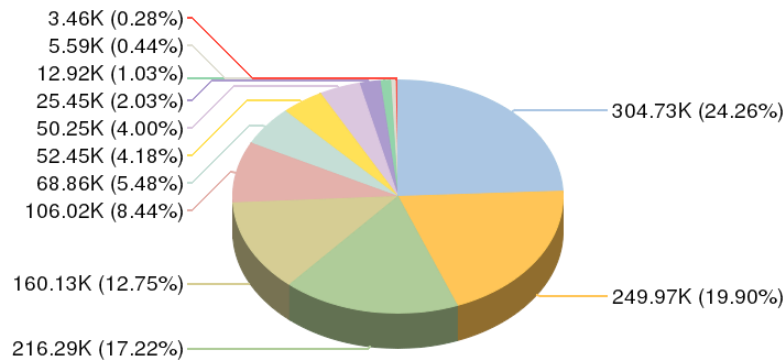
Current Economic Base

Economic base analysis models the regional economy to show which groups of industries bring money into the region rather than simply circulating dollars that are already present. The first type of industries is called “basic” while the second type is called “non-basic.” Examples of common basic industries include manufacturing, agriculture and natural resources, and state or federal government enterprises. Basic industries are important because growth or decline in them results in large ripple effects across the economy.

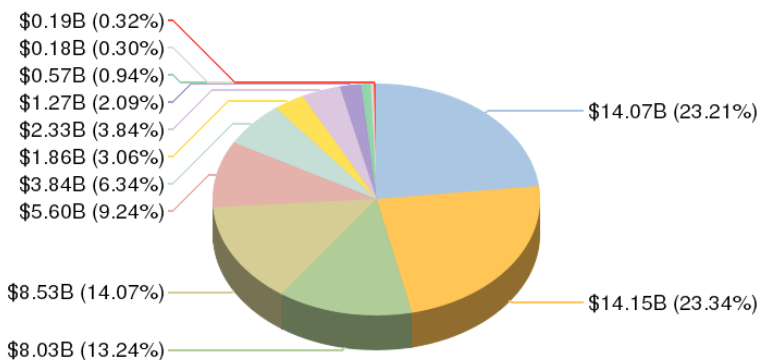
Basic industries generally export products and services to non-regional purchasers. (There are also other ways that a region can bring in money: for example, the income of out-commuters in a bedroom community, or residents’ Social Security benefits from the federal government.) The model calculates how much of each industry’s jobs and earnings rely on its exports, then uses multiplier effects to attribute jobs and earnings from other industries to the original “basic” industry. So Manufacturing might account for only 1,000 direct jobs and \$50m direct earnings in a region, but as a basic industry it might support an additional 500 indirect jobs and \$20m in indirect earnings throughout the economy.

Note that economic base sector names and definitions are different from those used elsewhere in this report.

Economic Base, Jobs



Economic Base, Earnings



Economic Base Data

Sector	Jobs	Earnings(K)	Jobs %	Earnings %	EPW(K)
Services	304,726	\$14,073,885	24%	23%	\$46
Manufacturing	249,966	\$14,148,987	20%	23%	\$57
Residents' Outside Income	216,294	\$8,028,243	17%	13%	\$37
Government	160,127	\$8,531,774	13%	14%	\$53
Finance	106,019	\$5,603,033	8%	9%	\$53
All Other	68,861	\$3,843,952	5%	6%	\$56
Visitors	52,450	\$1,857,777	4%	3%	\$35
Exogenous Investment	50,251	\$2,329,803	4%	4%	\$46
Communications	25,454	\$1,265,214	2%	2%	\$50
Construction	12,915	\$568,476	1%	1%	\$44
Agriculture	5,587	\$180,798	0%	0%	\$32
Mining	3,459	\$192,856	0%	0%	\$56

Source: EMSI Complete Employment - Spring 2009

"Jobs": Total direct and indirect jobs dependent on each sector as a basic industry. "Earnings": Total direct and indirect earnings dependent on each sector as a basic industry, in thousands of dollars. "EPW": Annual average earnings per worker for all jobs and earnings dependent on each sector, in thousands of dollars. "Residents' Outside Income": Includes investment dividends, interest, royalties, rents, transfer payments, and other forms of income gained from outside the region itself.

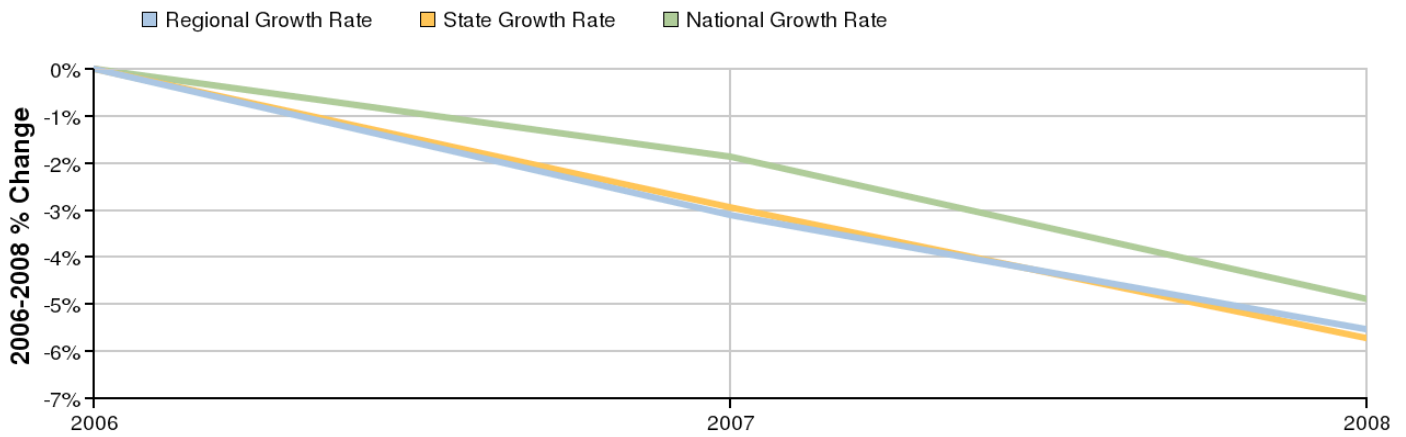
Manufacturing--Jobs Multiplier

In the Cleveland MSA the Manufacturing sector directly employs 142,823 workers. That employment ripples out through the economy to produce another 107,143 jobs. In effect, the Manufacturing sector is responsible for supporting 249,966 jobs in the CMSA or twenty percent of all employment.

A common way of communicating that relationship is through the "multiplier." **In this case, the Manufacturing jobs multiplier is 1.75.** For every 1 job in Manufacturing another .75 jobs is created (or destroyed) in the CMSA.

Manufacturing Change Comparison

This chart and table highlight the change within the Manufacturing sector for the Region (CMSA), the state (Ohio), and the nation.

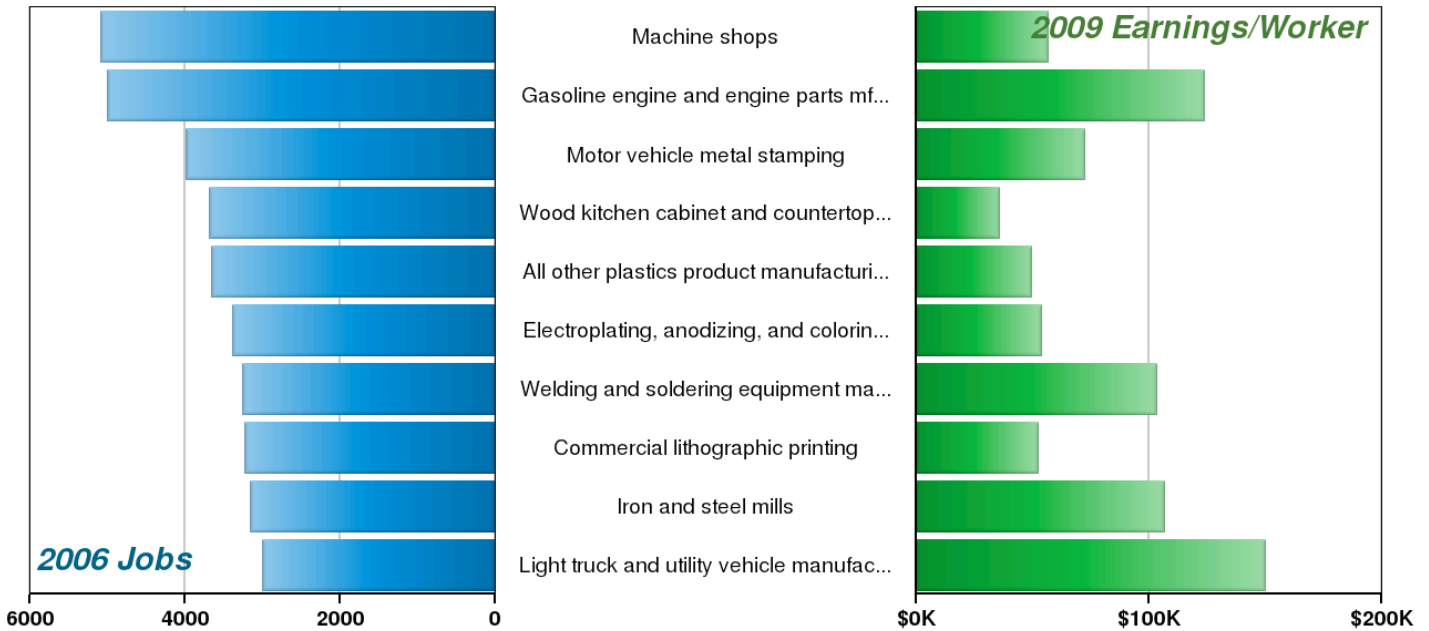


Description	2006 Jobs	2008 Jobs	Change	% Change	EPW
Regional Total	151,195	142,823	(8,372)	(6%)	\$71,236
State Total	817,292	770,505	(46,787)	(6%)	\$69,036
National Total	14,654,607	13,937,640	(716,967)	(5%)	\$73,259

Source: EMSI Complete Employment - Spring 2009

Manufacturing Detail-- Largest Sub-sectors

These are the largest sub-sectors within Manufacturing measured by number of workers employed in 2006.

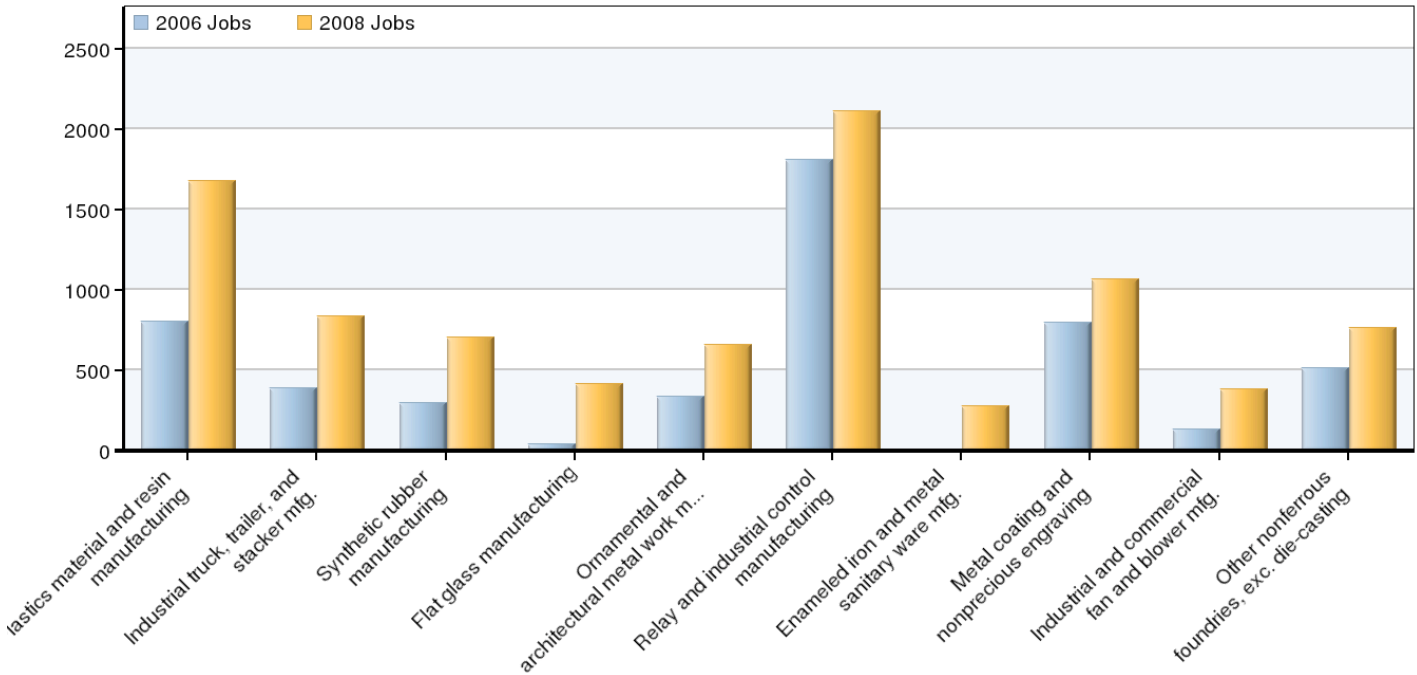


NAICS Code	Description	2006 Jobs	2008 Jobs	Change	% Change
332710	Machine shops	5,080	5,253	173	3%
336312	Gasoline engine and engine parts mfg.	5,000	2,822	(2,178)	(44%)
336370	Motor vehicle metal stamping	3,981	3,343	(638)	(16%)
337110	Wood kitchen cabinet and countertop mfg.	3,679	3,394	(285)	(8%)
326199	All other plastics product manufacturing	3,657	3,054	(603)	(16%)
332813	Electroplating, anodizing, and coloring metal	3,385	3,047	(338)	(10%)
333992	Welding and soldering equipment manufacturing	3,256	3,318	62	2%
323110	Commercial lithographic printing	3,227	3,009	(218)	(7%)
331111	Iron and steel mills	3,155	3,131	(24)	(1%)
336112	Light truck and utility vehicle manufacturing	2,993	2,132	(861)	(29%)

Source: EMSI Complete Employment - Spring 2009

Manufacturing Detail--Fastest Growing 2006-2008

These are the fastest growing sub-sectors within Manufacturing measured by the number of new jobs (“Change” within the table) from 2006 to 2008.

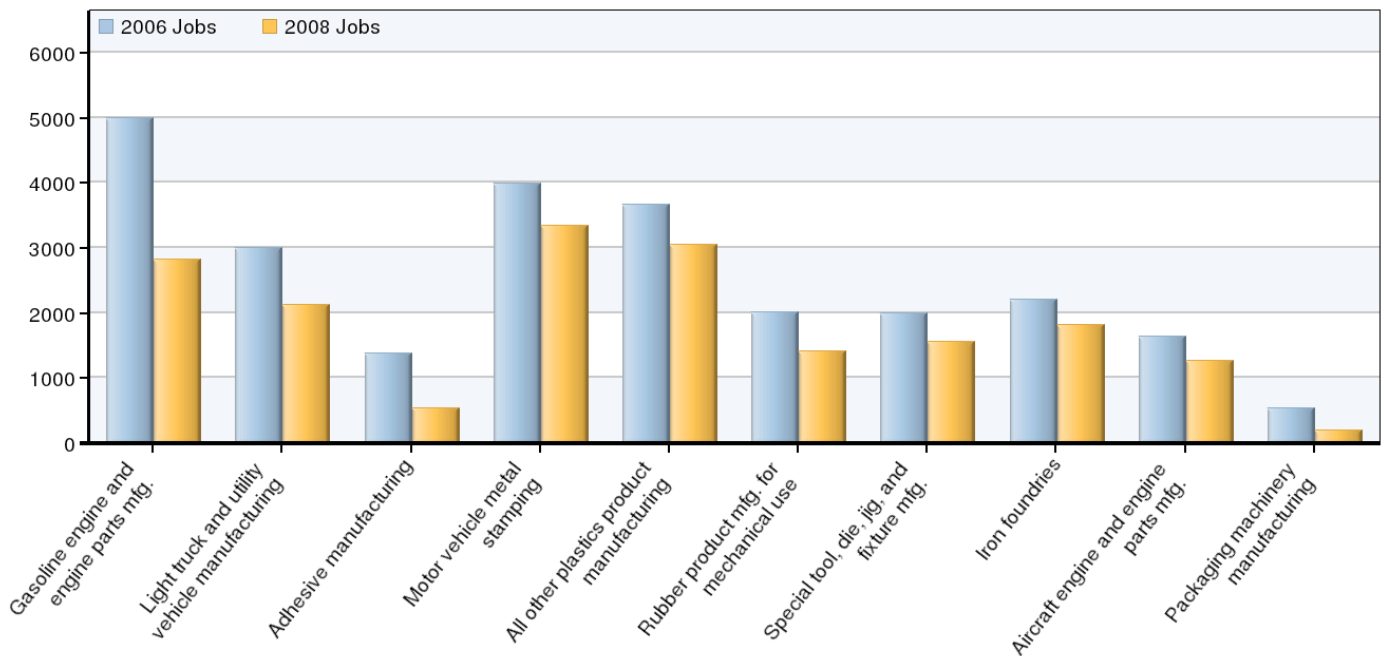


NAICS Code	Description	2006 Jobs	2008 Jobs	Change	Change %
325211	Plastics material and resin manufacturing	804	1,675	871	108%
333924	Industrial truck, trailer, and stacker mfg.	389	834	445	114%
325212	Synthetic rubber manufacturing	297	705	408	138%
327211	Flat glass manufacturing	39	418	379	976%
332323	Ornamental and architectural metal work mfg.	333	656	323	97%
335314	Relay and industrial control manufacturing	1,807	2,113	306	17%
332998	Enameled iron and metal sanitary ware mfg.	<10	278	--	--
332812	Metal coating and non-precious engraving	794	1,065	271	34%
333412	Industrial and commercial fan and blower mfg.	132	382	250	190%
331528	Other nonferrous foundries, exc. die-casting	516	762	246	48%

Source: EMSI Complete Employment - Spring 2009

Manufacturing Detail--Fastest Declining 2006-2008

These are the fastest declining sub-sectors within Manufacturing measured by the number of new jobs from 2006 to 2008.



NAICS Code	Description	2006 Jobs	2008 Jobs	Change	Change %
336312	Gasoline engine and engine parts mfg.	5,000	2,822	(2,178)	(44%)
336112	Light truck and utility vehicle manufacturing	2,993	2,132	(861)	(29%)
325520	Adhesive manufacturing	1,377	535	(842)	(61%)
336370	Motor vehicle metal stamping	3,981	3,343	(638)	(16%)
326199	All other plastics product manufacturing	3,657	3,054	(603)	(16%)
326291	Rubber product mfg. for mechanical use	2,007	1,407	(600)	(30%)
333514	Special tool, die, jig, and fixture mfg.	1,991	1,556	(435)	(22%)
331511	Iron foundries	2,210	1,817	(393)	(18%)
336412	Aircraft engine and engine parts mfg.	1,638	1,267	(371)	(23%)
333993	Packaging machinery manufacturing	530	191	(339)	(64%)

Source: EMSI Complete Employment - Spring 2009

Largest Production Occupations-- 2006-2011

Production occupations make up a large portion of manufacturing employment especially within the low-to-middle skill areas. This table highlights the demand for the top 20 largest (by 2006 employment) from 2006-2011.

SOC Code	Description	2006 Jobs	2011 Jobs	Change	% Change	New & Rep. Jobs	% New & Rep.	2009 Median Hourly Earnings
51-2092	Team assemblers	9,840	7,551	(2,289)	(23%)	(1,450)	(15%)	\$12.63
51-4041	Machinists	8,207	6,938	(1,269)	(15%)	(587)	(7%)	\$16.35
51-1011	First-line supervisors/managers of production and operating workers	7,996	6,704	(1,292)	(16%)	(525)	(7%)	\$24.49
51-9198	Helpers--Production workers	5,636	4,655	(981)	(17%)	(365)	(6%)	\$10.48
51-9061	Inspectors, testers, sorters, samplers, and weighers	5,556	4,413	(1,143)	(21%)	(625)	(11%)	\$15.88
51-4031	Cutting, punching, and press machine setters, operators, and tenders, metal and plastic	5,016	3,726	(1,290)	(26%)	(486)	(10%)	\$13.69
51-2099	Assemblers and fabricators, all other	4,137	2,698	(1,439)	(35%)	(996)	(24%)	\$15.93
51-9111	Packaging and filling machine operators and tenders	2,719	2,293	(426)	(16%)	(140)	(5%)	\$11.75
51-4072	Molding, coremaking, and casting machine setters, operators, and tenders, metal and plastic	2,711	2,140	(571)	(21%)	(153)	(6%)	\$14.25
51-4121	Welders, cutters, solderers, and brazers	2,543	2,261	(282)	(11%)	(35)	(1%)	\$15.31
51-2022	Electrical and electronic equipment assemblers	2,459	1,847	(612)	(25%)	(150)	(6%)	\$11.74
51-4021	Extruding and drawing machine setters, operators, and tenders, metal and plastic	2,417	2,068	(349)	(14%)	29	1%	\$16.24
51-4111	Tool and die makers	2,293	1,690	(603)	(26%)	(387)	(17%)	\$21.00
51-4011	Computer-controlled machine tool operators, metal and plastic	2,057	1,722	(335)	(16%)	(198)	(10%)	\$16.70
51-9023	Mixing and blending machine setters, operators, and tenders	2,054	1,688	(366)	(18%)	(179)	(9%)	\$16.49
51-9199	Production workers, all other	1,901	1,512	(389)	(20%)	(225)	(12%)	\$16.82
51-4033	Grinding, lapping, polishing, and buffing machine tool setters, operators, and tenders, metal and plastic	1,866	1,470	(396)	(21%)	(191)	(10%)	\$13.26
51-4122	Welding, soldering, and brazing machine setters, operators, and tenders	1,809	1,432	(377)	(21%)	(217)	(12%)	\$14.44
51-5023	Printing machine operators	1,808	1,548	(260)	(14%)	(33)	(2%)	\$14.67
51-9196	Paper goods machine setters, operators, and tenders	1,764	1,170	(594)	(34%)	(303)	(17%)	\$16.04

Source: EMSI Complete Employment - Spring 2009

Manufacturing Occupation Cluster

The previous table considered Production Occupations, which are in heavy decline within the CMSA. The following tables take a wider view of the potential occupations employed in Manufacturing. These range across a variety of activity types and education/training requirements. The tables display workers from several occupational areas including: Architecture and Engineering; Management; Installation, Maintenance, and Repair; and Transportation and Material Moving. The goal is to indicate areas where the *NAM Skill Certification System* might be applicable.

Occupations are grouped by education requirements. The top occupations within each education level, that show demand (2006-2011 Annual Openings), are displayed.

Occupational Area Key:

- 11-0000 Management
- 17-0000 Architecture and Engineering
- 49-0000 Installation, Maintenance, and Repair
- 51-0000 Production
- 53-0000 Transportation and Material Moving

Bachelor's Degree

SOC Code	Description	2006 Jobs	2011 Jobs	Change	% Change	New & Rep. Jobs	Annual Openings	2009 Median Hourly Earnings
17-2051	Civil engineers	1,780	1,675	(105)	(6%)	115	19	\$28.25
17-2081	Environmental engineers	341	350	9	3%	59	10	\$35.34
17-2041	Chemical engineers	407	405	(2)	0%	49	8	\$39.12
17-2112	Industrial engineers	2,322	2,107	(215)	(9%)	44	7	\$33.47
17-2072	Electronics engineers, except computer	509	491	(18)	(4%)	40	7	\$33.75
17-2071	Electrical engineers	804	753	(51)	(6%)	39	7	\$34.21
17-2031	Biomedical engineers	197	213	16	8%	39	7	\$32.22
17-2061	Computer hardware engineers	191	197	6	3%	36	6	\$28.38
17-2171	Petroleum engineers	42	55	13	31%	20	3	\$46.74
17-2111	Health and safety engineers, except mining safety engineers and inspectors	235	228	(7)	(3%)	20	3	\$32.70
17-2161	Nuclear engineers	201	197	(4)	(2%)	18	3	\$30.15
11-9041	Engineering managers	1,466	1,333	(133)	(9%)	6	1	\$47.82

Source: EMSI Complete Employment - Spring 2009

Work Experience in a related Field

SOC Code	Description	2006 Jobs	2011 Jobs	Change	% Change	New & Rep. Jobs	Annual Openings	2009 Median Hourly Earnings
49-1011	First-line supervisors/managers of mechanics, installers, and repairers	3,563	3,371	(192)	(5%)	204	34	\$27.65
53-1031	First-line supervisors/managers of transportation and material-moving machine and vehicle operators	1,714	1,680	(34)	(2%)	134	22	\$24.29
53-1021	First-line supervisors/managers of helpers, laborers, and material movers, hand	1,596	1,529	(67)	(4%)	89	15	\$21.72
51-1011	First-line supervisors/managers of production and operating workers	7,996	6,704	(1,292)	(16%)	(525)	(88)	\$24.49

Source: EMSI Complete Employment - Spring 2009

Associates Degree

SOC Code	Description	2006 Jobs	2011 Jobs	Change	% Change	New & Rep. Jobs	Annual Openings	2009 Median Hourly Earnings
49-9062	Medical equipment repairers	333	346	13	4%	60	10	\$19.08
17-3029	Engineering technicians, except drafters, all other	716	694	(22)	(3%)	47	8	\$27.73
17-3023	Electrical and electronic engineering technicians	714	661	(53)	(7%)	14	2	\$24.66
17-3025	Environmental engineering technicians	146	144	(2)	(1%)	12	2	\$18.28
51-9141	Semiconductor processors	151	134	(17)	(11%)	5	1	\$16.83
17-3022	Civil engineering technicians	552	504	(48)	(9%)	2	0	\$21.49
17-3024	Electro-mechanical technicians	126	113	(13)	(10%)	(1)	0	\$26.55
17-3021	Aerospace engineering and operations technicians	88	70	(18)	(20%)	(11)	(2)	\$20.09
17-3027	Mechanical engineering technicians	676	586	(90)	(13%)	(30)	(5)	\$23.08
17-3026	Industrial engineering technicians	702	592	(110)	(16%)	(50)	(8)	\$23.52

Source: EMSI Complete Employment - Spring 2009

Postsecondary Vocational Award

SOC Code	Description	2006 Jobs	2011 Jobs	Change	% Change	New & Rep. Jobs	Annual Openings	2009 Median Hourly Earnings
49-3023	Automotive service technicians and mechanics	6,289	6,150	(139)	(2%)	460	77	\$16.58
53-2012	Commercial pilots	543	666	123	23%	216	36	\$33.67
49-3031	Bus and truck mechanics and diesel engine specialists	2,017	1,967	(50)	(2%)	159	27	\$18.08
49-2094	Electrical and electronics repairers, commercial and industrial equipment	560	535	(25)	(4%)	68	11	\$18.37
49-3042	Mobile heavy equipment mechanics, except engines	523	538	15	3%	66	11	\$20.75
49-2095	Electrical and electronics repairers, powerhouse, substation, and relay	209	218	9	4%	52	9	\$26.88
51-9071	Jewelers and precious stone and metal workers	349	365	16	5%	50	8	\$13.64
49-3011	Aircraft mechanics and service technicians	563	572	9	2%	37	6	\$17.84
17-3012	Electrical and electronics drafters	179	165	(14)	(8%)	10	2	\$19.04

Source: EMSI Complete Employment - Spring 2009

On the Job Training

SOC Code	Description	2006 Jobs	2011 Jobs	Change	% Change	New & Rep. Jobs	Annual Openings	2009 Median Hourly Earnings
53-3032	Truck drivers, heavy and tractor-trailer	13,540	13,475	(65)	0%	1082	180	\$18.07
53-7062	Laborers and freight, stock, and material movers, hand	25,987	23,064	(2,923)	(11%)	815	136	\$10.66
53-7061	Cleaners of vehicles and equipment	2,421	2,264	(157)	(6%)	276	46	\$9.62
53-3031	Driver/sales workers	5,392	5,067	(325)	(6%)	261	44	\$10.09
53-3033	Truck drivers, light or delivery services	8,595	8,112	(483)	(6%)	231	39	\$13.39
51-3011	Bakers	1,394	1,437	43	(3%)	194	32	\$10.95
51-8031	Water and liquid waste treatment plant and system operators	960	1,030	70	7%	159	27	\$20.54
53-3022	Bus drivers, school	1,792	1,833	41	2%	158	26	\$14.56
53-6021	Parking lot attendants	900	911	11	1%	134	22	\$7.75
51-3021	Butchers and meat cutters	699	715	16	2%	129	22	\$14.16
49-3021	Automotive body and related repairers	1,190	1,182	(8)	(1%)	127	21	\$18.27
49-9021	Heating, air conditioning, and refrigeration mechanics and installers	1,982	1,944	(38)	(2%)	126	21	\$16.99

Source: EMSI Complete Employment - Spring 2009

Data Sources and Methodology

Occupation Data

EMSI's occupation data are based on EMSI's industry data and regional occupational statistics and staffing patterns taken from the Occupational Employment Statistics program (U.S. Bureau of Labor Statistics). Additional wage information is derived from the American Community Survey, and wages are adjusted and interpolated at the county and ZIP code level using EMSI earnings data from relevant industries.

Industry Data

In order to capture a comprehensive picture of regional industry employment (EMSI Complete Employment), EMSI basically combines unsuppressed covered employment data from Quarterly Census of Employment and Wages (QCEW) produced by the Department of Labor with total employment data in the Regional Economic Information System published by the Bureau of Economic Analysis, augmented with County Business Patterns and Nonemployer Statistics published by the U.S. Census Bureau. Projections are based on the latest available EMSI industry data combined with past trends in each industry and the industry growth rates in national projections (Bureau of Labor Statistics) and state-level projections (individual state agencies). Unemployment data are based on the Bureau of Labor Statistics' Local Area Unemployment Statistics program.

EMSI also provides a more limited industry and occupation data set, EMSI Covered Employment, which is an unsuppressed version of QCEW.

About EMSI

Products and Services

EMSI provides integrated regional economic and labor market data, web-based analysis tools, data-driven reports, and custom consulting services. EMSI specializes in detailed information about regional economies for assessment and planning purposes, bringing together industry, workforce, economic development, and education/training perspectives. EMSI's expertise is centered on regional economics, data integration and analysis, programming, and design so that it can provide the best available products and services for regional decision makers. EMSI recently merged with its sister company CCbenefits Inc.—well known for conducting socioeconomic impact studies for over 800 community and technical colleges across the nation—to offer an integrated portfolio of solutions for college, workforce, and economic development professionals.

Clients

EMSI's diverse client base includes hundreds of colleges, workforce boards, economic development organizations, governmental agencies, economists, consultants, academics, and private-sector analysts. With over four thousand current clients in the U.S., Canada, and the United Kingdom, EMSI's products and services are critical for strategic decision making and informed regional policy.

Contact EMSI

For more information about EMSI, visit us at www.economicmodeling.com, or call us toll-free at 866.999.3674.