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Rick Snyder, Governor  
Department of Technology, Management & Budget  
Bureau of Labor Market Information & Strategic Initiatives  
[www.michigan.gov/lmi](http://www.michigan.gov/lmi)

# Michigan Economic and Workforce Indicators and Insights

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## Preface

Dear Reader,

The Michigan economy has continued to show improvements from the devastating effects of the Great Recession. An improving labor market with job gains in both goods producing and services providing industries, stronger vehicle production and sales, and a rebounding housing market are just some of the indicators supporting the state's economic recovery.

However, a number of challenges remain. A few of the issues that will impact Michigan's ability to maintain the growth recorded since the end of the downturn include having a readily available labor supply to meet rapidly changing employer demand; creating, attracting, expanding and retaining new and existing business and industries to continue the diversification of Michigan's economy; and reversing the out-migration flow of our young, educated population.

This edition of the *Michigan Economic and Workforce Indicators and Insights* publication provides information on unemployment and labor force participation, occupational and industry employment, income, and educational attainment as well as special features on veteran unemployment, motor vehicle employment, business start-up and job creation, and exports. Also included is a section titled "What's New from LMISI?" which provide access to more information on subjects of interest which can be found on the Labor Market Information and Strategic Initiatives website at [www.michigan.gov/lmi](http://www.michigan.gov/lmi).

Accurate, relevant, and timely labor market information is critical for policy makers, business, educators, and individuals making important career decisions. The Bureau of Labor Market Information and Strategic Initiatives will continue the commitment to produce the data and analysis necessary to guide various data users in making informed decisions and gauge the condition of Michigan's labor market.

Michael Williams

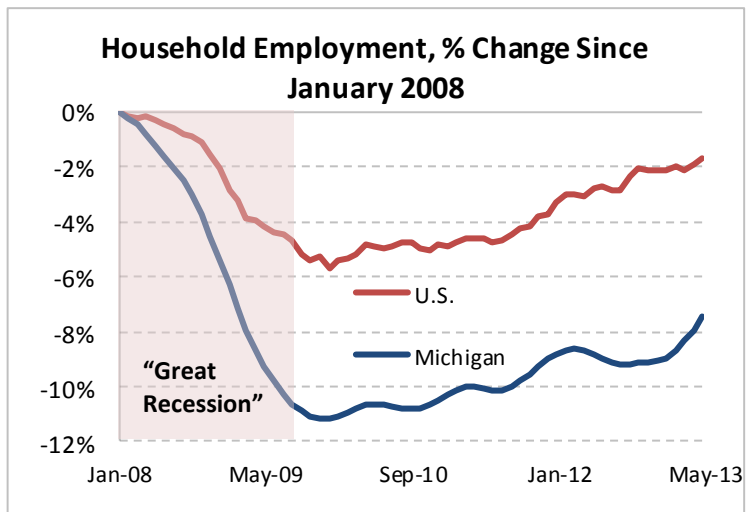
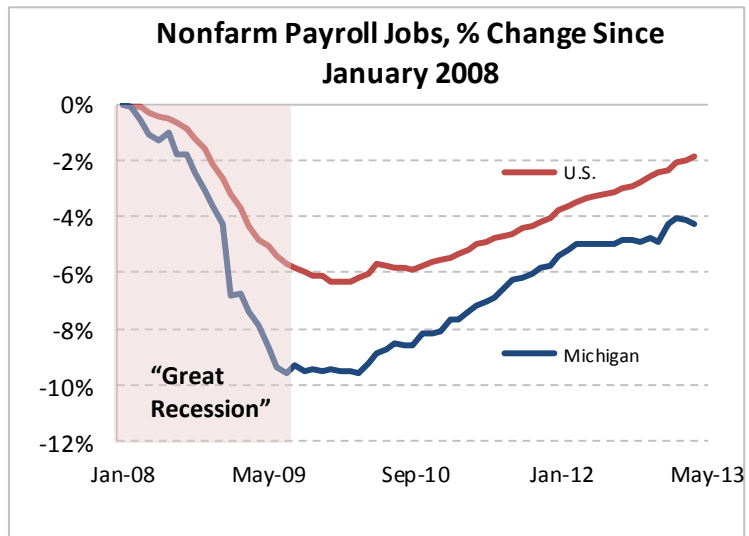
Acting Director  
Bureau of Labor Market Information & Strategic Initiatives (LMISI)  
Michigan Department of Technology, Management and Budget

## Michigan Job Trends

Jeffrey Aula

There are two government surveys that measure the state of the labor market: the Current Employment Statistics (CES) program, a monthly survey of nonfarm **business establishments**, and the Current Population Survey (CPS), a monthly survey of **households**. The establishment survey is the primary source used to generate monthly estimates of payroll jobs in Michigan, while the household survey is combined with other indicators to estimate total employed in Michigan, including the self-employed and agricultural workers.

- Industry employment in Michigan continued to expand (+1.1 percent) during the initial five months of 2013, averaging 8,900 new positions per month. This was somewhat above the 0.7 percent growth nationally during this time. Despite these recent job gains, total payroll employment in Michigan remains significantly below (-13.2 percent) the peak level established in 2000.
- Since the significant restructuring and accompanying job loss in Michigan's auto manufacturing industry during 2009, employment in this key sector has grown by about 40,000 or 34 percent. This gain accounts for about 17 percent of Michigan's job gains since the recessionary low in July 2009.
- Michigan has added 244,000 jobs since July 2009, recouping around 28 percent of the payroll jobs lost between April 2000 and July 2009.
- Total employment estimates from the household survey in Michigan also display positive trends for the first five months of 2013. Through May, total Michigan employment rose by 76,000 or 1.8 percent. This has far outpaced employment growth nationally, which has inched up by 0.4 percent over this period.



- Total employment in Michigan hit a recessionary low of 4,128,000 in late 2009. Since that time, household employment rose by 4.2 percent to total 4,303,000, similar to the 4.3 percent U.S. employment gain. However, Michigan total employment remains about 13 percent below the peak level attained in 2000.
- The University of Michigan, Research Seminar in Quantitative Economics (RSQE) most recent forecasts predict payroll job expansion in Michigan of 63,700 in 2013 and 55,000 in 2014.

# Payroll Jobs by Industry Sector

Jeffrey Aula

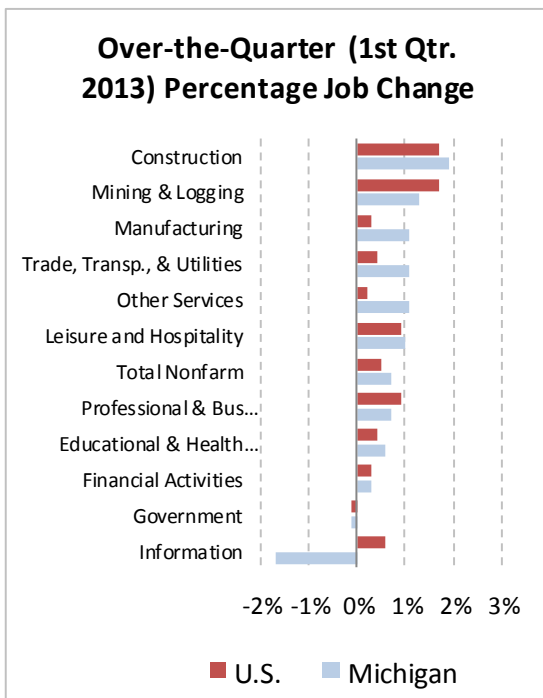
Payroll job estimates come from a monthly survey of business establishments and government agencies nationwide known as the *Current Employment Statistics (CES)* program. This survey helps to produce monthly estimates of nonfarm jobs by detailed industry (except self-employed) for the nation, states, and metro areas.

- o During 2012, payroll job growth in Michigan (+1.8 percent) was essentially equal to the 1.7 percent gain nationally but slower than the 2.3 percent increase recorded in Michigan during 2011.
- o On a quarterly basis, Michigan reached a recessionary low employment level of 3,832,100 in the 1st quarter of 2010. Since that time, payroll job levels have advanced by 227,600, or 5.9 percent, to total 4,059,700 during the 1st quarter of 2013. This compares favorably to the 4.4 percent employment growth rate nationally during this time.
- o Nonfarm jobs advanced by 0.7 percent in Michigan in the 1st quarter 2013, matching the average pace of first quarter job growth the prior two years. Nearly half of this job gain was reported in *Trade, transportation and utilities, and Manufacturing*.

**Michigan Numeric Annual Job Change, 2012 and 2011**

Industry Sectors	2012	2011
Total Nonfarm	+73,000	+88,600
Mining and Logging	+300	+400
Construction	+1,800	+3,600
Manufacturing	+27,500	+36,100
Trade, Transportation, and Utilities	+7,100	+11,100
Information	-200	-1,500
Financial Activities	+3,000	+5,200
Professional and Business Services	+22,300	+38,300
Educational and Health Services	+10,600	+9,800
Leisure and Hospitality	+6,800	+2,900
Other Services	+1,000	+900
Government	-7,500	-18,000

Source: U.S. Bureau of Labor Statistics / DTMB



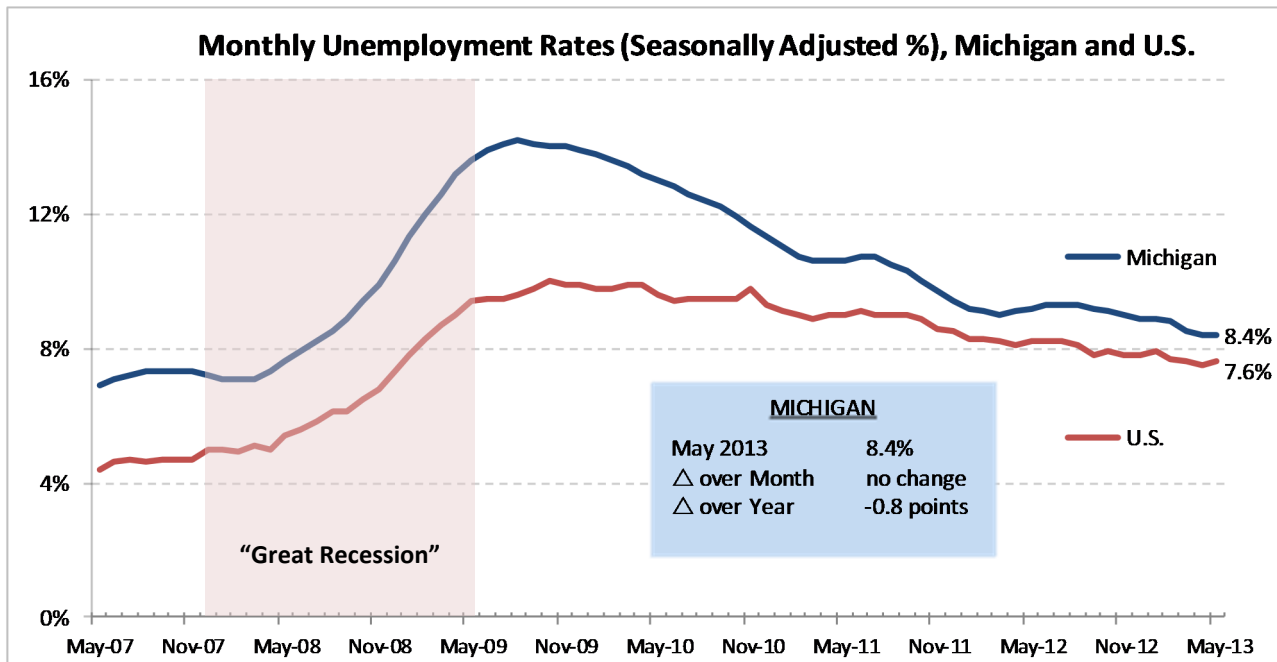
Source: U.S. Bureau of Labor Statistics / DTMB

- o Michigan’s *Manufacturing* sector continued to be a primary source of employment growth during 2012, expanding by 5.4 percent and adding 27,600 jobs. This was slower than the 7.6 percent growth recorded in 2011, but was significantly above the 1.7 percent growth nationally. During the first quarter of 2013, *Manufacturing* employment in Michigan continued to edge up (+1.1 percent), but at a slower pace than the first quarters of 2011 and 2012.
- o Employment growth (+4.4 percent) in the state’s *Trade, transportation, and utilities* sector has lagged total nonfarm job expansion since the 1st quarter of 2010. During the 1st quarter of 2013, however, job gains (+1.1 percent) in this sector outpaced the growth in total payroll jobs. Sectors with significantly above average job growth since the 1st quarter of 2010 include *Professional and business services* and *Mining and logging*.
- o Employment levels in *Government* and *Information* continued to steadily decline, and both reached all-time lows in the first quarter of 2013.

## Unemployment Rate

Bruce Weaver and Mark Reffitt

The unemployment rate is a key core economic indicator, as it is one major measure of the relative labor market success of the population. In basic terms, it is defined as the ratio of the number of unemployed persons to all of those active in the workforce. To be counted as unemployed, persons must have no earnings due to employment for a given month, be actively seeking a job, and be able to accept a job if offered.



Sources: U.S. Bureau of Labor Statistics / DTMB

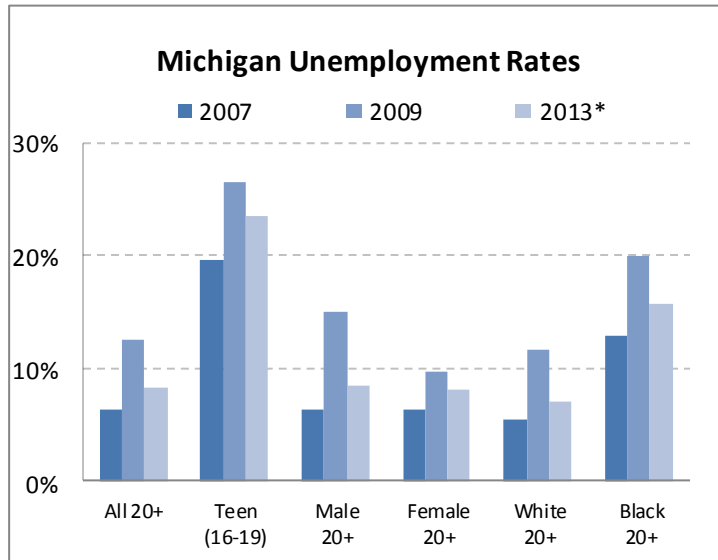
- The Michigan jobless rate continues to show improvement in 2013. The Michigan rate has fallen about a half a percentage point since late 2012, by a full percentage point since December 2011, and by nearly 6 percentage points since the most recent peak of 14.2 percent in August 2009.
- Michigan ranks 18th among states in the nation in the unemployment rate decline registered over the past year. The Michigan jobless rate fell by 0.8 percentage points from May 2012 to May 2013.
- Michigan's jobless rate remains above the national rate, and its ranking among states has only improved marginally. The Michigan rate was the highest in the nation during the recessionary year of 2009. As of May 2013, Michigan had the eighth highest state jobless rate. However, as the chart above shows, Michigan's jobless rate has converged significantly over time with the U.S., and in May 2013 was only 0.8 percentage points above the national average.
- One factor preventing even higher jobless rates in Michigan has been a continual drop in labor force over the last several years. Labor force declined annually in Michigan from 2007-2012, but the workforce level in Michigan shows preliminary signs of stabilization in the spring of 2013.
- Unemployment rates are much lower in Michigan for persons with additional education. Over the past year, Michigan jobless rates were lowest for persons with at least a bachelor's degree (4.4 percent), and significantly higher for persons with just a high school diploma (9.4 percent). Persons without a high school degree had a very high jobless rate of 15.2 percent.

## Unemployment & Labor Market Participation

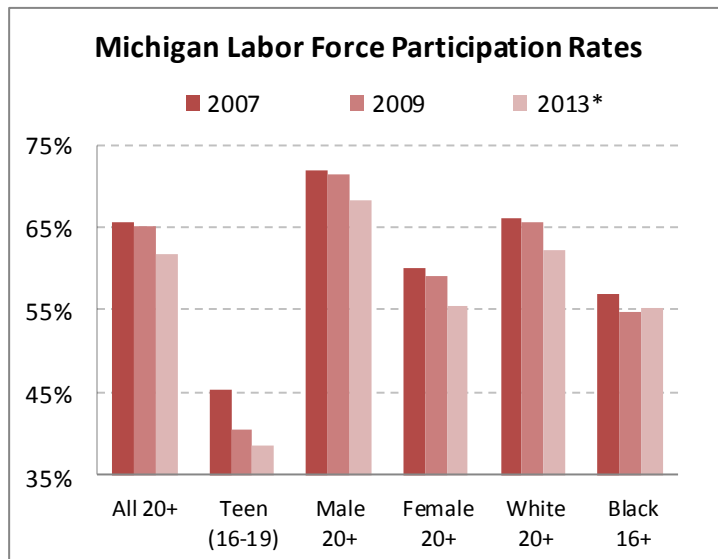
Jim Rhein

What is the nature of Michigan's labor market recovery nearly four years after the trough of the Great Recession? Unemployment rates have declined substantially since 2009, however not quite to pre-recessionary levels. Rates fell primarily due to increased jobs in the state, but another factor was fewer state residents participating in the labor market. Michigan's gradual recovery from 2009 through 2013 has been tempered by a continued decline in the state's Labor Force Participation Rate (LFPR), which is the employed plus those actively seeking employment as a ratio of the civilian non-institutionalized working age population.

- Unemployment rate reductions in Michigan from 2009 to 2013 were large, with variations between demographic groups. The starkest difference was between adult men and women. From 2009 to 2013, jobless rates for adult men fell by nearly seven full percentage points, while women's rates declined by less than two percentage points.
- Although jobless rates decreased significantly within Michigan's various demographic groupings since the recession, participation rates have also fallen in most groups. Drops in LFPR generally do not denote a healthy labor market. Declining participation rates may reflect migration out of the state or discouragement with the job market. It can also reflect workers who have left the workforce due to family obligations or to return to school.
- During the recession (2007 to 2009), LFPR declined only slightly for many groups, such as adult males and whites. Adult female's LFPR fell more, by a little over a full percentage point. Teens and blacks recorded large drops in LFPR over this period, down by -4.9 and -2.3 percentage points respectively.
- However, during the post-recessionary period, Michigan participation rates fell even faster among most demographic groups. There is some evidence that older workers and young adults in Michigan have experienced above average cuts in participation since 2009.



Source: Current Population Survey (CPS) / DTMB



Source: Current Population Survey (CPS) / DTMB

- From 2009 to 2013\*, all adult workers in Michigan registered a drop in LFPR of over three full percentage points from 65.0 to 61.7 percent. Adult females (-3.5%), adult whites (-3.5%), and adult males (-3.2%) all had similar significant reductions. Participation rates nationally over this period also fell, although the Michigan adult participation rate (61.7 percent) in 2012 was well below the national rate (65.9 percent).

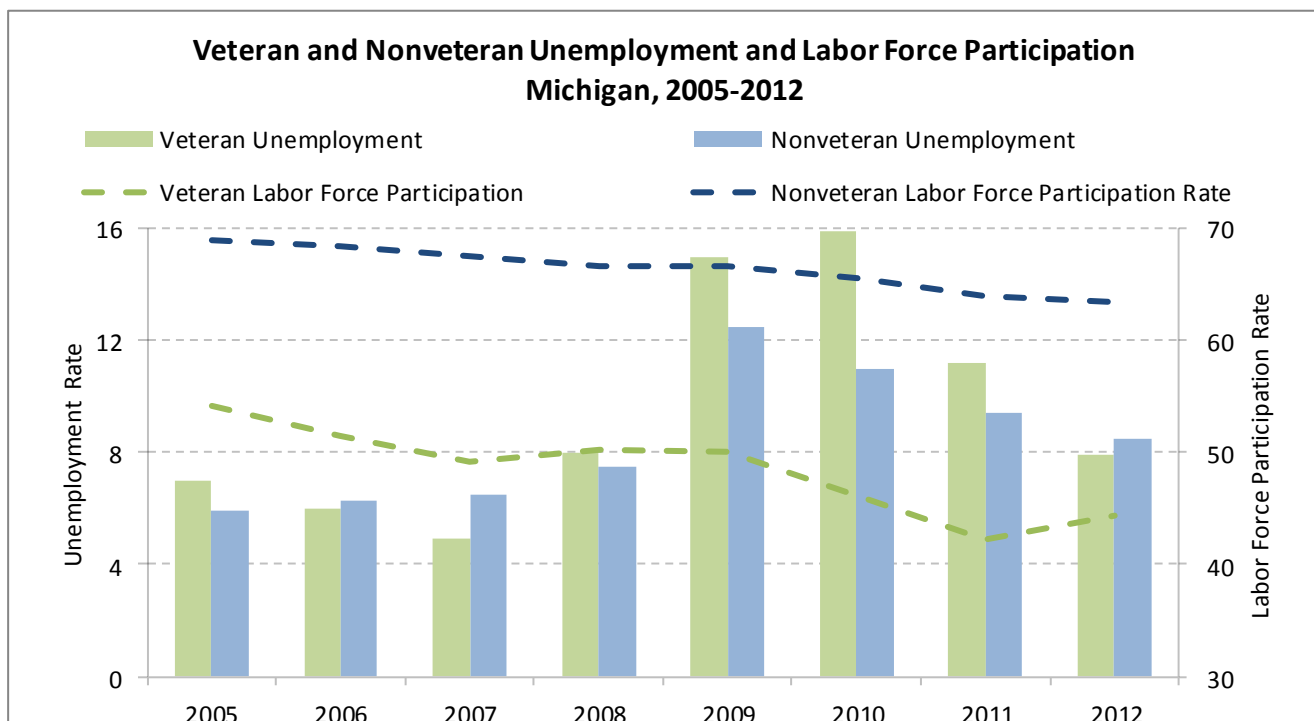
\*Note: Data for 2013 represents the 12-month average from May 2012 through April 2013 (Source: CPS unpublished data)

## Veteran Unemployment and Labor Force Participation

Jason Palmer and Jim Rhein

In addition to serving as two key macroeconomic variables and indicators of overall labor market health, the unemployment rate and labor force participation rate are used to compare and contrast the labor market experiences of various groups. This indicator examines veteran unemployment and labor force participation in Michigan and in the U.S.

- In 2012, the unemployment rate for veterans in Michigan measured 7.9 percent, down significantly from peak of 15.9 at the height of the economic downturn in 2010. While the unemployment rate for veterans appears lower than the rate for nonveterans (8.5 percent), this difference is not statistically significant.
- Veteran unemployment, like nonveteran unemployment, is higher in Michigan than nationally (7.0 percent). Among the reasons for higher joblessness in Michigan are the lingering effects of nearly a decade of widespread job losses that rocked the state during the 2001 and 2007 recessions. But, Michigan has made some headway in recent years. In 2012, Michigan ranked 38th out of the 50 states for veteran unemployment, substantially improved from last place in 2009 and 2010.
- In 2012, 44.3 percent of the approximately 634,000 Michigan veterans were active in the labor market. Overall, the veteran labor force participation rate is well below the rate for nonveterans, which measures 63.4 percent. The difference in participation is explained mainly by the veteran population being relatively older, and thus more likely to be retired or otherwise out of the labor market.
- Labor force participation for veterans in Michigan is lower than participation nationally (51.9 percent), suggesting that a greater share of Michigan veterans are on the sidelines. Some leading reasons why individuals – veterans and nonveterans – do not participate in the labor market include: retirement, education, family responsibilities, disability, and discouragement. Unlike the unemployment rate, the labor force participation rate for veterans (and nonveterans) has not seen any real improvement during the recovery.



Source: Current Population Survey (CPS) (Unpublished Data) / DTMB

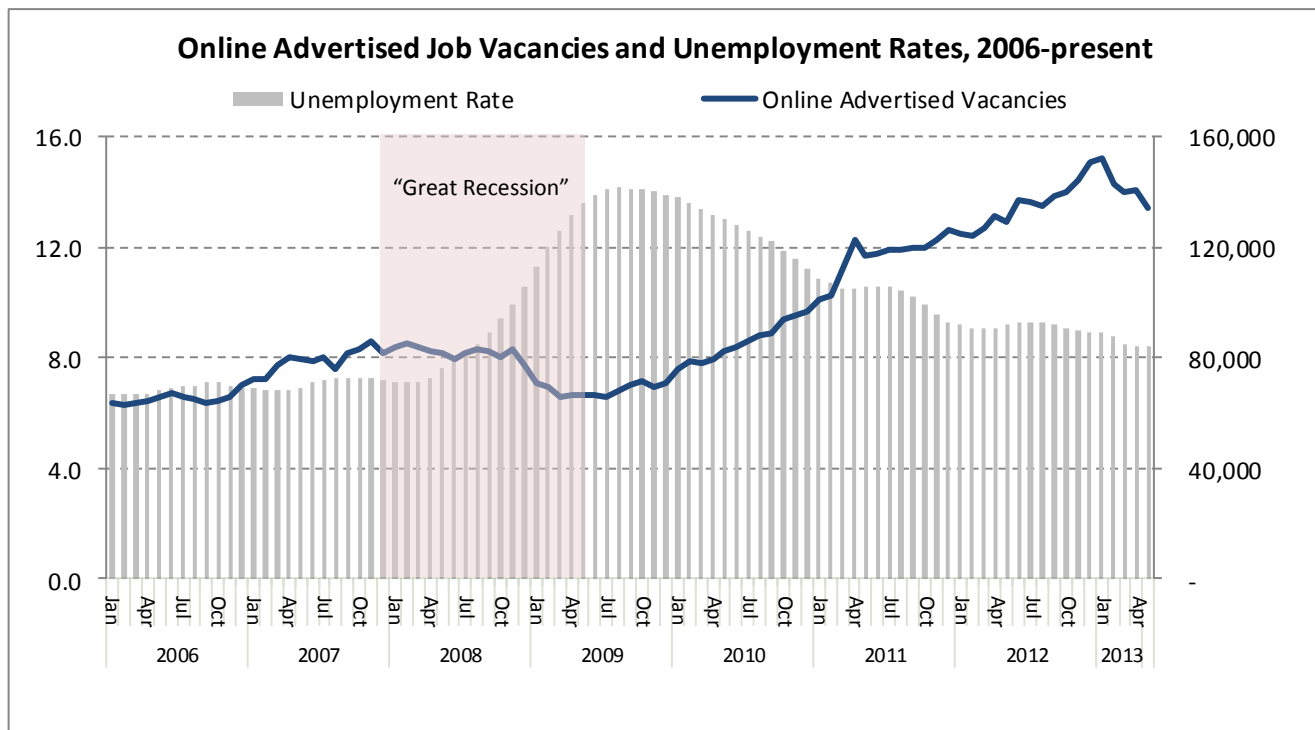


## Real-Time Demand: Online Advertised Job Vacancies

Jason Palmer

The Conference Board's Help Wanted Online (HWOL) Database provides a key measure of real-time labor demand in the state's job market. The Bureau of Labor Market Information and Strategic Initiatives, through a partnership with The Conference Board, uses the HWOL Database to supplement traditional labor market information, providing insights into the characteristics of real-time labor demand. This indicator highlights the nature of online job demand today, and analyzes some key occupational categories that have seen increased advertising during the recent economic recovery.

- There are currently 133,500 online advertised job vacancies in Michigan. After trending downward during the Great Recession, online advertisements have rebounded significantly in the last few years, nearly doubling since June 2009. As shown in the graph below, the growth in online vacancies coincides with the decrease in unemployment rates.
- While growing demand is certainly responsible for some of the expansion in online advertisements, the increased use of the Internet for recruiting, along with a larger number of online job boards, has also contributed to this upward trend.



Source: The Conference Board, Help Wanted Online (HWOL) / DTMB

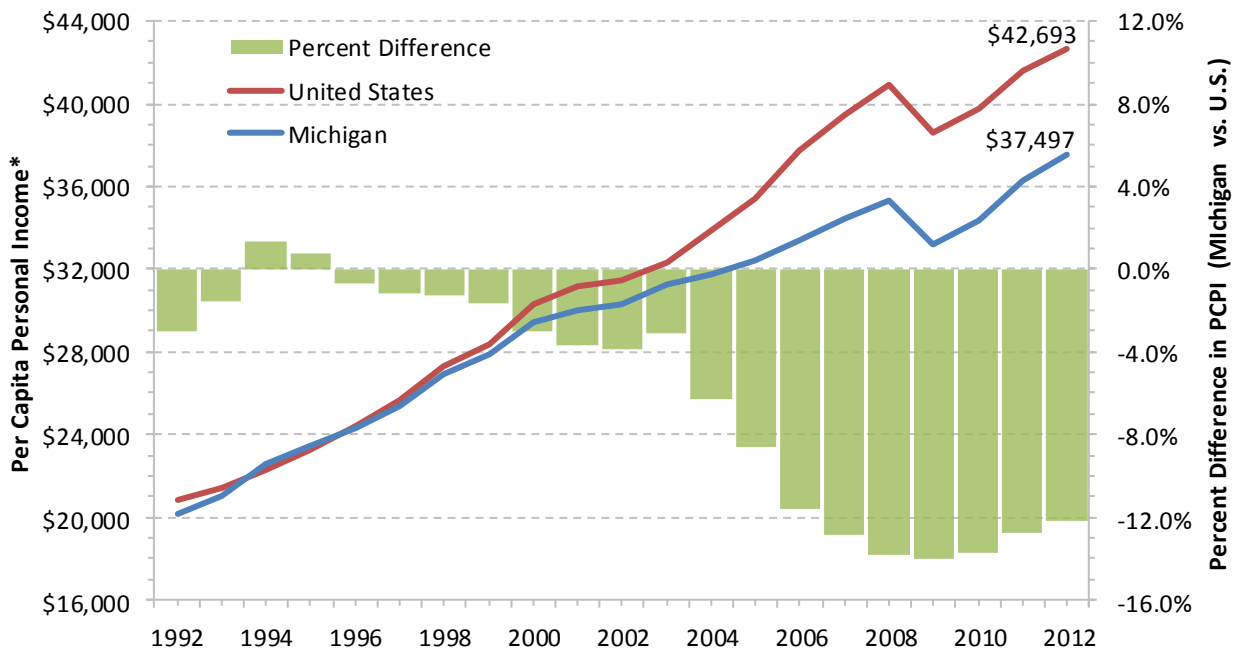
- The occupational categories with the largest gains in online advertising since the start of the economic recovery include: *Food preparation and serving, Transportation, and Computer and mathematical*. Additionally, *Production and Construction* occupations have posted solid growth, reflecting recent positive trends in the state's Manufacturing and Construction sectors.
- While 75 percent of all online advertised vacancies have been active for less than 60 days, about 1 in 8 vacancies have been posted for more than 120 days. Long-running advertisements may be a signal that employers are having a difficult time filling a vacancy. Occupations with the most long-running ads are found mainly in the *Health, Computer and mathematical, and Professional* categories.

# Per Capita Personal Income

Mark Reffitt

Personal income is a widely-used measure of the economic health of a particular geographic region. Per capita income data from the Bureau of Economic Analysis standardizes county and regional income statistics and allows for comparisons across states of different sizes. While per capita income does not address certain important issues such as overall income distribution or the demographic differences in income growth, it remains a key variable for tracking an area’s ability to maintain income growth patterns over time.

**Per Capita Income\* Levels and Percent Differences**



Source: U.S. Bureau of Economic Analysis, \*Denotes data not adjusted for inflation

o Michigan’s per capita personal income (PCPI) measured \$37,497 in 2012, a 3.4 percent increase over 2011. Nationally, personal income was roughly \$5,000 more per person, yet grew at a slightly slower rate (+2.7 percent annually) than in Michigan. Since 2009, Michigan’s per capita income rose 12.9 percent nominally compared to a 10.5 percent gain nationally during that time.

o Though Michigan’s PCPI remains well below the national average, data since 2009 suggests that the state is slowly narrowing this gap. Prior to 2000, Michigan’s PCPI mirrored the U.S average. However, Michigan’s PCPI growth lagged behind the nation from 2000-2009 due to the impact of national recessions on the Michigan economy and the restructuring of the auto industry. This PCPI gap topped out at 14 percent in 2009 before edging downward to about 12 percent in 2012.

o The recent economic rebound in Michigan’s auto sector is partially responsible for recent per capita income improvements. The state ranked 35th in PCPI in 2012, following a third consecutive year of outperforming the nation, its best placing since 2006.

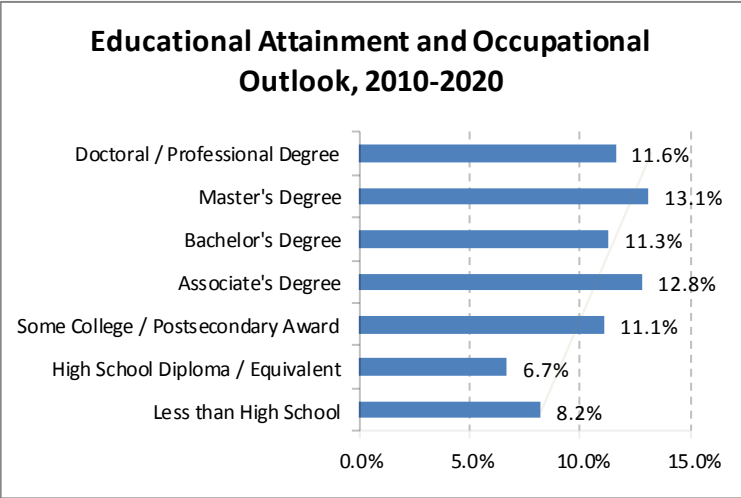
Year	PCPI Rank	Trend
2002	21	↓ 1
2003	21	No Change
2004	26	↓ 5
2005	30	↓ 4
2006	35	↓ 5
2007	37	↓ 2
2008	39	↓ 2
2009	40	↓ 1
2010	39	↑ 1
2011	36	↑ 3
2012	35	↑ 1

# Educational Attainment & Occupational Outlook and Wages

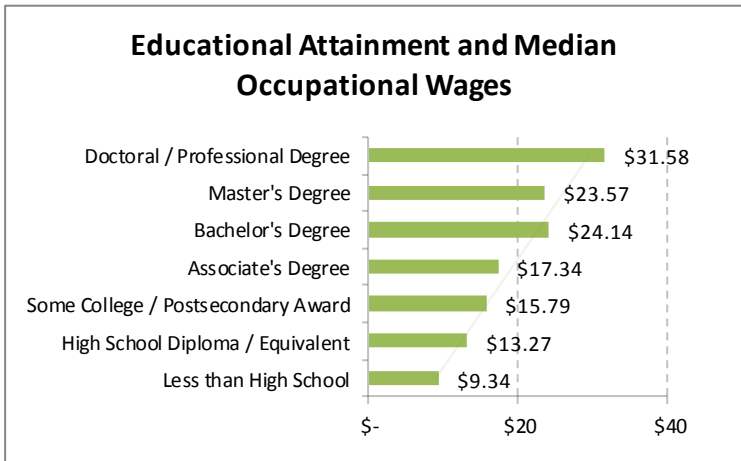
Jason Palmer

Long-Term Occupational Projections from the Bureau of Labor Market Information and Strategic Initiatives show actual and expected employment levels, rates of change, and the expected average number of job openings per year for nearly 700 job titles. One theme that emerges from these forecasts is the strong correlation between an occupation’s required education and that occupation’s anticipated growth. This indicator discusses that relationship, as well as the relationship between an occupation’s required education and that occupation’s median wages.

- According to long-term projections, employment in Michigan is expected to expand by 352,000 or 8.5 percent between 2010 and 2020. Occupations requiring a high school diploma or less will see modest growth rates compared to those requiring a postsecondary award or a college degree.
- Occupations requiring some college and beyond report anticipated growth between 11 and 13 percent. The highest growth is expected in job titles calling for a Master’s degree (13.1 percent) while the lowest is forecasted for those requiring Some college or postsecondary award (11.1 percent.) Especially strong demand in the Associate’s degree category is heavily influenced by *Registered nurses*, an occupation expected to grow by 16,800 or 19.3 percent and responsible for over half of all anticipated growth in the category.



Source: DTMB, Bureau of Labor Market Information and Strategic Initiatives



Source: DTMB, Bureau of Labor Market Information and Strategic Initiatives

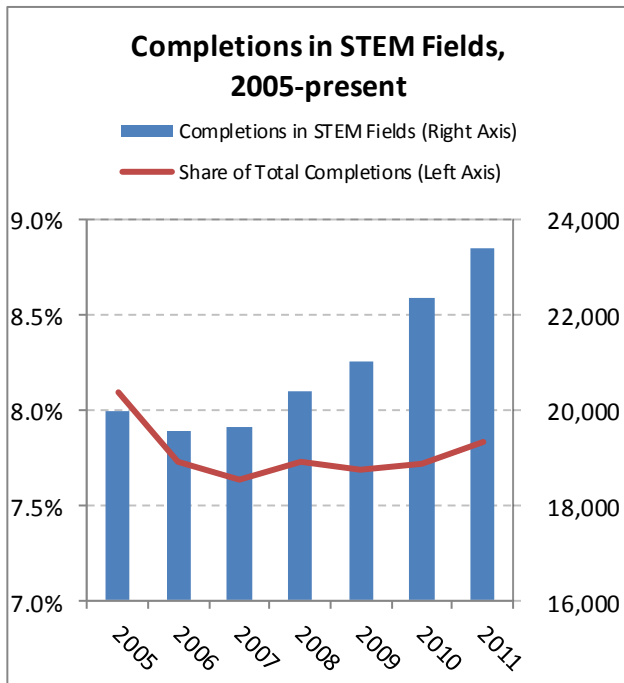
- Despite below average growth, occupations requiring a high school diploma or less will generate 210,000 new positions, more than all other categories combined. However, many of these opportunities will be in lower paying occupations sometimes associated with high turnover. (Included are titles like: *Customer service representatives, Receptionists, Medical assistants, and Sales representatives.*)
- *Health care* and *Skilled trades* occupations are among the job titles expected to grow in the Some college / postsecondary award and Associate’s categories. In the Bachelor’s category, job titles with expected demand are in *IT, Management, and Professional* while in the Master’s and Doctoral categories, growth is expected in *Social work* and *Health care* titles and in the hard sciences.
- In addition to correlating with higher job demand, occupations requiring more education earn increased median wages. According to data from the Bureau of Labor Market Information and Strategic Initiatives, occupations requiring just a high school diploma report a median wage around \$13 / hour, considerably lower than the \$24 / hour reported for those requiring a Bachelor’s degree.

# Science, Technology, Engineering, and Math (STEM) Degrees

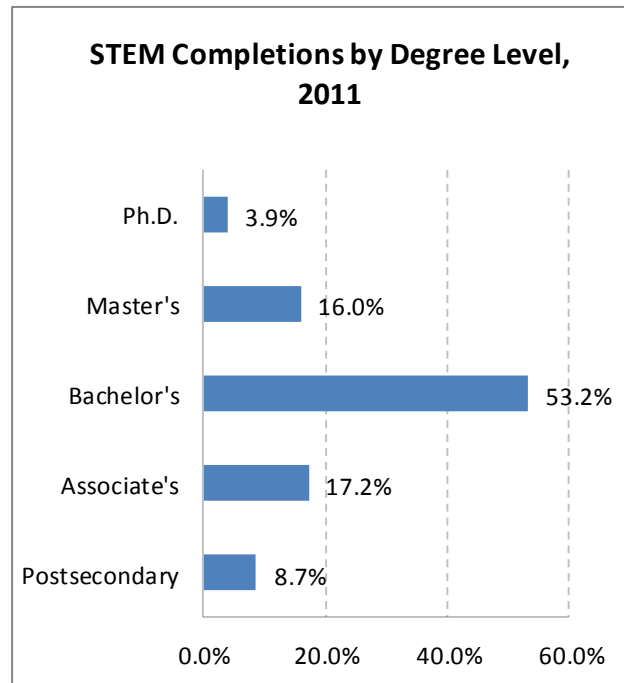
Jason Palmer and Geoffrey Okorom

Graduates from Science, Technology, Engineering, and Math (STEM) programs is an important indicator of labor supply. The Department of Homeland Security (DHS) maintains the STEM-Designated Degree Program List, which includes approximately 420 degree programs. [\(Appendix 1\)](#) This indicator tracks the number of completions from STEM programs from Michigan’s universities, colleges, and other training providers.

- During the 2010-2011 academic year, there were 23,405 completions in STEM degree programs in Michigan. The number of STEM completions continued to trend upward, but STEM completions as a share of total degrees has held stable around 7.7 percent. Increased completions in STEM programs reflects increased enrollment, generally, which has climbed since the start of the 2007 economic downturn.
- In 2011, Michigan ranked 8th out of the 50 states in terms of STEM completions and 9th in terms of total completions. Since 2005, the state’s rank for STEM completions has been in a tight band from 6th to 8th.



Source: National Center for Education Statistics



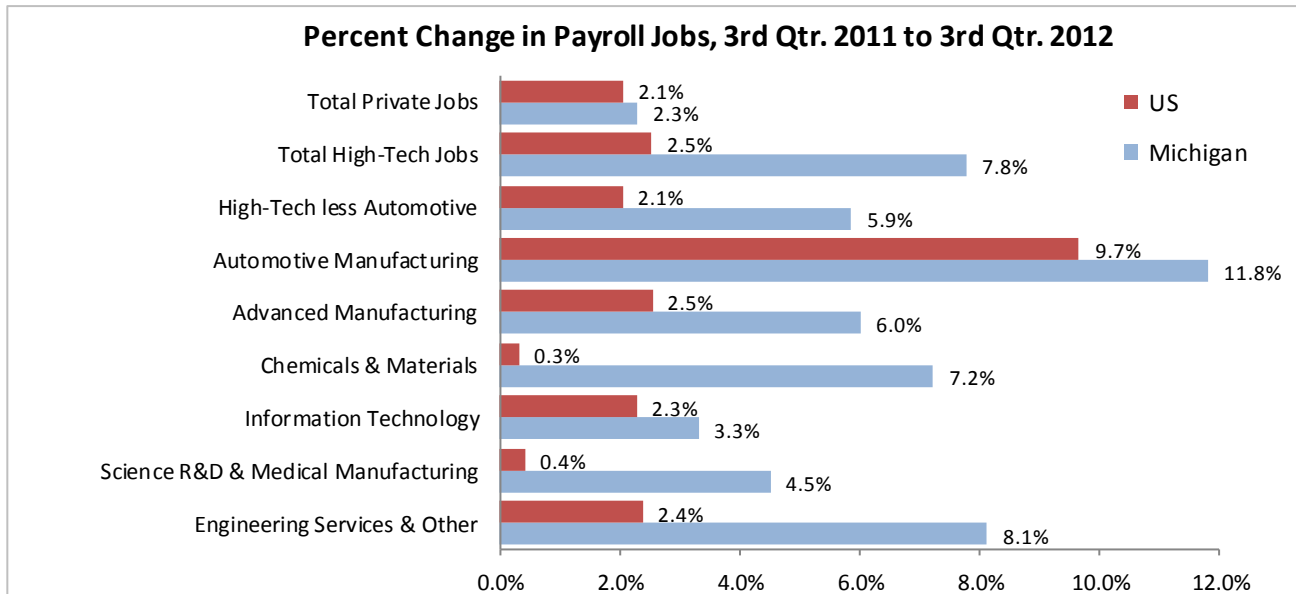
Source: National Center for Education Statistics

- The majority of STEM completions were for Bachelor’s degrees (53 percent). Roughly equal shares of STEM completions were for Associate’s and Master’s degrees while 9 percent of completions were in postsecondary certificates. The smallest share of completions (4 percent) were for doctoral degrees.
- Males continue to be overrepresented in STEM programs, earning nearly 70 percent of STEM degrees but only 40 percent of all degrees (women earn 30 percent of STEM degrees but 60 percent of total degrees). Nonresident aliens continue to take a disproportionate share of STEM degrees, as nonresident aliens earned only 3.2 percent of the total degrees but were awarded nearly 11 percent of the STEM degrees.
- In 2012, nearly 11 percent of employment in Michigan was in STEM designated occupations. According to long-term occupational projections, that number is expected to reach 13 percent by 2020. Meeting this future demand will require Michigan to have an adequate supply of workers trained in these critical STEM areas.

## Jobs in High-Tech Industries

Leonidas Murembya, PhD

Michigan’s industrial structure provides many jobs for High-Tech workers like engineers, scientists, and technical workers, all of which are found throughout the state’s economy. Michigan High-Tech jobs have been broadly categorized into sectors such as *Auto-related, Advanced manufacturing, Chemicals & materials, Information technology, Science R&D and Medical equipment, and Engineering services*. [\(Appendix 2\)](#)



Source: DTMB, Bureau of Labor Market Information and Strategic Initiatives

- Between 2011 and 2012, High-Tech jobs in Michigan expanded three times faster than the national growth rate, and outpaced the U.S. in every High-Tech cluster. Michigan created 32,700 total High-Tech jobs over this period; for a growth rate of +7.8 percent, compared to only +2.5 percent nationwide. All six High-Tech clusters in Michigan recorded job gains in 2012.
- Nearly half of the growth in High-Tech employment in Michigan during 2012 was in *Automotive manufacturing* (+16,000). *Automotive manufacturing* is a critical source for knowledge jobs in the Michigan economy, and creates many High-Tech positions for *Engineers, IT workers, Designers, Technicians, and Skilled Trades* workers. New powertrain technologies, advanced materials, and electronics and software in vehicles, along with automotive R & D associated with improved fuel efficiency and alternative fuels generate significant need for a High-Tech auto workforce in Michigan.
- Engineering and other consulting services* ranked second in Michigan High-Tech job creation during 2012, with a job gain of 8,200 or 8.2 percent, primarily from significant job expansion in *Architectural and engineering services* (+ 5,300) and in *Management and technical consulting services* (+2,700).
- High-Tech jobs in Michigan (+7.8 percent) sharply exceeded growth in Michigan private jobs (+2.3 percent). However, Michigan’s High-Tech jobs remain below pre-recessionary levels by about 7 percent.

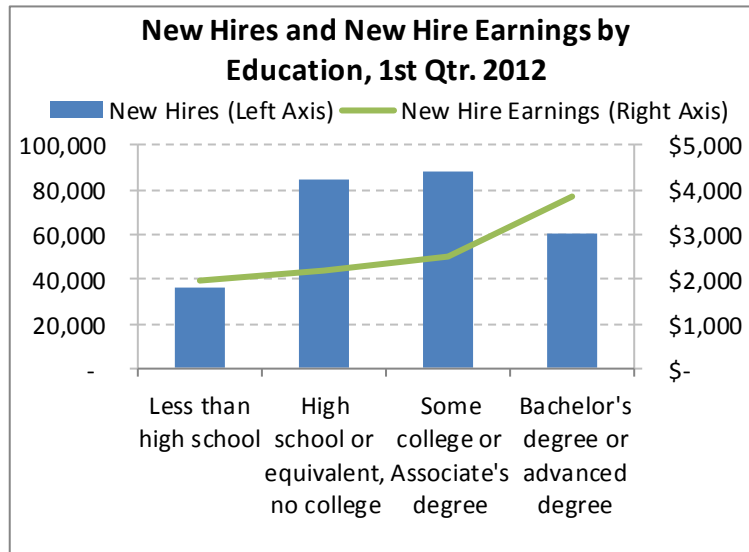
Industry Cluster	3rd Qtr. 2011	3rd Qtr. 2012	# Change	% Change
Total Private Jobs	3,342,200	3,419,400	77,200	2.3
Total High-Tech Jobs	420,400	453,100	32,700	7.8
High-Tech less Automotive	285,100	301,900	16,800	5.9
Automotive Manufacturing	135,200	151,200	16,000	11.8
Advanced Manufacturing	47,000	49,800	2,800	6.0
Chemicals & Materials	16,900	18,200	1,300	7.2
Information Technology	81,400	84,100	2,700	3.3
Science R&D & Medical	38,300	40,000	1,700	4.5
Engineering Services & Other	101,600	109,800	8,200	8.1

## New Hires and New Hire Earnings by Education

Stephen Woods

The Local Employment and Household Dynamics (LEHD) program is a voluntary state-federal partnership between state agencies and the U.S. Census Bureau. The program combines administrative records from state agencies (like the Bureau of Labor Market Information and Strategic Initiative) with demographic and socioeconomic information from the Census Bureau to produce enhanced, detailed economic statistics called Quarterly Workforce Indicators (QWI). One such QWI provides information about new hires. This indicator looks at new hires and new hire earnings by educational attainment.

- In the 1st Quarter of 2012, there were 269,400 new hires on employer's payrolls in Michigan. Of all new hires, 121,400 or 45 percent were in the "Less than high school" and "High school or equivalent, no college" groups while 148,000 or 55 percent were in the "Some college or Associate's degree" and "Bachelor's degree or advanced degree" categories.
- Average monthly earnings for new hires measured \$2,650. Hires with a Bachelor's degree or advanced degree earned more (\$3,900) than those in the other categories. The lowest earnings for new hires were for those in the Less than high school category at \$1,950 per month.



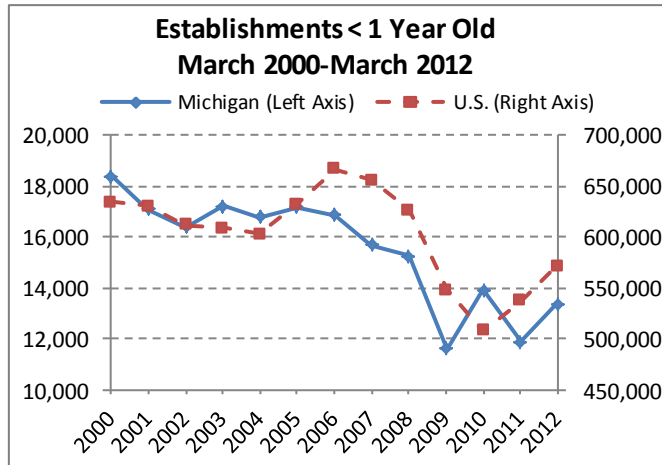
Source: U.S. Census Bureau, LEHD / DTMB

- A new hire with Some college or an Associate's degree will earn an average wage of \$2,500 per month. The *Mining* industry paid the highest average monthly wage of \$5,500 to new hires with Some college or an Associate's degree, followed by the *Water transportation and Management of companies and enterprises* industries, each with monthly earnings of \$4,400 per month.
- The *Administrative and support services* industry added the most new hires (19,130) with Some college or an Associate's degree, with average earnings of \$1,800 per month. In addition, *Food services and drinking places* was responsible for many new hires in this educational category, paying an average wage of \$1,130 per month.
- New hires with a Bachelor's degree or advanced degree earned an average wage of \$3,865 per month. The highest paying industries for new hires in this category include *Utilities* (\$7,600), *Management of companies and enterprises* (\$7,300), *Chemical manufacturing* (\$7,000), *Funds, trusts, and other financial vehicles* (\$6,900) and *Data processing, hosting, and related services* (\$6,600).
- The industry with the most new hires with a Bachelor's degree or advanced degree was *Administrative and support services* (11,000). Notably, this industry paid a relatively low monthly wage (\$2,450) for new hires with a Bachelor's degree or advanced degree. Additional industries with many new hires in the category include *Professional, scientific, and technical services*, and *Ambulatory health care services*, both with monthly earnings well above average, at \$5,900 and \$4,200, respectively.

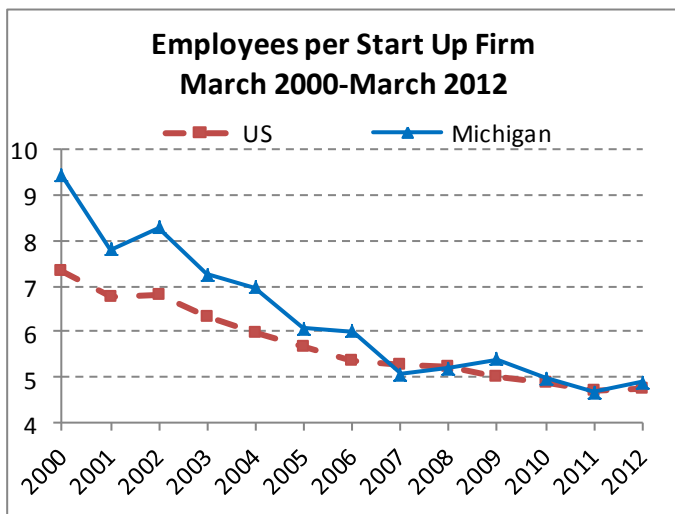
## Business Dynamics: Start-Ups and Job Creation

Aneesa I. Rashid, PhD

Business start-ups play a vital role in economic growth and job creation and create a dynamic environment, bringing innovation and new ideas. This indicator looks at the impact of the 2007 recession on new business formation in Michigan and the U.S. and the job creation potential of new businesses. How has their job creation ability fared over the last 5 years? Are they creating more jobs now than in the past? The data used is collected by the Bureau of Labor Statistics under the Business Employment Dynamics program.



Source: U.S. Bureau of Labor Statistics / DTMB



Source: U.S. Bureau of Labor Statistics / DTMB

- Over the past five years, job creation by Michigan's new businesses is tracking closely with the nation. Hiring started its decline even before the onset of the recession and has been fairly constant, though at lower levels. The decline in hiring by start-ups can be attributed to several factors: new productivity enhancing technology, more tech company start-ups, and the increased hiring of contract or temporary workers to reduce labor costs.

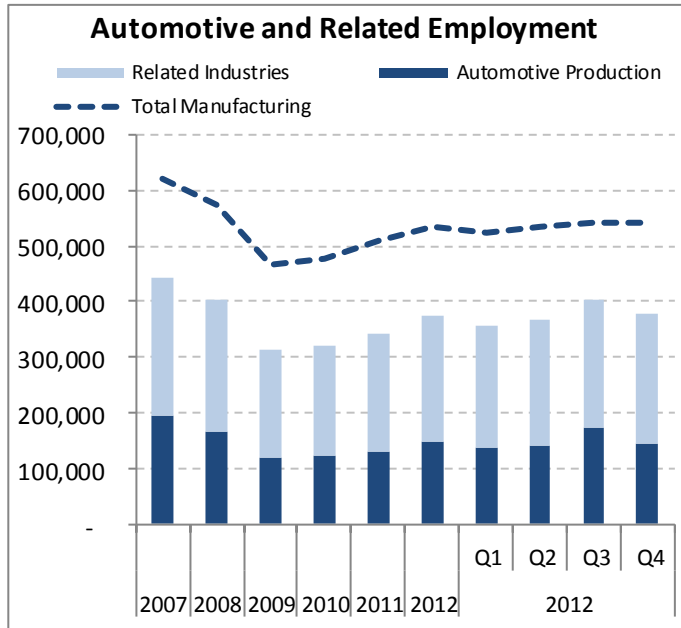
- From 2000 to 2005 an average of 17,183 new businesses were formed each year in Michigan. This number dropped by 18 percent to an average of 14,700 start-ups from 2006 to 2012. Declines in business formation started in 2006, prior to the recession and dropped by 33 percent between March 2005 and March 2009. It is still 22 percent below the 2005 level.
- Start-up activity in the U.S. began its decline in 2007, and fell by 24 percent from its peak in 2006 to the lowest level in 2010. This was the sharpest decline in new business creation since the series began. It is still 14 percent below the March 2006 peak.
- The total number of jobs created by establishments less than 1 year old in Michigan dropped from 173,400 in 2000, to 65,200 in 2012. This sharp declining trend combined with fewer new establishments has led to a drop in job creation by new establishments.
- The chart shows the average number of employees per new establishment (less than 1 year old) for Michigan and the U.S. From 2000 to 2005, Michigan start-up firms employed an average of 8 employees. This number dropped to 5 employees (-38 percent) per new establishment from 2006 to 2012. Nationally, new hires by start-ups averaged 6 employees from 2000 to 2007. Hiring dropped to an average of 5 employees from 2007 to 2012.

# Automotive and Related Employment

Robert Hayes, Jr.

Manufacturing is a major engine of growth in Michigan and the auto industry is its mainstay. Since the end of the Great Recession, Manufacturing in Michigan has posted considerable employment gains, with growth concentrated in the auto industry. [\(Appendix 3\)](#) It is noteworthy that today’s manufacturers are demanding new skills, evidenced by the industries experiencing the most growth. This indicator identifies the magnitude of employment growth in Auto-related Manufacturing, rates of job gain in selected Auto-related sectors, and briefly touches on shifts that have occurred in the skills required for employment.

- Manufacturing in Michigan has added nearly 71,000 jobs since the end of the latest recession. The *Auto Production* and *Auto-related* sectors have accounted for over 63,000 or 89 per cent of these jobs.
- Both *Auto Production* and *Auto-related* industries have displayed significant job gains since the trough of the recession in 2009, with *Auto-related* industries up by 34,500 jobs and *Auto Production* adding 28,500 jobs.
- Since 2010, fewer assembly plants and suppliers have reduced staff for the former July model changeover, as automakers have streamlined this process to maintain production.
- The third quarter of 2012 was notable in that Michigan auto sector employment reached levels not seen since 2008.



Source: DTMB / Quarterly Census of Employment and Wages

- Growth in *Auto-related* industries was fastest where STEM degree holders and other workers with technical skills are found, like *Engineering services, Research and Development, and even Tool and Die shops.*
- The recovery period (2009-2012) mirrors the over the year results, with skilled trades and engineering services among the top performers. It is likely that many of these growth industries are evolving to a more skilled occupational mix and higher levels of educational attainment among the workforce.
- The *Tool and Die* sector is another area where employment now is significantly shifting to those versed in high-tech skills used in CAD and other digital applications.

## Employment Growth in Selected Michigan Auto-Related Industries

Industry	% Change	
	Year (2011-2012)	Recovery (2009-2012)
Industrial Mold Manufacturing	10%	19%
Special Die and Tool, Die Set, Jig, and Fixture Manufacturing	12%	22%
Engineering Services	10%	21%
Testing Laboratories	6%	17%
Research and Development in the Physical, Engineering, and Life Sciences	7%	8%
Motor Vehicle Supplies and New Parts Merchant Wholesalers	7%	17%

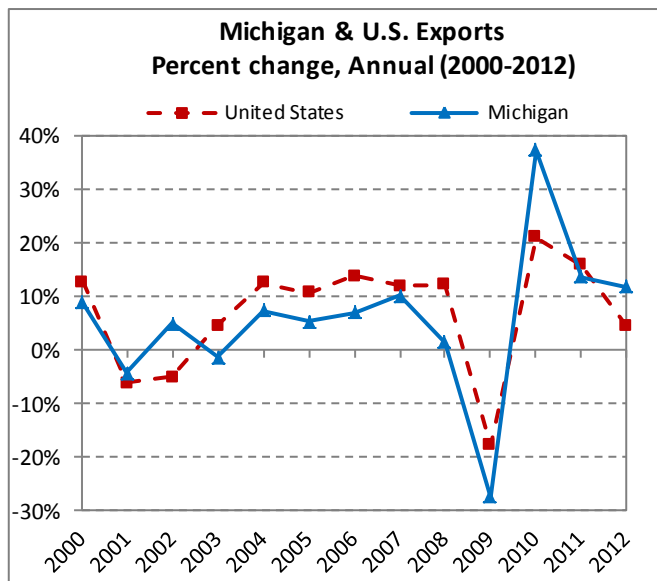
Source: DTMB / Quarterly Census of Employment and Wages



# Exports and Jobs

Aneesa I. Rashid, PhD

Exports have a major impact on jobs and economic activity and for this reason states compete to increase their share of exports. This indicator looks at the growth in Michigan exports by product and the countries that buy them. The primary products exported from Michigan are auto related and high tech, requiring a skilled workforce with STEM degrees. Studies show that jobs in export industries also have higher earnings.



Source: International Trade Administration, Census Bureau

- Michigan’s shipments of merchandise exports totaled \$56.9 billion in 2012 placing it eighth nationwide. This represented a growth of 12 percent, over 2011, outpacing the U.S. (+4 percent). Michigan’s share of total U.S. exports increased from 3.1 percent in 2009 to 3.7 percent in 2012.
- Export growth for Michigan continued into the 1st quarter 2013, increasing by 2 percent over the same time period last year. Nationally there was no change.
- A total of 14,814 companies exported from Michigan in 2011, an increase of 32 percent over 2009. 90 percent of these companies were small and medium size businesses (less than 500 employees) and accounted for 22 percent of total merchandise exports (up from 18 percent in 2009).

- How do these exports translate into jobs in Michigan? From estimates done by the U.S. Census Bureau in 2009, manufactured exports accounted for 6.4 percent of private sector jobs and more than a quarter of total manufacturing jobs in Michigan. Estimates for *Primary metals* and *Fabricated metals* showed over 30 percent of jobs to be export related. Manufactured exports in 2012 have grown by 78 percent since 2009, therefore having a large impact on jobs. National estimates for 2012 show that jobs supported by exports increased by 1.3 million since 2009.
- Canada is Michigan’s largest trading partner with 44.5 percent of merchandise exports. However, trade with Saudi Arabia grew by 55 percent in 2012 with *Transportation equipment* making up 94.5 percent of its demand. Below are tables showing growth in our top manufactured exports and in manufactured goods exports to Michigan’s top 5 export partners. Growth in Michigan exports have outpaced the nation in all five.

## Growth in Michigan's Top Manufacturing Exports

Industry	2012 (millions)	Growth 2009-2012
Total all Manufactured Goods	\$53,583	78%
Transportation Equipment	\$29,197	107%
Machinery, Except Electrical	\$5,168	63%
Chemicals	\$4,358	26%
Primary Metal Manufacturing	\$2,809	33%
Computer And Electronic Products	\$2,589	53%
Fabricated Metal Products	\$1,862	86%

Source: International Trade Administration, Census Bureau

## Growth in Manufactured Exports to Michigan's Top 5 Trading Partners

Country	Growth 2011-2012		2012 Rank - Value of Exports	
	MI	U.S	MI/States	US/Countries
Canada	9%	5%	1st	1st
Mexico	17%	10%	3rd	2nd
China	22%	3%	5th	3rd
Germany	11%	-2%	7th	6th
Saudi Arabia	55%	33%	2nd	20th

Source: International Trade Administration, Census Bureau

# What's New from LMISI?

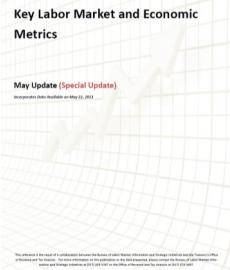
The *Michigan Economic and Workforce Indicators and Insights* report is just one of the many publications by the Bureau of Labor Market Information and Strategic Initiatives. Serving a diverse group of customers, our products range from workforce data to customized products and publications. Highlighted below are some of our more recent projects. These and more can be found on our website at: [www.michigan.gov/lmi](http://www.michigan.gov/lmi).

## Employment and Occupations in the Skilled Trades in Michigan



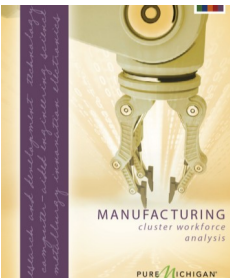
This study explores several dimensions of Skilled Trades occupations, including employment and earnings, job requirements and readiness, and current and projected demand. A detailed methodology sections highlights some key characteristics of Skilled Trades and non-Skilled Trades occupations. A proposed list of Skilled Trades job titles is provided.

## Key Labor Market and Economic Metrics



A collaboration with the Michigan Treasury's Office of Revenue and Tax Analysis, this reference provides current and historical data on several labor market metrics, including: labor force, employment, unemployment, and industry jobs, as well as metrics related to the broader economy, including: motor vehicle sales, retail sales, and oil prices. Updated monthly.

## Workforce Cluster Reports



Produced for the State's five workforce clusters (Agriculture, Energy, Health Care, IT, and Manufacturing), these brochures provide workforce developers, economic developers, and other stakeholders with a wide-array of cluster-specific labor market information, including measures of labor supply and labor demand.

## Regional Online Job Demand Analysis



The Bureau of Labor Market Information & Strategic Initiatives uses The Conference Board's Help Wanted OnLine® (HWOL) Data Series to provide the state's 25 Michigan Works! Areas (MWAs) with real-time online job demand profiles. These profiles include information on total online job advertisements as well as online job demand by occupation, industry, and education and training.

What's New from LMISI

## Appendix 1: STEM Programs, Defined

### Classification of Instruction Program (CIP) Codes for Science, Technology, Engineering, and Math (STEM) Degrees

CIP Code	CIP Title
1	Agriculture, Agriculture Operations, and Related Sciences*
3	Natural Resources and Conservation*
4	Architecture and Related Programs*
9	Communication, Journalism, and Related*
10	Communications Technologies / Technicians and Support Services*
11	Computer and Information Sciences and Support Services
13	Education*
14	Engineering
15	Engineering Technologies / Technicians
26	Biological and Biomedical Sciences
27	Mathematics and Statistics
28	Reserve Officer Training Corps (JROTC, ROTC)*
29	Military Sciences*
30	Multi/Interdisciplinary Studies*
40	Physical Sciences
41	Science Technologies / Technicians
42	Psychology*
43	Security and Protective Services*
45	Social Science*
49	Transportation and Materials Moving*
51	Health Professions and Related Clinical Sciences
52	Business, Management, Marketing, and Related Support Services*

**Source:** The Department of Homeland Security (DHS)

**Notes:** \*Select Programs

Full list of STEM Programs available at: <http://www.ice.gov/doclib/sevis/pdf/stem-list.pdf>

## Appendix 2: High-Tech Industries, Defined

### High-Tech Industries

NAICS Code	2007 NAICS U.S. Title
<b><i>Automotive Manufacturing Cluster</i></b>	
3361	Motor Vehicle Manufacturing
3362	Motor Vehicle Body and Trailer Manufacturing
3363	Motor Vehicle Parts Manufacturing
<b><i>Advanced Manufacturing Cluster</i></b>	
3329	Other Fabricated Metal Manufacturing
3331	Agriculture, Construction and Mining Machinery Manufacturing
3333	Commercial and Service Industry Machine Manufacturing
3336	Engine, Turbine and Power Transmission Equipment Manufacturing
3339	Other General Purpose Machinery Manufacturing
3345	Navigational, Measuring, Electromedical, Control Instrument Manufacturing
3353	Electrical Equipment Manufacturing
3359	Other Electrical Equipment and Compound Manufacturing
3364	Aerospace Product and Parts Manufacturing
3369	Other Transportation Equipment Manufacturing
<b><i>Chemicals &amp; Materials Cluster</i></b>	
3241	Petroleum and Coal Products Manufacturing
3251	Basic Chemical Manufacturing
3253	Pesticide, Fertilizer and Other Ag Chemical Manufacturing
3255	Paint, Coating and Adhesive Manufacturing
3256	Soap, Cleaners and Toilet Preparation Manufacturing
3259	Other Chemical Product and Preparation Manufacturing
<b><i>Information Technology Cluster</i></b>	
3341	Computer and Peripheral Equipment Manufacturing
3342	Communications Equipment Manufacturing
3343	Audio and Video Equipment Manufacturing
3344	Semiconductor and Other Electronic Component Manufacturing
3346	Manufacturing and Reproducing Magnetic and Optical Media
5112	Software Publishers
5171	Wired Telecommunication Carriers
5172	Wireless Telecommunication Carriers (Except Satellite)
5174	Satellite Telecommunications
5179	Other Telecommunications
5182	Data Processing, Hosting, and Related Services
51913	Internet Publishing and Broadcasting and Web Search Portals
5415	Computer Systems Design and Related Services
<b><i>Science R&amp;D &amp; Medical Manufacturing Cluster</i></b>	
3254	Pharmaceutical and Medicine Manufacturing
3391	Medical Equipment and Supplies Manufacturing
5417	Science R & D Services
<b><i>Engineering Services &amp; Other Cluster</i></b>	
4234	Professional and Commercial Equipment & Supplies Merchant Wholesalers
5413	Architectural, Engineering and Related Services
5416	Management, Scientific, and Technical Consulting Services

**Source:** DTMB, Bureau of Labor Market Information and Strategic Initiatives (LMISI)

## Appendix 3: Automotive and Related Employment, Defined

### Automotive Manufacturing and Related Industries

NAICS Code	2012 NAICS U.S. Title
<b>Automobile Production</b>	
3361	Motor Vehicle Manufacturing
3362	Motor Vehicle Body and Trailer Manufacturing
3363	Motor Vehicle Parts Manufacturing
336992	Military Armored Vehicle, Tank, and Tank Component Manufacturing
<b>Automobile Related Industries</b>	
326121	Unlaminated Plastics Profile Shape Manufacturing
326199	All Other Plastics Product Manufacturing
326211	Tire Manufacturing (except Retreading)
326220	Rubber and Plastics Hoses and Belting Manufacturing*
326291	Rubber Product Manufacturing for Mechanical Use
327211	Flat Glass Manufacturing
331111	Iron and Steel Mills
331511	Iron Foundries
332510	Hardware Manufacturing*
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing
333511	Industrial Mold Manufacturing
333514	Special Die and Tool, Die Set, Jig, and Fixture Manufacturing
333515	Cutting Tool and Machine Tool Accessory Manufacturing
333618	Other Engine Equipment Manufacturing
334514	Totalizing Fluid Meter & Counting Device Manufacturing*
335110	Electric Lamp Bulb and Part Manufacturing*
335911	Storage Battery Manufacturing*
423110	Automobile and Other Motor Vehicle Merchant Wholesalers
423120	Motor Vehicle Supplies and New Parts Merchant Wholesalers
423130	Tire and Tube Merchant Wholesalers
423830	Industrial Machinery and Equipment Merchant Wholesalers
425110	Business to Business Electronic Markets*
425120	Wholesale Trade Agents and Brokers*
541330	Engineering Services
541380	Testing Laboratories
541712	Research & Development in Physical, Engineering, and Life Sciences (except Biotech)**
55111	Management of Companies and Enterprises*

**Source:** DTMB / with assistance from the Center for Automotive Research (CAR)

**Notes:** \* Partial employment

\*\* Estimated

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