

**THE ECONOMIC OUTLOOK FOR
WASHTENAW COUNTY
IN 2015–17**

Prepared by

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The Economic Outlook for Washtenaw County in 2015–17

By GEORGE A. FULTON, research professor, and DONALD R. GRIMES, senior research area specialist, Institute for Research on Labor, Employment, and the Economy, University of Michigan

Introduction

As in many of the thirty years we have been preparing these reports on the county, the current situation for the Washtenaw economy is mostly sunny, although a few clouds drifted in last year. Since the county economy hit rock bottom in the summer of 2009, it has trended upward in the years from 2010 to 2013. Job growth steamed ahead at a brisk pace of 2.1 percent per year, supported in part by a reinvigorated auto industry. Job gains throughout the current recovery have been well above those achieved on average over the prior growth period of the 1990s. County job growth has also outpaced that of the nation and the state during the current recovery period.

But now for the clouds. Job growth ratcheted down in 2014 to 0.6 percent, and a retrenching local auto industry this time was a contributor to the slowdown. For some residents, of course, it did not feel as if Washtenaw's economy was decelerating in 2014, as consumer confidence overall was on the upswing. The clouds were in plain view for others, however, confirming their belief that the recovery left them behind. The unemployment rate continues to fall, but it came in at a still-too-high 4.8 percent for 2014, and real wage growth has been disappointing, either declining or growing by a very small amount depending on the year and occupation.

So, the central question in all of this is whether 2014 is a pause in the pace of job growth, or a foreshadowing of a general slowdown into 2015 and beyond. A related question is whether the unemployment rate will continue to fall, and if so, by how much, so that more of Washtenaw's residents can be vested in the recovery. Our response to these questions is, as it

has been over the past twenty-nine years, our central focus in this report. Also important to economic well-being is whether wage growth will gain any traction, and for the first time we take a stab at answering this question in our forecast package. Also, we explore the relationship of economic success, be it measured by employment or wages, to educational attainment.

The local forecast is generated from a regional model constructed specifically for this study at the University of Michigan's Institute for Research on Labor, Employment, and the Economy. The regional model uses as inputs national economic indicators from the University's Research Seminar in Quantitative Economics in the Department of Economics.

Before considering our perspective on how the Washtenaw County economy will evolve through 2017, we first take a look at 2014, to learn more about what kind of year it was and to gauge how well we anticipated developments as that year began.

Review of the Forecast for 2014: A Report Card

A year ago (March 19, 2014), we presented our twenty-ninth annual economic outlook for Washtenaw County (coterminous with the Ann Arbor metropolitan area). Last year's forecast of employment, unemployment, and inflation for 2014 can now be compared with estimates of the outcome for that year, to see how accurate our forecast was.

Last March, we forecast that 2014 would see continuing healthy job growth for the county, but expanding at a slightly slower pace than was posted for 2013. It now turns out that by our current estimate, our forecast for 2014 was too strong; the county's job growth slowed significantly to a relatively modest 0.6 percent in 2014. This amounted to a forecast error of 1.1 percent on the high side, as recorded in table 1. Our average error over the past twenty-nine years is 0.7 percent, or seven workers per 1,000, so we were a little above that marker for 2014.

Table 1
Report Card:
Track Record over the Years

Year of forecast	Percentage forecast error for total jobs
1986	-1.4
1987	-0.8
1988	-1.2
1989	-0.6
1990	+0.8
1991	+1.4
1992	+0.5
1993	+1.3
1994	n.a.
1995	+0.2
1996	+0.3
1997	+0.4
1998	-0.5
1999	0
2000	0
2001	+0.3
2002	+0.3
2003	+1.0
2004	+0.2
2005	+0.4 (estimate)
2006	+0.7
2007	0
2008	+0.6
2009	+1.0
2010	-2.3
2011	-0.6
2012	-0.4
2013	0
2014	+1.1

(Positive numbers indicate that the forecast was too high;
negative, too low.)

Average absolute forecast error 1986-2014: 0.7%

	Forecast 2014	Actual 2014
Unemployment rate	5.7%	4.8%
Consumer inflation rate	1.2%	1.2%

Forecast date: March 2014

The largest discrepancy in industry job performance between what we anticipated a year ago and what transpired for 2014 occurred in motor vehicle manufacturing. We foresaw a modest increase in auto manufacturing employment in 2014 for the county, similar to what turned out for the state as a whole. Instead, auto employment in Washtenaw plunged by a totally unexpected 16.7 percent, partly reflecting the closings of a few parts suppliers in the area. The loss erased all of the job gains achieved in the four years following the industry's low point in the county in 2009. This is an example of how difficult it is to forecast at this level of detail for a small, open economy such as Washtenaw County, where the activities of just a few firms can have a very notable effect on the aggregate numbers.

The observed and forecast numbers for the unemployment rate and the local consumer price inflation rate in 2014 are reported at the bottom of table 1. Last year we forecast a small drop-off in the unemployment rate for 2014, to 5.7 percent. Even with weaker payroll (establishment) employment growth than we were forecasting for 2014 a year ago, the unemployment rate for Washtenaw swooped down to 4.8 percent as some local residents found jobs in neighboring communities and others became self-employed.

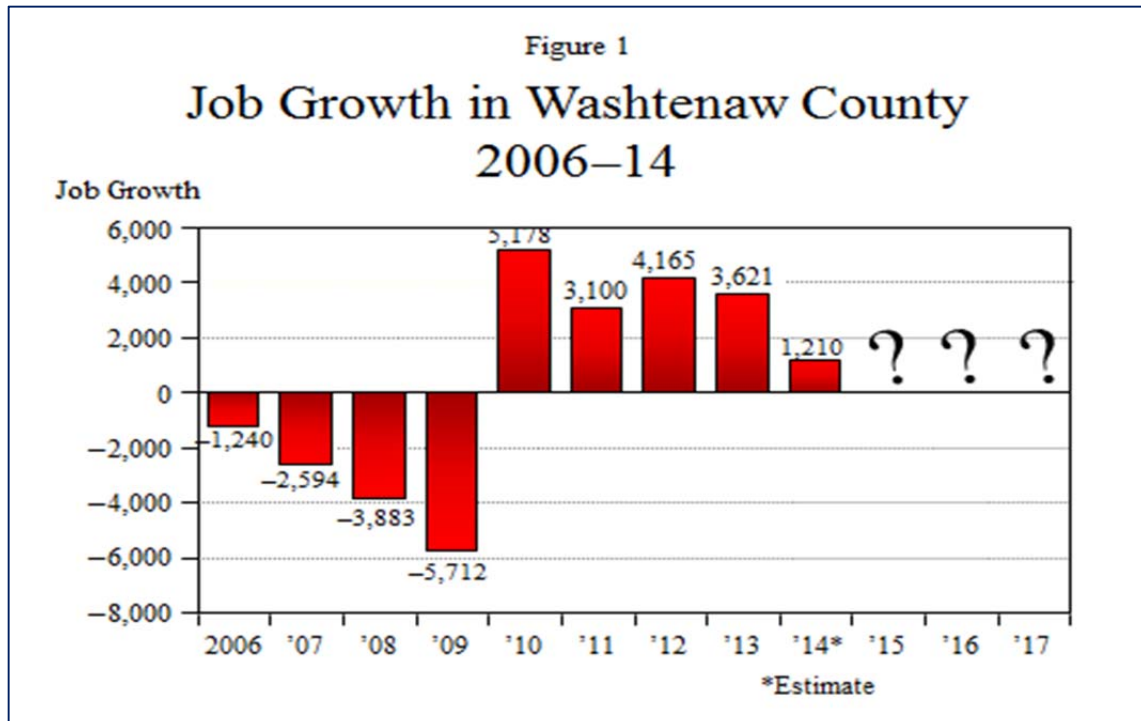
For the second year in a row, we hit the bull's eye in forecasting local inflation, which came in at 1.2 percent for 2014, precisely the rate we had forecast a year ago.

This review gives us a glimpse of an economy continuing to expand in 2014, but at a slower pace (job growth of 0.6 percent) than over the four previous years (growth averaging 2.1 percent per year). We need to take a more detailed look at the current state of the economy, however, before we anticipate developments beyond 2014.

The Current State of Washtenaw County's Economy

Employment Path of the Washtenaw County Economy

What we have learned from the report card for 2014 is that the county economy continued to expand in 2014, albeit at a slower pace than in the years of healthy growth from 2010 to 2013. As shown in figure 1, in 2014 Washtenaw County registered its fifth calendar year of economic recovery, as measured by net annual job growth, following four calendar years of shrinkage. After very modest job gains in 2004 and 2005 (1,241 jobs over two years), the county suffered job losses at an accelerating pace from 2006 to 2009, hitting bottom in the unforgettable year of 2009 with a loss then of 5,712 jobs. This low point was a culmination of the national Great Recession, bankruptcy proceedings for both General Motors and Chrysler, and the repercussions locally of Pfizer's departure.



By 2010, Washtenaw turned the corner to return to positive growth, creating 16,064 jobs in the four years from 2010 to 2013, a brisk pace of 2.1 percent per year. The gains over those

four years, amounting to 4,016 jobs per year, exceed by a wide margin the average yearly additions of 2,720 jobs in the prior growth era from 1991 to 2002.

The gains in 2014 are estimated to have slowed to 1,210 job additions with the retrenchment of certain industries, led by the auto industry. The question is whether 2014 is simply a pause in the recent pace of job growth due to special circumstances, or a foreshadowing of a general slowdown in the economy into 2015 and beyond. This question is addressed in the local forecast section of the paper.

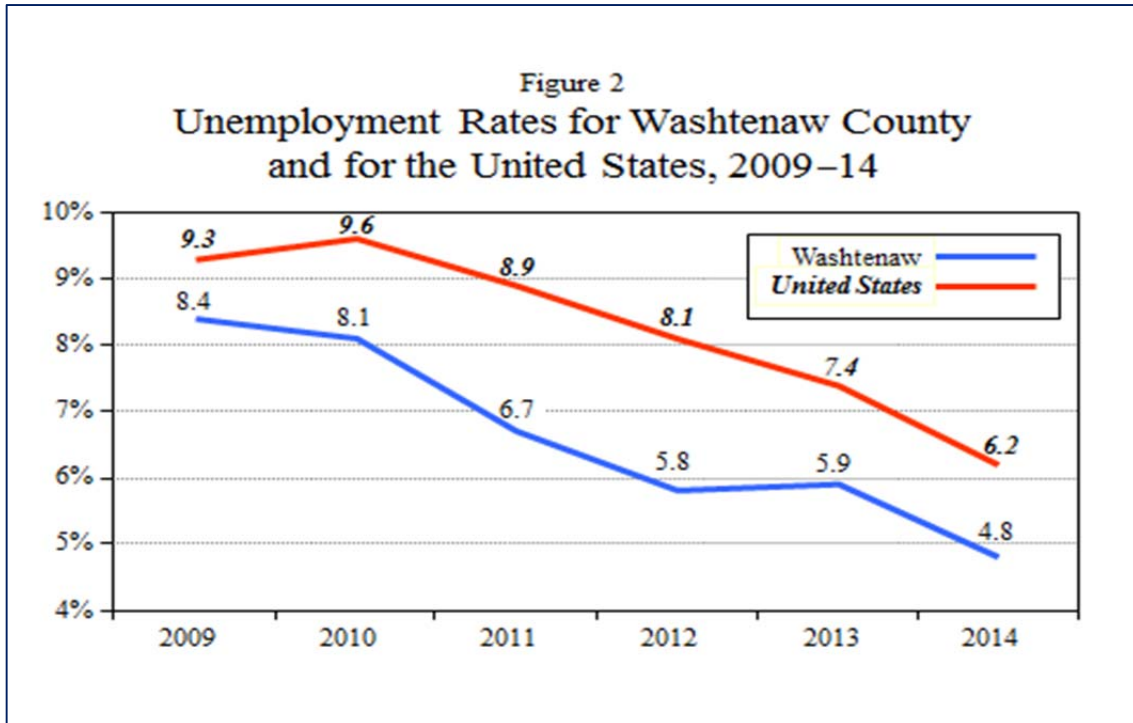
The top job producers in the recovery from 2009 until 2014 have been state government (public higher education and the U-M Health System); leisure and hospitality; professional, scientific, and technical services; manufacturing other than autos; private health services; and financial activities.

Next up is a consideration of the unemployed in the current recovery.

Unemployment Path of the Washtenaw County Economy

The performance of Washtenaw's economy can also be evaluated with unemployment as the measure. The path of the county's yearly unemployment rate from 2009 to 2014 is shown in figure 2. (Note that the rate is for the county, and should not be confused with the rate for the city of Ann Arbor.) The rate for the United States is included for comparison.

The unemployment rate for Washtenaw County peaked in 2009 at 8.4 percent. From then through 2014, the jobless rate shrank with the recovery in the local labor market, first slightly in 2010, to 8.1 percent, and then more sharply in 2011 and 2012, to 6.7 percent and 5.8 percent, respectively. After leveling out in 2013, the rate dropped precipitously again in 2014, to 4.8 percent. The decline in the rate observed in 2010 was due in part to discouraged workers leaving



the labor force, which officially removes them from the count of the unemployed. By 2011, movements in the local labor force turned positive, first minimally and then more vigorously, as a greater number of residents sought out expanding job opportunities.

These county unemployment numbers can be put into context in two ways. First, if we compare the outcomes over time for the county, we find that the rate for 2014 has returned to the annual reading last registered in 2007, but it still exceeds the rate of 3.6 percent averaged between 1990 and 2007.

Second, if we compare rates geographically, we find that Washtenaw does compare favorably with the United States, as shown in figure 2. Washtenaw's unemployment rate fell much more precipitously between 2009, when the county rate was nine-tenths of a percentage point below the U.S. rate, and 2012, when the gap was 2.3 percentage points in the county's favor. In 2013, the gap narrowed to 1.5 percentage points and then narrowed further to 1.4 percentage points in 2014.

Even though the county's unemployment rate is dropping, many Washtenaw residents feel as if the recovery has left them behind. One aspect of their economic well-being is the wages they earn. Next we investigate how real wages vary across different levels of educational attainment and over time.

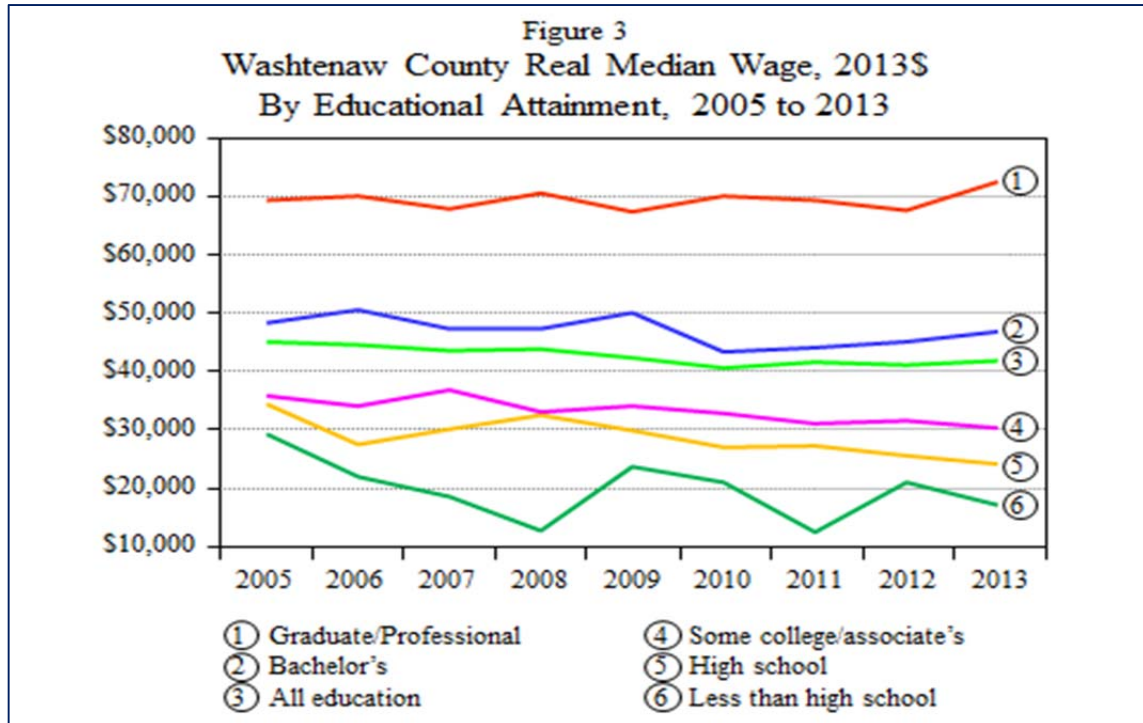
Median Wage by Educational Attainment

The median wage¹ across different levels of educational attainment is shown in table 2 and figure 3. The data are adjusted for inflation using the regional Consumer Price Index and are expressed in 2013 dollars. The measures are for the entire county and include all individuals aged 25 and older who have earned wages, both full-time and part-time. The data in the last two lines of table 2 show the average year-to-year change in the inflation-adjusted median wage, both in dollars and in percentage change, estimated using a time-trend regression over the period 2005 to 2013.

Table 2
Washtenaw County Real Median Wage for Those Aged 25+, 2013\$
By Educational Attainment, 2005 to 2013

	All Education	Less Than High School	High School	Some College/ Associate's Degree	Bachelor's Degree	Graduate/ Professional Degree
2005	\$44,861	\$29,215	\$34,473	\$35,707	\$48,243	\$69,062
2006	44,284	21,776	27,531	34,015	50,542	69,799
2007	43,470	18,539	30,052	36,591	47,303	67,531
2008	43,720	12,664	32,460	33,045	47,365	70,327
2009	42,219	23,539	29,927	33,943	49,997	67,167
2010	40,574	20,896	27,018	32,757	43,348	69,870
2011	41,372	12,525	27,280	31,121	44,164	69,014
2012	41,096	20,786	25,567	31,472	45,058	67,360
2013	41,740	17,083	24,157	30,423	46,829	72,207
Real wage, 2013\$, change per year:						
\$	-490	-922	-969	-667	-540	130
%	-1.1	-4.7	-3.4	-2.0	-1.1	0.2

¹ The median wage is what the person who is exactly in the middle of the income distribution is earning.



As can be clearly seen in table 2, the typical worker in Washtenaw County is making substantially less today after adjusting for inflation than he or she was making a few years ago. The real median wage for all workers declined by \$490, or 1.1 percent, per year between 2005 and 2013.

Not all workers fared equally. Those with less education saw their real wage fall much more than those with more education, and those with the most education enjoyed a small increase. The median worker with only a high school education saw a real wage decline of \$969, or 3.4 percent, per year (those without a high school diploma suffered an even larger percentage decline, 4.7 percent per year); while the real wage for a typical worker with a graduate or professional degree increased by \$130, or 0.2 percent, per year. In 2005, the typical worker in Washtenaw County with a graduate degree earned about twice as much as someone with only a high school diploma (\$69,062 compared with \$34,473), but by 2013 the graduate degree was worth three times as much (\$72,207 compared with \$24,157). The returns to education are

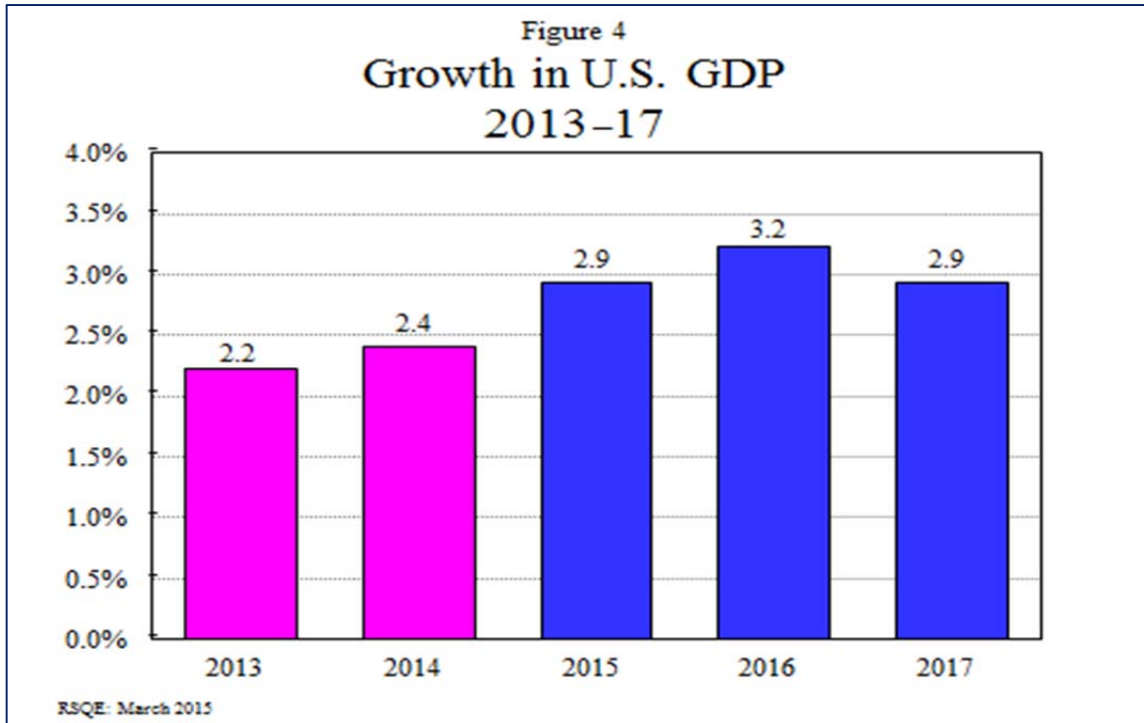
substantial and increasing, and are a major cause of the growing inequality not only in the county but all across the country.

Washtenaw operates within a broader economic environment that has ramifications for our outlook for the county. As we extend our analysis into the future, we start with a summary of the national outlook.

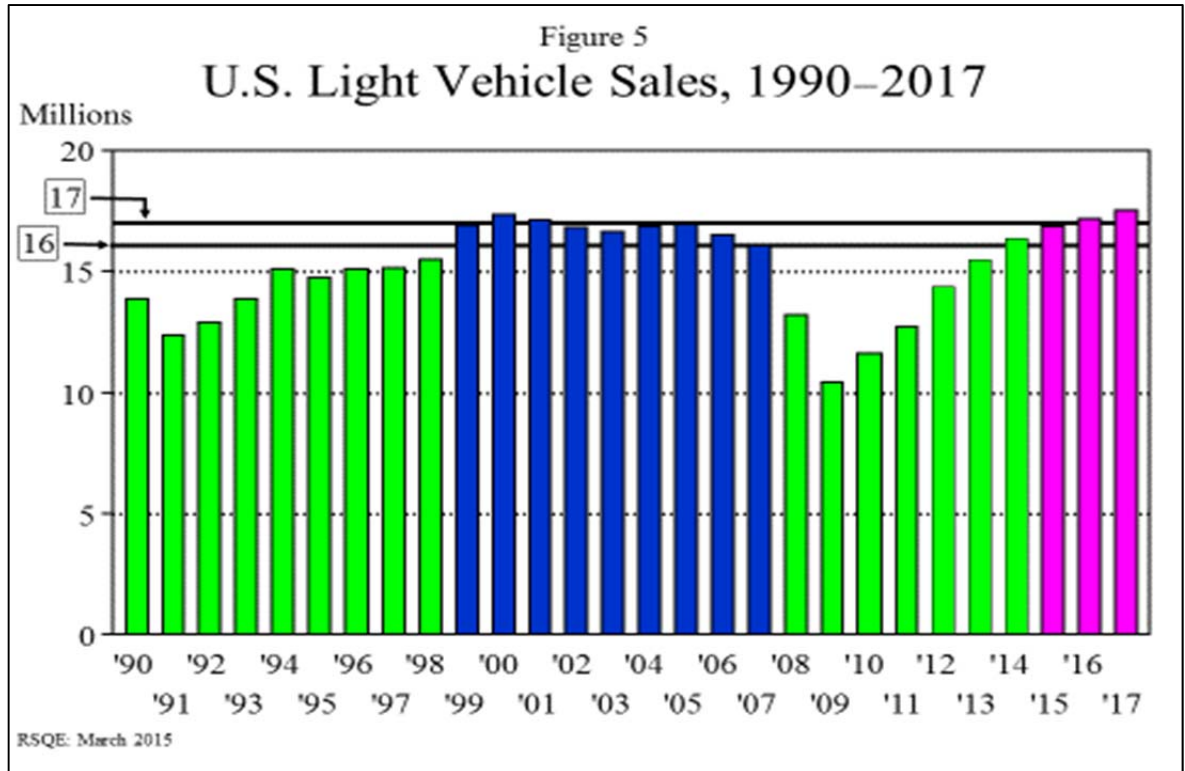
National Outlook: 2015–17

The future course of the Washtenaw County economy depends in part on the overall health of the national economy. Forecasts of economic indicators for the U.S. economy in 2015–16 are from a forecast prepared in March 2015 by Daniil Manaenkov and Matthew G. Hall of the Research Seminar in Quantitative Economics (RSQE) at the University of Michigan, who also provided internally generated extensions of the forecast to 2017. The national outlook is summarized in figures 4–6 by two economic indicators key to the Washtenaw economy.

The best single measure of the U.S. economy is inflation-adjusted, or real, Gross Domestic Product (GDP): all of the goods, services, and structures produced in the economy. As shown in figure 4, real GDP growth averaged 2.4 percent in 2014. Growth in real GDP then ramps up to average 2.9 percent in 2015 and 3.2 percent for 2016, the first annual reading above 3 percent since 2005. Consumption growth is a primary contributor, responding in part to some acceleration in income growth. The housing sector also contributes to the progress of growth, especially in 2016, and business investment remains strong. On the other hand, with the strong value of the dollar, net exports make a negative contribution to growth. Real GDP growth then tapers off a bit in 2017, to 2.9 percent.

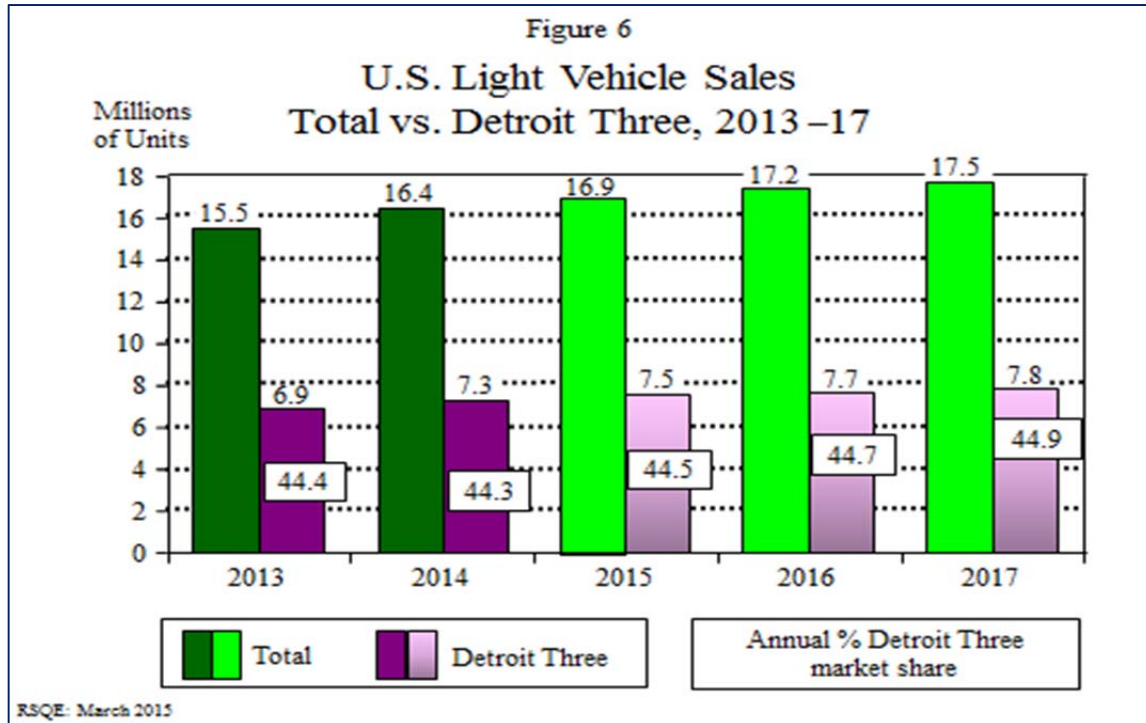


Another important input to the outlook for Washtenaw is the national vehicle sales forecast. From a longer-term perspective, sales of U.S. light vehicles—cars, minivans, sport utility vehicles, crossovers, and pickup trucks—were in the range of 16 to 17+ million units sold annually from 1999 to 2007, as shown in figure 5. Sales then retreated to 10.4 million units by 2009, and have increased in excess of one million units each year since then until 2013, reaching 15.5 million units in that year. The industry crossed the 16 million line in 2014, checking in at 16.4 million units sold, the highest annual level in eight years. In our forecast, we move upward from there. Pent-up demand continues to be a significant factor in the climb: the average age of vehicles on the road today is still at record levels, vehicle sales remain historically low relative to the driving-age population, and the potential exists for higher participation of younger drivers in the market as the economy continues to improve.



From a shorter-term perspective, after moving up from 15.5 million units in 2013 to 16.4 million in 2014, U.S. light vehicle sales rise to 16.9 million in 2015 and increase further to 17.2 million in 2016 and 17.5 million by 2017, as shown in figure 6. The sales forecast for 2016 would be the highest annual level in sixteen years, and the projection for 2017 would set an all-time record for a calendar year.

We see the Detroit Three's share of the light vehicle market drifting up from 44.3 percent in 2014 to 44.9 percent by 2017. The projections for total sales and the Detroit Three's share of that market, taken together, yield our outlook for Detroit Three sales, which move up progressively from 7.3 million units in 2014 to 7.8 million by 2017. This path reflects a slower rate of increase over the next three years compared with recent history, however. Detroit Three sales rose by 900,000 units over the two years from 2012 to 2014, almost twice the cumulative gain of 500,000 units we are forecasting over the next three years combined.



We now turn to our view of the prospects for the county economy through 2017.

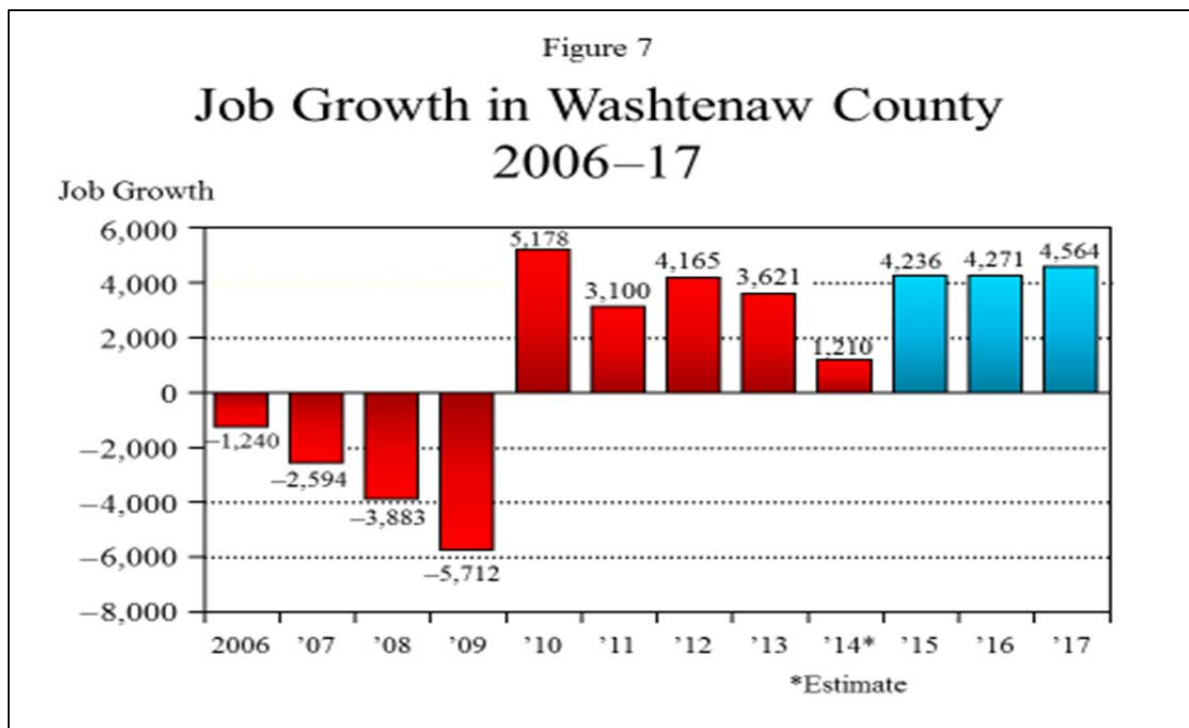
Washtenaw County Outlook: 2015–17

The economic outlook for Washtenaw County through 2017 is measured using information on employment, unemployment, inflation, and the real wage. First, we evaluate the county's prospects for job growth in total, putting that in context with recent job market developments.

The Washtenaw County economy is now well into its sixth year of recovery since the previous recession's low point in the summer of 2009. To date, the recovery has been healthy, adding 17,274 jobs from calendar years 2009 to 2014, a growth rate of 1.8 percent per year. Over that same period, the county's job growth outpaced both the nation's (1.2 percent per year) and Michigan's (1.3 percent per year).

The pace of job growth moderated in 2014, settling back to add 1,210 jobs, the smallest annual gain during the current recovery. We view this simply as the local economy catching its

breath to absorb adjustments by certain sectors before returning to cruising altitude. Specifically, we see the economic fundamentals in place to support the continuation of a healthy recovery through 2017, extending its span to eight years, with job growth averaging a solid 2.1 percent per year over the next three years. As shown in figure 7, we are forecasting that the county will add a total of 13,071 jobs over the next three calendar years, and at an accelerating pace: 4,236 in 2015, 4,271 in 2016, and 4,564 in 2017. Washtenaw's recovery is supported by a U.S. economy that continues to expand through 2017, as well as by the county's strong economic fundamentals.

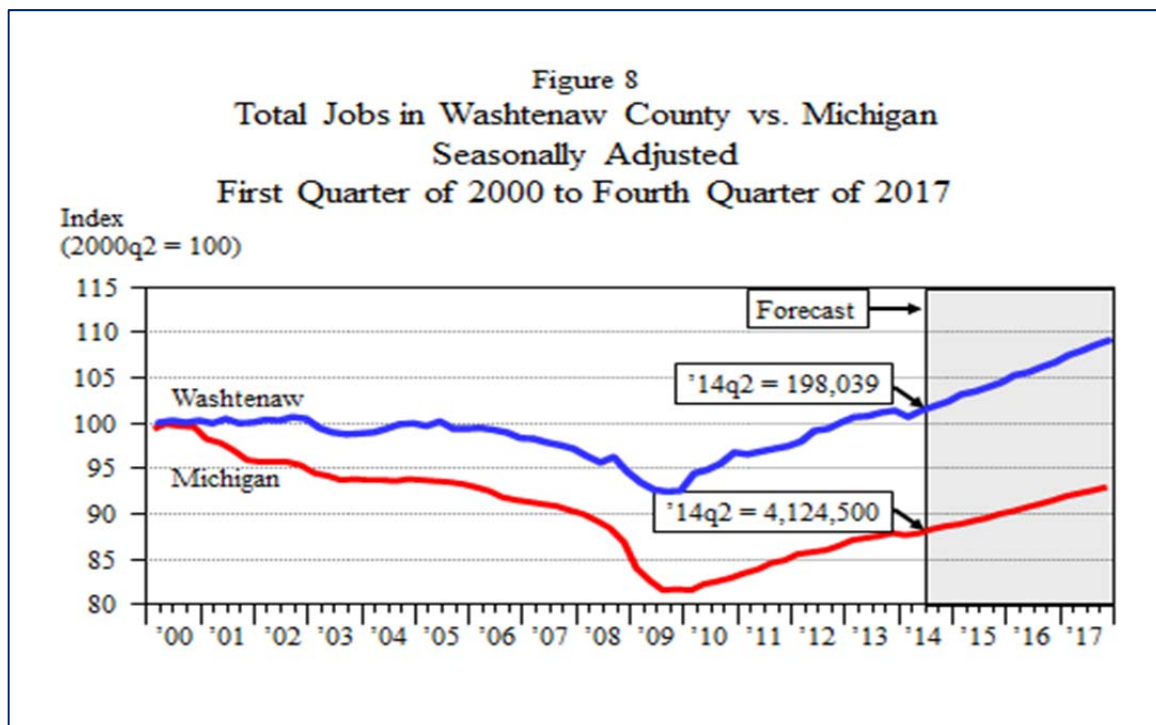


The job additions in each of the next three years will be well above the 2,720 jobs per year gained on average during the prior growth period between 1991 and 2002. Indeed, there is no eight-year period since 1990 that can match the 30,345 jobs created from 2009 to 2017, if our forecast proves correct.

To put the current recovery, including the forecast period, in broader historical context, we now consider how much ground the Washtenaw economy is making up from 2009 through 2017 relative to what it lost in the preceding decline. Here we assess Washtenaw's progress

measured from its previous economic peak in the summer of 2002—a challenging benchmark considering the severity of the past downturn.

The quarterly path of total jobs from the start of 2000 to the end of 2017, adjusted for seasonal variations, is shown in figure 8, which summarizes in a nutshell Washtenaw’s recent economic history and our view of its near-term future. For comparison purposes, we include the same profile for Michigan, with both the county and state employment paths indexed to equal 100 in the second quarter of 2000, representing Michigan’s previous peak employment level. Using index values permits us to compare on the same figure two regions with widely different employment scales. To clarify: an index value of 90 indicates that employment in the relevant period is 90 percent of its level in the base period (in this case, the second quarter of 2000), that is, it’s 10 percent less than the base period value. An index value of 110 indicates a level of employment that is 10 percent higher than its level in the base period.

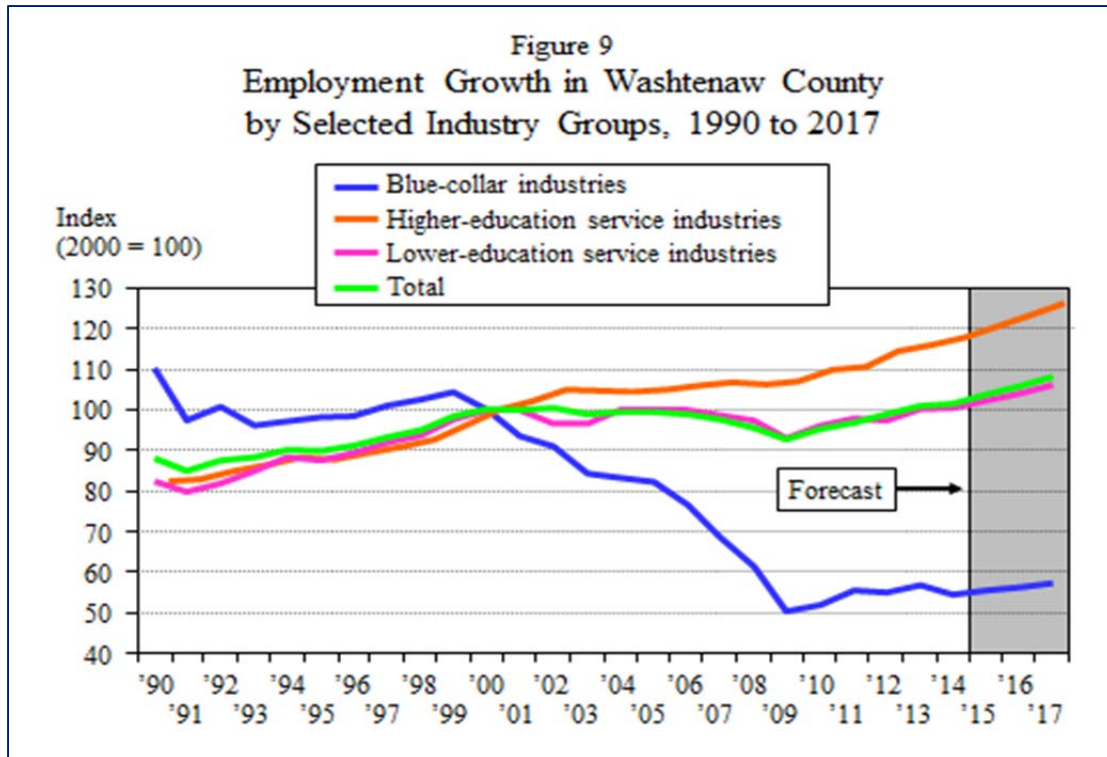


From its peak employment quarter in the summer of 2002 (index value of 100.4) to its trough in the summer of 2009 (92.2), the county lost 16,080 jobs, 62 percent of them occurring in the two-year period spanning the summer quarters of 2007 to 2009. Then the recovery follows: from the low point in the third quarter of 2009 to the first quarter of 2013 (100.4), Washtenaw gained 16,078 jobs—thus replenishing all of the jobs lost, in number, between the summers of 2002 and 2009. From then to the end of 2017 (108.8), we are forecasting that the county will create an additional 16,502 jobs, thus cumulating to 32,580 job additions from the bottom of the downturn through 2017 (16,078 + 16,502).

In contrast, the state as a whole is forecast to fall well short of the employment level enjoyed at its peak in the spring of 2000 (100) by the end of 2017. The employment decline in the state was much more precipitous from the spring of 2000 to the summer of 2009 (an index value of 81.7 compared with Washtenaw's 92.2). Washtenaw's recovery has also been more vigorous from the summer of 2009 to date, and the gap is expected to continue to widen over the forecast period through 2017 (108.8 for the county compared with 93.0 for the state in the fourth quarter of 2017). By the end of 2017, we are forecasting that the state will replenish 62 percent, or about five in eight, of the jobs lost, in number, from the spring of 2000 to the summer of 2009. That would return the state to the job levels it posted at the beginning of 2006, leaving it with still more ground to be made up.

The employment data for Washtenaw County shown in figure 8 are converted to annual averages and extended back in time to 1990 in figure 9; the employment values are indexed so that the level of employment in 2000 is set equal to 100. Figure 9 also includes similarly scaled employment index values for three broad industry categories: (1) traditional blue-collar industries such as manufacturing, construction, mining, and transportation; (2) higher-educational-attainment service-providing industries such as government, health services,

professional services and corporate headquarters, wholesale trade, financial activities, and information services; and (3) service-providing industries that tend to employ workers with lower educational attainment such as retail trade, leisure and hospitality services, business services such as temporary help services, and the miscellaneous other services category, which includes repair and personal services.



There are three notable features in figure 9. First, the total employment series and the lower-educational-attainment service-providing industries tend to follow the same path. The lower-educational-attainment service-providing industries account for less than 25 percent of total employment in the county, so it is not scale that causes these two series to move together so closely, but instead that the lower-education service industries are economically supported by the other sectors.

Second, the higher-educational-attainment service-providing industries have tended to show steady growth throughout the twenty-eight-year period shown in figure 9. In 1990, this

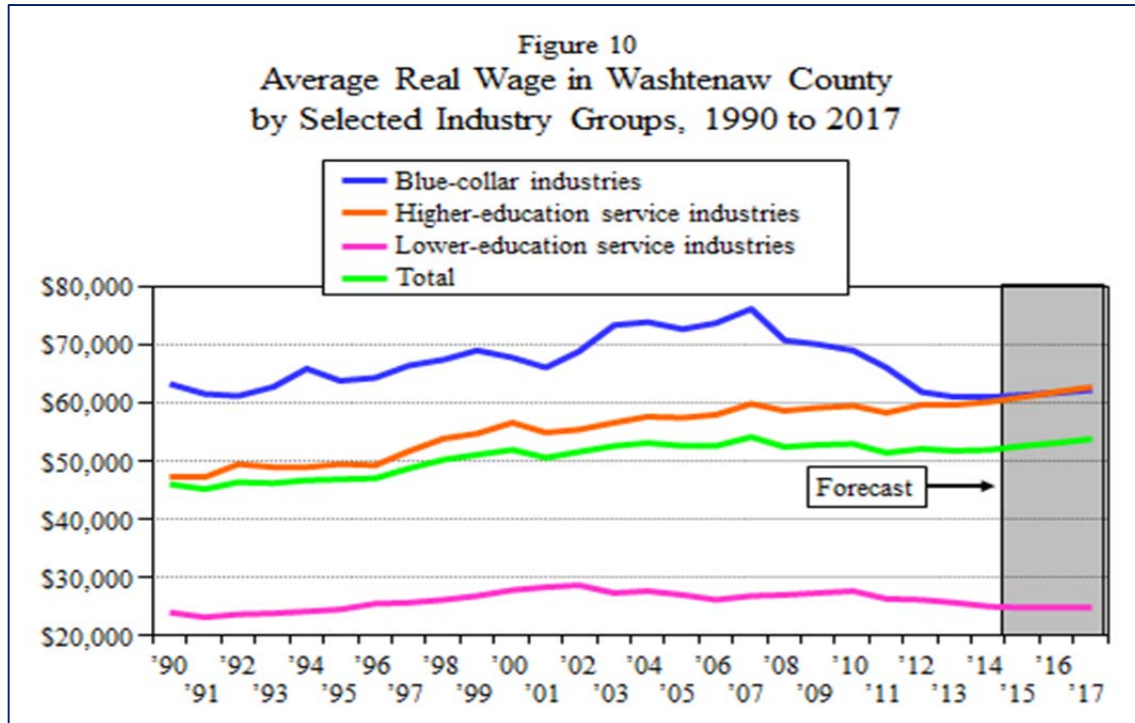
aggregate category—which includes the University of Michigan and its Health System as well as local K-12 schools, Washtenaw Community College, and Eastern Michigan University—accounted for only slightly more than half of the jobs in the county (53 percent); by 2017 we expect that these industries will account for almost two-thirds (66 percent) of jobs in the county.

Third, while employment in the blue-collar industries has enjoyed a modest rebound during the current recovery (since 2009), these gains pale in comparison with the job losses between 1999 and 2009. We are forecasting that by 2017 these blue-collar industries will employ only 57 percent of the number of people they employed in 2000, with little prospect of returning anytime soon to anywhere near 2000 employment levels.

The average real wage (2013 dollars) in Washtenaw County between 1990 and 2017 is shown in figure 10. This is the first time we have attempted to forecast the average wage in the county, but given the importance of this measure, and the degree of interest it has generated, we decided it should be addressed.² Note that the average wage shown in figure 10 is both higher and has grown faster than the median wage shown in table 2 and figure 3. In 2013, the median wage was \$41,740 whereas the average wage was \$51,867, and the average trend growth between 2005 and 2013 was –1.1 percent per year for the median wage, but –0.3 percent per year for the average wage. The average is higher than the median because of the skewed distribution of wages, which is bound at zero on the low end, but has a long tail on the upper end representing higher-income workers. When wage gains are concentrated at the higher end, as they have been recently, the growth in the average also tends to exceed growth in the median.

The wage data in both figure 3 and figure 10 show the same pattern of wage gains with respect to the educational attainment of workers, however. Workers in higher-educational-attainment service industries have seen increases in their real wage—trend growth of 0.3 percent

²The wage series are averages per worker, and do not include variations in hours worked, a measure that is not available to us in the detail we would require. This is likely less of a consideration over the longer term.



per year between 2005 and 2013—compared with a decline of 0.4 percent per year for workers in lower-educational-attainment service industries and 2.5 percent per year for blue-collar industries over the same period. The sharp decline in the blue-collar industries largely reflects the severe drop in the average real wage in the local automotive industry from a peak of \$111,699 in 2007 to \$65,890 in 2013 (both in 2013\$). Much of this decline signifies the transformation of the local auto industry. Whereas it was once dominated by General Motors and Ford or their affiliates such as Visteon, there is now a much larger presence of companies that are independent of the Detroit Three and which pay much lower wages, although still higher than the average wage overall in the county.

Following a small increase in 2014 (0.4 percent), we are forecasting that the average real wage in the county will increase by 1.1 percent per year between 2014 and 2017. This growth in the real wage reflects both the “bonus” from a sharp fall-off in inflation in 2015, and a tightening of the labor market due to a declining unemployment rate that should put more pressure on

wages.³ Despite these forecast gains, the average real wage in the county in 2017 is expected to remain slightly below (\$320 or 0.6 percent below) the 2007 peak value.

The wage gains are forecast to benefit primarily those working in the higher-educational-attainment service industries, where the average wage is anticipated to grow at a rate of 1.3 percent per year between 2014 and 2017. Workers in the blue-collar industries are projected to see real wage growth of 0.7 percent per year, mostly because of wage growth in the construction industry, whereas real wages in the lower-educational-attainment service industries are expected to continue to decline by 0.1 percent per year. It is possible that the recently announced wage increases by some of the larger retail chain stores such as Walmart, Marshalls, and T.J. Maxx could generate a more favorable outcome for the lower-educational-attainment service industries, but competitive market pressures could limit the real wage gains among those industries.

The projected job movements shown in total in figure 7 are distributed among twenty-three major industry divisions in table 3, and into 174 finer divisions in the appendix. The detail for the employment forecast presented in table 3 includes, for each industry, the level of employment in 2014 (including two quarters of preliminary data); the forecast change for 2015, 2016, and 2017; and the cumulative change over the three-year period 2014–17. The table also includes the average annual wage for each industry category in 2013, as does the appendix.⁴

³Current wage growth data also have been biased downward in two ways: (1) baby boomers entering retirement and being replaced by younger workers at lower salaries, and (2) the long-term unemployed accepting lower wages.

⁴The historical employment data are from the Bureau of Labor Statistics Quarterly Census of Employment and Wages. The average annual wage includes both full- and part-time workers, weighted equally. Consequently, the average wages for industries that employ a disproportionately large number of part-time workers, such as retail trade and leisure and hospitality, are much lower than they would be if the wages were calculated only for full-time workers.

Table 3
Forecast of Jobs in Washtenaw County by Major Industry Division*
2015–17

	Estimate 2014	Employment Change				Average Annual Wage 2013
		'14 – '15	'15 – '16	'16 – '17	'14 – '17	
TOTAL JOBS (Number of persons)	198,445	4,236	4,271	4,564	13,071	\$51,867
(Annual percentage change)	0.6	2.1	2.1	2.2		
TOTAL PRIVATE	123,600	2,523	2,899	3,151	8,573	49,571
GOODS-PRODUCING	17,645	271	251	240	762	59,648
Natural resources, mining, construction	3,681	97	109	108	314	52,436
Manufacturing	13,964	174	142	132	448	61,361
Motor vehicles	4,109	8	12	14	34	65,890
Other manufacturing	9,856	166	130	118	414	59,066
PRIVATE SERVICE-PROVIDING	105,955	2,252	2,647	2,911	7,810	47,843
Trade, transportation, and utilities	23,801	420	482	523	1,425	40,782
Wholesale trade	4,527	102	119	143	365	65,541
Retail trade	16,082	213	242	256	711	27,532
Transportation, warehousing, and utilities	3,192	105	120	124	349	68,741
Information	4,360	67	69	87	223	76,919
Financial activities	6,507	59	137	116	312	62,196
Professional and business services	25,049	921	911	932	2,764	69,579
Professional, scientific, and technical	14,686	642	676	703	2,020	86,359
Management of companies and enterprises	809	9	2	-4	7	167,414
Administrative support and waste management	9,554	271	234	233	737	35,459
Private education and health services	25,256	453	632	784	1,869	48,332
Leisure and hospitality	15,985	281	315	343	939	16,507
Other services	4,775	46	102	126	273	28,138
Unallocated private services	222	5	0	0	5	57,856
GOVERNMENT	74,845	1,713	1,372	1,414	4,498	55,752
State government	59,450	1,549	1,231	1,258	4,038	56,363

*Some subtotals do not add to totals due to rounding of annual average computations.

Washtenaw County is forecast to add 4,236 jobs (2.1 percent) in 2015, a substantial improvement from 2014 when the county gained only 1,210 jobs (0.6 percent). This heightened rate of job growth is forecast to be sustained in 2016 and 2017, cumulating to an increase of 13,071 jobs over the three-year period.

The goods-producing sector lost jobs in 2014, but is expected to turn around and start growing again in 2015. Over the forecast period the goods-producing sector is projected to add only 762 jobs (4.3 percent). Within the sector, the strongest growth is forecast to occur in the construction industry with a gain of 297 jobs or 8.6 percent (the very small natural resources and mining industries add 17 jobs over this period).

The manufacturing sector, which is estimated to have lost 694 jobs in 2014, is forecast to add only 174 jobs in 2015 (1.2 percent), and to decelerate from there, contributing a total of 448 jobs between 2014 and 2017. This will leave employment in manufacturing still below 2013 levels.

The loss of manufacturing jobs in 2014 occurred because of a severe decline (823 jobs for a drop of 16.7 percent) in the transportation equipment (motor vehicle) manufacturing industry. These job losses include the closure of a few motor vehicle parts manufacturing facilities. While we don't expect these job losses will continue, we are forecasting only a very modest gain (34 jobs) in motor vehicle manufacturing employment over the next three years. This reflects the more mature stages of the recovery overall and the smaller anticipated increase in Detroit Three light vehicle sales moving forward.

The manufacturing sector other than motor vehicles is doing somewhat better. It added 129 jobs in 2014 and is forecast to gain an additional 414 jobs over the next three years. Within the manufacturing sector, the largest job gains between 2014 and 2017 occur in machine shops (108), computer and electronic product manufacturing (73), plastics product manufacturing (65),

and chemical manufacturing (50). The printing industry loses 42 jobs over the next three years, as electronic media continues to displace hard-copy books and other printed material.

The manufacturing jobs “boom” following the Great Recession appears to have come and gone, at least as far as Washtenaw County is concerned.

Job growth in the private service-providing sector accelerates, adding 2,252 jobs (2.1 percent) in 2015, 2,647 (2.4 percent) in 2016, and 2,911 (2.6 percent) in 2017—a major improvement over its performance in 2014, when it added only 130 jobs (0.1 percent).

The wholesale trade industry adds 365 jobs (8.1 percent) from 2014 to 2017. These businesses sell merchandise to other businesses, not to the general public, and they tend to be some of the highest-paying establishments.

The transportation and utilities industries are forecast to add 349 jobs (10.9 percent) over this period. Like the wholesale trade industry, these industries tend to pay very well, especially the utilities industry.

The retail trade industry, which includes some of the lowest-paying businesses, adds 711 jobs (4.4 percent) over the forecast period. Even this relatively weak job growth is a substantial improvement over recent history, when retail tended to lose jobs even while the total number of jobs in the local economy was growing. We are forecasting that by 2017 employment in retail trade will still be slightly below pre-recession levels. Within this industry, the largest job gains are in grocery stores (340), building material and garden supply stores (52), and gasoline stations (42). Department stores and book stores continue to lose jobs.

The information sector is projected to add 223 jobs over the next three years. While newspaper and book publishers and telecommunications continue to shed jobs over the period, these losses are more than offset by gains in software publishing (176 jobs or 11.3 percent) and

other information services, including Internet publishing and web search portals (196 or 16.3 percent).

The financial activities sector adds 312 jobs between 2014 and 2017. These job gains do not include the anticipated improvement in the local residential real estate industry because almost all real estate agents are self-employed and thus are not counted in the data on establishment employment shown here.

Professional, scientific, and technical services expand by 2,020 jobs, or 13.8 percent, over the forecast period. This relatively high-wage industry (average annual wage of \$86,359 in 2013) is at the core of the knowledge economy. It includes industries such as legal services, accounting services, architecture and engineering services, computer systems design, management consulting, and research and development services, all of which add jobs over the forecast period. The greatest gains are in computer systems design (718 jobs, or 27.4 percent), veterinary services, market research and other professional services (355, or 26.7 percent), scientific research and development (205 jobs, or 7.3 percent), and management consulting services (184, or 8.9 percent).

The local management and corporate headquarters industry has been on a downward spiral since 1999, when it employed 3,058 workers. By 2014, following the closure of Borders headquarters, this industry employed only 809 workers locally. (The employees who are left working in this industry are extremely well paid; their average salary in 2013 was \$167,414.) We are forecasting minimal employment growth (7 jobs) in this industry over the next three years.

Administrative support and waste management adds 737 jobs (7.7 percent) from 2014 to 2017. The largest job gains are expected in employment services, including temporary help services (297 jobs, or 5.6 percent) and business support services (199 jobs, or 33.4 percent).

The private education and health services sector lost jobs in both 2013 (141) and 2014 (58), after having added jobs every year since 1999. Private education services gained jobs in 2013, but then declined in 2014. We are expecting that this industry will turn around and start growing again in 2015, with job gains accelerating throughout the forecast period.

The much larger health care and social services industry—88 percent of jobs in the aggregate category—lost jobs in 2013, but began growing again in 2014. The recent sluggishness may reflect some uncertainty about the current landscape in health care. In any event, we see this as a bump; job gains are expected to pick up again. We are forecasting that the health care and social services industry will add 1,604 jobs (7.2 percent) from 2014 to 2017. The largest job gains are forecast for nursing and other residential care facilities (542 jobs, or 12.3 percent); physicians' offices (321 jobs, or 8.4 percent); and outpatient care centers, diagnostic laboratories, and ambulance services (259 jobs, or 16.1 percent). Employment in private hospitals is expected to increase modestly (168 jobs or 2.4 percent) over the forecast period.

The leisure and hospitality sector adds 939 jobs (5.9 percent) over the forecast period. This sector includes arts and recreation, food services and drinking places, and hotels. The arts and recreation industry, which is projected to gain 252 jobs, includes businesses such as golf courses, fitness facilities, and the performing arts (much of the last category resides in the universities in Washtenaw County, and thus is not counted here).

Food services and drinking places contribute 728 jobs, with full-service restaurants expected to add the majority of those jobs (428), and limited-service restaurants, better known as fast-food restaurants, gaining 153 jobs. Employment at local hotels and other lodging places is expected to continue to decline.

The leisure and hospitality sector includes some of the lowest-paid industries, and consequently has the lowest annual pay on average of any major sector, \$16,507 in 2013. This is

the one lower-educational-attainment sector that we anticipate will enjoy relatively large increases in real wages over the forecast period (an average gain of 1.7 percent per year), partly because of the recently approved increase in the state minimum wage.

The “other services” sector includes a grab bag of individual industries such as repair services, including motor vehicle repair shops; personal services, such as hair salons and dry cleaners; membership organizations; and private household services. Collectively these industries add 273 jobs (an increase of 5.7 percent) over the forecast period. The largest job gains occur in religious, business, and grant-making organizations (86), private household services (59), and automotive repair and maintenance shops (52).

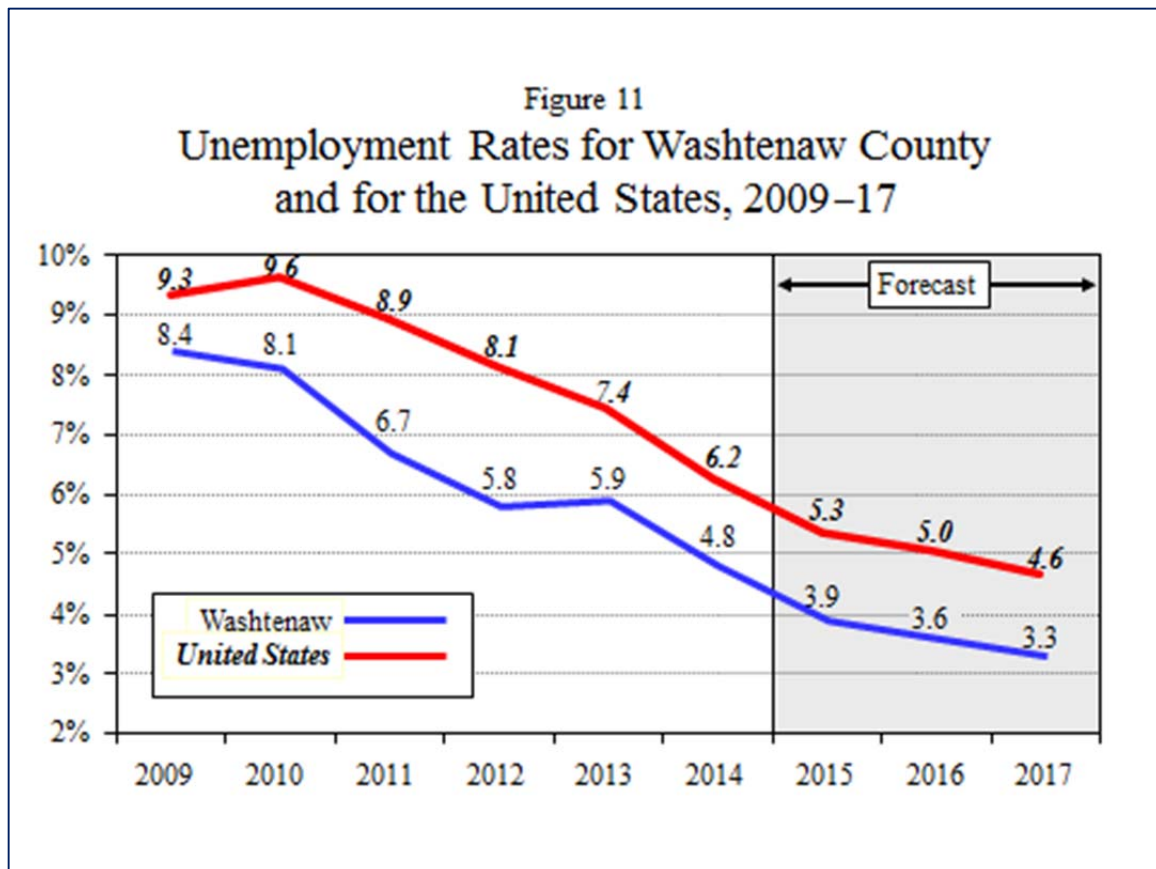
The government sector grows by 4,498 jobs (6.0 percent) over the forecast period. Federal government employment increases slightly (105 jobs), as job additions at the Veterans Hospital in Ann Arbor more than offset job losses at the U.S. Postal Service and other federal government offices.

Local government, which includes public K-12 education and Washtenaw Community College, lost jobs at a substantial rate (averaging 3 percent per year) between 2010 and 2013 even as the rest of the economy was adding jobs. We estimate that this period of rapid job loss came to an end during 2014 (with a loss of only 4 jobs that year). We anticipate that local governments will contribute jobs at a modest pace (averaging 1.0 percent per year) over the next three years. Even with those job gains, local government employment will, in 2017, remain 15.5 percent below 2004 peak levels, and will barely exceed 1990 levels.

State government, which includes Eastern Michigan University, the University of Michigan, and the University of Michigan Health System, has gained jobs every year starting in 2001. Clearly, these institutions have been the foundation for the region’s economic stability over the past decade. Employment in state government continues to see healthy growth over the

forecast period (averaging 2.2 percent per year). Despite a very challenging state government revenue environment over the past decade, the universities and the University of Michigan Health System have been very successful in competing for hospital patient medical services and outside research money and grants. We are confident that this success will continue.

As shown in figure 11, the solid job growth we are projecting for Washtenaw County is accompanied by an unemployment rate that moves down sharply from 4.8 percent in 2014 to 3.9 percent in 2015, and then declines more gradually over the rest of the forecast period, to 3.6 percent in 2016 and 3.3 percent in 2017. The drop of 1.5 percentage points over the three-year period brings the jobless rate down below where it was over a decade ago, in 2002 (3.6 percent), and lower than what the county averaged from 1990 to 2007 (also 3.6 percent), prior to the surge in the rate.

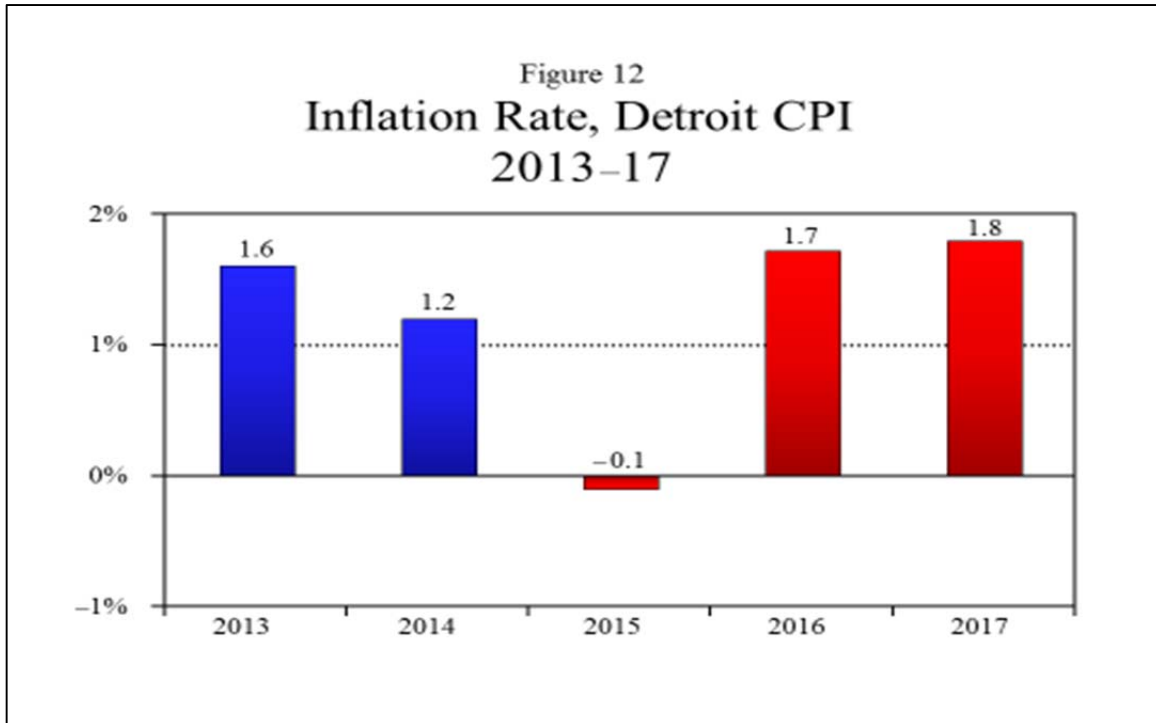


We expect the county's labor force to grow briskly through 2017 as improving job opportunities encourage more people to reenter the labor force in the hope of finding employment. If, instead, the labor force expands at a slower pace than we anticipate, then the unemployment rate would fall more rapidly with the employment gains we are projecting.

As shown in figure 11, the jobless rate for the county continues to be lower than the U.S. rate over the forecast period, and movements in the two rates run about in tandem, with the gap between the rates falling in a narrow range of 1.3 to 1.4 percentage points in the county's favor for 2015 through 2017.

So, the prospects for the unemployed are better, but they could be better still.

Our forecast of local inflation, measured by the growth rate of the Detroit Consumer Price Index (CPI), is shown in figure 12. (Consumer price data are compiled at the regional level; they are not available for the county in isolation.) The recent plunge in oil prices results in virtually no change in the local price index in 2015 compared with 2014. Consumer price inflation then rebounds in 2016 to 1.7 percent, similar to recent history, and essentially holds there in 2017—what would be considered a low-inflation environment over the forecast period. Local inflation runs two- to three-tenths of a percentage point below the national rate throughout the forecast period.



Conclusion

In 2014, Washtenaw County saw the smallest annual increase in jobs during the current recovery, 1,210 by our estimate. Our outlook for the county economy is upbeat over the next three years, however, as we see 2014 as a pause in an otherwise continuing path of healthy job growth through 2017, supported by sustained expansion of the U.S. economy and by the county's strong economic fundamentals—a highly educated populace combined with enterprises associated with the New Economy.

Specifically, we see job growth moving forward at a solid clip, with gains rebounding to 4,236 jobs in 2015 and accelerating from there, to 4,271 in 2016 and 4,564 in 2017. That would extend the run of job growth to eight straight calendar years, trumping any period since the 1980s in both duration and magnitude of job creation. By the end of 2017, if our forecast proves correct, the county economy would boast 16,500 more jobs than it achieved at its previous peak level of employment in the summer of 2002.

The top job producers from 2014 to 2017 are institutions of higher education, professional and business services, and health services. These three sectors alone, at the core of the knowledge economy, account for almost two-thirds of the total jobs created. None of the major sectors in the county lose jobs over the forecast period.

Movements in the average real wage in Washtenaw have been sluggish for some time, but we are forecasting that wages will pick up to grow at 1.1 percent per year from 2014 to 2017, benefiting from a tightening labor market that should put more pressure on wages. As with employment opportunities, wage gains benefit primarily those working in the higher-educational-attainment service industries.

With the projected improvement in the job market, the unemployment rate drops another 1.5 percentage points over calendar years 2014 to 2017. And all of this transpires in a low-inflation environment.

The primary risks to the forecast include, internationally: (1) the highly uncertain path of oil prices, and (2) world GDP, particularly related to the Eurozone, Japan, and China. Nationally, the risks are: (1) the timing of monetary policy tightening, and (2) domestic wage growth. Locally: impediments to growing momentum in the local knowledge economy, including skill shortages and adverse policy actions. Another source of risks would be natural causes, particularly abnormal weather. On balance, the downside risks—that is, risks that the forecast is too optimistic—would seem to dominate.

The Washtenaw County economy has come a long way in the past 5½ years, and that progress should be celebrated. The challenge now is to sustain that momentum and also to have it be more inclusive of a greater number of the county's residents. Progress can be measured not only by how the county's residents are doing collectively, but also by how many of them individually are participating in the gains.

Appendix

Forecast of Jobs in Washtenaw County by Detailed Industry Division

	Estimated		Forecast		Average Wage
	2014	2015	2016	2017	2013
Total wage and salary employment	198,445	202,681	206,952	211,516	\$51,867
Total government	74,845	76,558	77,930	79,343	55,752
Federal government	3,885	3,917	3,950	3,989	75,388
Post office	486	473	461	452	60,988
Hospital	2,527	2,580	2,632	2,684	74,111
Other federal government	871	864	857	854	87,275
State government	59,450	60,999	62,230	63,488	56,363
Local government	11,511	11,642	11,749	11,866	46,154
Education and health services	7,315	7,430	7,486	7,540	44,140
Other local government	4,196	4,213	4,263	4,326	49,740
Total private	123,600	126,123	129,022	132,172	49,571
Goods-producing	17,645	17,916	18,168	18,408	59,648
Natural resources and mining	224	231	236	241	23,211
Construction	3,457	3,547	3,652	3,754	54,614
Buildings	943	982	1,022	1,044	52,356
Residential	553	579	605	616	38,781
Nonresidential	390	404	418	428	69,646
Heavy and civil engineering construction	388	381	380	387	58,805
Specialty trade contractors	2,125	2,184	2,249	2,323	54,886
Building foundation and exterior	375	395	411	426	45,284
Building equipment	1,048	1,064	1,092	1,126	63,068
Building finishing	423	438	449	461	43,520
Other specialty trade	278	286	297	310	53,813
Manufacturing	13,964	14,138	14,280	14,412	61,361
Food	784	794	805	817	43,120
Printing and related support activities	1,871	1,858	1,844	1,828	41,452
Books	1,199	1,180	1,164	1,144	43,438
Other printing and related	672	678	680	684	37,165
Chemicals	679	703	717	729	67,634
Plastics and rubber products	1,143	1,173	1,190	1,207	71,316
Fabricated metal products	1,241	1,274	1,313	1,349	52,507
Machine shops and threaded products	700	736	774	809	53,879
Other fabricated metal products	540	538	540	540	50,916
Machinery	920	943	960	978	70,818
Commercial and service industry	179	188	196	205	71,148
Metalworking	320	327	334	342	65,849
Other machinery	422	429	429	431	74,605
Computer and electronic products	1,129	1,155	1,178	1,201	69,643
Computer and peripheral products	59	59	58	57	81,152
Semiconductor and electronic components	469	480	493	507	70,236
Electronic instruments	586	604	615	626	67,004
Other computer and electronic products	14	13	11	10	77,770
Transportation equipment	4,109	4,116	4,128	4,142	65,890
Miscellaneous manufacturing	1,423	1,437	1,448	1,459	69,230
Medical equipment and supplies	959	964	972	979	77,774
Other miscellaneous manufacturing	464	473	476	479	50,249
Other manufacturing	666	685	696	701	52,922

Appendix (continued)

Forecast of Jobs in Washtenaw County by Detailed Industry Division

	Estimated 2014	2015	Forecast 2016	2017	Average Wage 2013
Private service-providing	105,955	108,207	110,854	113,765	\$47,843
Trade, transportation, and utilities	23,801	24,221	24,703	25,226	40,782
Wholesale trade	4,527	4,629	4,749	4,892	65,541
Merchant wholesalers, durable goods	2,263	2,296	2,339	2,394	69,133
Merchant wholesalers, nondurable goods	1,699	1,766	1,841	1,927	58,403
Electronic markets and agents and brokers	565	567	568	571	71,693
Retail trade	16,082	16,294	16,536	16,793	27,532
Motor vehicles	1,675	1,697	1,721	1,745	50,264
Automobiles	1,284	1,293	1,305	1,319	53,978
Other motor vehicles	391	404	416	426	38,250
Furniture and home furnishings	483	496	510	519	33,595
Electronics and appliances	731	740	754	770	41,428
Building materials and garden supplies	1,260	1,274	1,292	1,312	35,839
Food and beverages	3,402	3,521	3,653	3,793	23,607
Grocery stores	2,908	3,010	3,124	3,247	24,153
Specialty food stores	365	381	397	414	21,410
Beer, wine, and liquor stores	129	130	131	132	18,012
Health and personal care stores	1,159	1,170	1,181	1,192	35,162
Pharmacies and drug stores	831	839	847	856	36,923
Other health and personal care stores	328	331	333	336	29,809
Gasoline stations	574	588	602	617	16,761
Clothing and accessories	1,372	1,387	1,398	1,412	16,763
Sporting goods, hobby, book, music stores	732	740	745	750	17,852
Sporting goods and musical instruments	589	598	605	614	17,754
Books, periodicals, and music	143	142	139	136	18,243
General merchandise	3,266	3,236	3,219	3,203	20,901
Department stores	1,556	1,522	1,497	1,474	19,365
Other general merchandise stores	1,710	1,713	1,721	1,729	22,348
Miscellaneous store retailers	872	878	889	900	17,406
Nonstore retailers	557	568	573	580	35,617
Transportation and warehousing	2,720	2,822	2,938	3,057	59,335
Truck transportation	889	891	906	923	55,794
Other transportation and warehousing	1,831	1,931	2,032	2,134	60,745
Utilities	472	475	480	485	133,266
Information	4,360	4,426	4,495	4,583	76,919
Publishing industries, except Internet	1,911	1,958	1,998	2,041	77,356
Newspaper, book, and directory publishers	355	340	324	310	57,101
Software publishers	1,555	1,618	1,674	1,731	82,882
Telecommunications	417	414	411	409	59,132
Data processing, hosting, and related services	830	798	765	735	76,922
Other information	1,202	1,257	1,321	1,397	82,556
Financial activities	6,507	6,566	6,703	6,819	62,196
Finance and insurance	4,189	4,231	4,325	4,390	70,295
Credit intermediation and related activities	2,486	2,475	2,519	2,535	61,044
Depository credit intermediation	1,269	1,278	1,304	1,331	56,280
Other credit intermediation and related	1,218	1,196	1,215	1,204	65,016
Insurance carriers and related activities	1,075	1,108	1,136	1,164	71,529
Insurance carriers	451	462	473	484	67,867
Insurance agencies and brokerages	624	646	663	679	74,311
Other finance	628	648	670	691	109,166

Appendix (continued)

Forecast of Jobs in Washtenaw County by Detailed Industry Division

	Estimated 2014	2015	Forecast 2016	2017	Average Wage 2013
Financial activities (continued)					
Real estate and rental and leasing	2,317	2,335	2,378	2,429	\$46,392
Real estate	1,995	2,002	2,030	2,067	43,603
Lessors of real estate	950	939	938	941	43,303
Offices of real estate agents and brokers	321	316	322	335	47,974
Activities related to real estate	724	747	769	791	41,714
Rental and leasing services	209	214	221	226	32,248
Lessors of nonfinancial intangible assets	113	119	128	136	112,718
Professional and business services	25,049	25,971	26,882	27,814	69,579
Professional and technical services	14,686	15,328	16,004	16,706	86,359
Legal services	938	957	976	997	84,429
Accounting and bookkeeping	651	659	670	682	52,536
Architectural and engineering	3,757	3,899	4,039	4,181	98,187
Engineering	1,274	1,310	1,345	1,375	89,631
Testing laboratories	2,146	2,242	2,338	2,439	108,748
Other architectural and engineering	337	347	356	367	65,707
Specialized design	224	229	242	255	58,716
Computer systems design and related services	2,620	2,875	3,109	3,338	83,015
Management and technical consulting	2,071	2,111	2,179	2,255	94,573
Scientific research and development	2,826	2,897	2,964	3,031	96,595
Physical, engineering, and bio. research	2,586	2,652	2,711	2,771	99,728
Social science and humanities research	240	245	252	260	60,617
Advertising, PR, and related services	268	271	276	281	52,157
Other professional and technical services	1,331	1,430	1,549	1,686	49,138
Management of companies and enterprises	809	818	820	816	167,414
Administrative and waste services	9,554	9,825	10,058	10,291	35,459
Administrative and support services	9,134	9,403	9,635	9,863	34,511
Office administrative services	619	624	635	647	92,488
Employment services	5,324	5,428	5,520	5,621	23,098
Business support	597	677	743	797	70,634
Services to buildings and dwellings	1,953	1,998	2,053	2,106	24,492
Other administrative and support services	641	675	683	693	42,352
Waste management and remediation services	420	422	424	428	56,599
Private education and health services	25,256	25,709	26,341	27,125	48,332
Private educational services	2,914	2,945	3,038	3,180	33,575
Private elementary and secondary schools	993	1,000	1,020	1,047	34,319
Other private educational services	1,920	1,945	2,018	2,132	33,171
Private health care and social assistance	22,342	22,764	23,303	23,945	50,373
Ambulatory health care services	9,161	9,364	9,633	9,959	64,164
Offices of physicians	3,841	3,895	4,009	4,162	95,764
Offices of dentists	1,214	1,227	1,251	1,281	49,114
Offices of other health practitioners	529	536	545	555	39,461
Home health care services	1,975	2,017	2,058	2,100	28,001
Other ambulatory health care services	1,603	1,689	1,769	1,862	51,741
Nursing and residential care facilities	4,392	4,552	4,727	4,934	27,821
Community care facilities for the elderly	2,004	2,064	2,127	2,199	32,055
Other nursing and residential care facilities	2,388	2,488	2,601	2,735	24,345
Individual and family services	767	761	769	780	21,501
Child day care services	1,114	1,140	1,167	1,197	18,536

Appendix (continued)

Forecast of Jobs in Washtenaw County by Detailed Industry Division

	Estimated 2014	2015	Forecast 2016	2017	Average Wage 2013
Private health care and social assistance (cont.)					
Hospitals, emergency relief, and vocational rehabilitation services	6,907	6,947	7,007	7,075	\$53,921
Leisure and hospitality	15,985	16,266	16,580	16,923	16,507
Arts, entertainment, and recreation	2,073	2,149	2,231	2,326	20,823
Amusements, gambling, and recreation	1,723	1,793	1,862	1,940	16,872
Golf courses and country clubs	599	667	706	740	17,269
Fitness and recreational sports centers	890	881	902	937	16,644
Other amusements, gambling, recreation	235	244	255	263	16,595
Performing arts, spectator sports, museums, and parks	350	357	369	385	40,132
Accommodation and food services	13,911	14,116	14,349	14,598	15,847
Accommodation	1,088	1,066	1,054	1,047	20,814
Food services and drinking places	12,824	13,051	13,295	13,551	15,417
Special food services	931	964	983	1,002	19,310
Drinking places, alcoholic beverages	721	725	733	752	16,072
Restaurants and other eating places	11,172	11,362	11,579	11,797	15,080
Full-service restaurants	5,866	6,004	6,152	6,294	16,707
Limited-service restaurants	4,531	4,567	4,622	4,684	13,532
Cafeterias and nonalcoholic beverage bars	775	791	805	819	11,666
Other services	4,775	4,821	4,922	5,048	28,138
Repair and maintenance	818	830	847	864	35,820
Automotive repair and maintenance	712	727	745	764	35,828
Other repair and maintenance	105	103	101	100	35,778
Personal laundry services	1,538	1,548	1,567	1,595	25,300
Personal care services	961	955	958	972	30,525
Other personal and laundry services	577	593	608	623	18,371
Membership associations and organizations	1,801	1,814	1,860	1,911	30,193
Civic and social organizations	577	573	581	589	19,191
Labor unions and similar labor organizations	160	162	167	172	24,310
Other membership associations and org.	1,064	1,079	1,112	1,149	37,281
Private households	619	629	649	678	20,079
Unallocated private services	222	227	227	227	57,856
<u>Addendum</u>					
Unemployment rate	4.8	3.9	3.6	3.3	