

Worcester Economic Indicators

Second Quarter 2015

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WEI grows 4.4% in Second Quarter

Health Services, Leisure & Hospitality Industries Lead Hiring

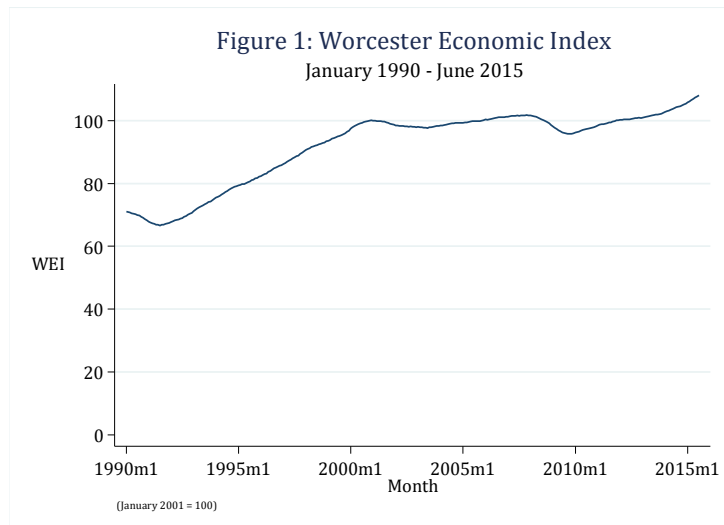
Worcester Economic Index

During the second quarter of 2015, the Worcester Economic Index (WEI) increased at a 4.4% annualized rate. This follows a similar performance during the first quarter of the year when the WEI increased at a revised 4.2%. The local labor market continued to show signs of strength. The Worcester Economic Index is based on Bureau of Labor Statistics (BLS) data on employment and unemployment and over the past year each of the variables used in the estimation of the WEI has improved. Employment estimates from the BLS payroll survey showed a 3.6% increase since June 2014, while the BLS household survey estimate was up 4.4%. Meanwhile, the unemployment rate has fallen from 6.4% in June 2014 to only 5.2% in June 2015.ⁱ

Both Figure 1 and Table 1 show the WEI has been on a fairly stable growth path in recent months.

Along with the unemployment rate, the WEI is estimated using two different measures of employment: household employment and payroll employment. Estimates of household employment are obtained from surveys of households for the purpose of estimating the number of people working. Payroll

employment is measured through a survey of employers in order to estimate the number of jobs in the economy. Someone who holds more than one job will be counted several times in the payroll survey but only once in the household survey. Also, the payroll survey only measures workers on nonfarm payrolls and therefore does not capture agricultural workers, unpaid family workers, or the self-employed, which the household survey does.ⁱⁱ However, the payroll survey does allow for the number of jobs to be broken down by industry. Page 3 provides a discussion of some of the trends in local employment based on information from the payroll survey.



Worcester Economic Outlook

Over the final six months of 2015 the Worcester Economic Index is expected to grow at about 3.0% based on a model which uses recent changes in the WEI as well as four leading indicators of the national economy. Table 2 shows the June six-month forecast to be 2.9%, while the average of the April, May, and June forecasts is 3.0%.

Table 1
Worcester Economic Index (WEI)
June 2014 – June 2015

Month	Worcester Economic Index	Change from previous month	Quarterly Growth Rate, Annualized
June 2014	104.0	0.3	3.0%
July 2014	104.2	0.2	
August 2014	104.4	0.2	
September 2014	104.6	0.2	2.4%
October 2014	104.8	0.2	
November 2014	105.1	0.3	
December 2014	105.4	0.3	3.1%
January 2015	105.8	0.3	
February 2015	106.1	0.4	
March 2015	106.5	0.3	4.2%
April 2015	106.9	0.4	
May 2015	107.3	0.4	
June 2015	107.7	0.4	4.4%

Table 2 shows the growth forecasts broken down into its 6 components. The forecast builds on the long-run trend growth of the WEI which has been about 1.2% on an annual basis. Each of the other components in the forecast are expressed in terms of the amount that they push the WEI away from its long-run trend.

The recent strong performance of the WEI is the primary factor behind its above trend forecast of 3.0%. Recent values of the WEI are included in the forecasting model because an economy tends to maintain its momentum over short periods of time and therefore above trend performance during the first half of 2015 suggests continued strength during the second half of the year. The other components of the model are all leading indicators which can potentially reveal conditions that either reinforce or reverse the long-run and short-run trends of the WEI. As table 2 shows most of the other components are not contributing much to the growth forecast. Looking at the average forecast over the second quarter, consumer expectations as measured by The University of Michigan Survey of Consumer Sentiments which had been increasing in late 2014 and early 2015 has recently plateaued, and is neutral with respect to the WEI forecast. Likewise the S&P 500, which as of July 31 was only up about 2.2% for the year^{iv}, is not contributing positively or negatively to the WEI forecast.

Table 2
Breakdown of Projected Growth of WEIⁱⁱⁱ
6-month growth forecast, annualized basis

Component	June 2015	Quarter 2 Average
Trend	1.2%	1.2%
Consumer Expectations	-0.1%	0.0%
S&P 500	0.0%	0.0%
Interest Rate Spread	0.1%	0.1%
Leading Credit Index TM	0.2%	0.3%
WEI	1.5%	1.5%
Total	2.9%	3.0%

Components may not add to total due to rounding.

Conditions in the credit markets, as measured by the Leading Credit IndexTM, continues to make a positive impact on the WEI forecast. The Leading Credit IndexTM, is compiled by The Conference Board each month and is a composite of several financial sector variables

(continued on page 4)

What industries have been hiring?

According to BLS payroll survey data, the greater Worcester economy has added 9,800 jobs since June 2014, which is a 3.6% increase. However, not all sectors have been hiring at such a high rate. As table 3 shows, in the past year service sector jobs increased 4.4% in the Worcester area which outpaced the 2.3% increase in Massachusetts as a whole. However, Worcester saw a decrease in goods producing employment which fell 1.9%, continuing the long-run trend to a more service-oriented economy that we have been experiencing here in Worcester and across the nation over the past several decades. Massachusetts on the other hand at least temporarily bucked that trend, experiencing an increase in employment in the goods producing sector over the past year due primarily to a 4.1% increase in construction employment.

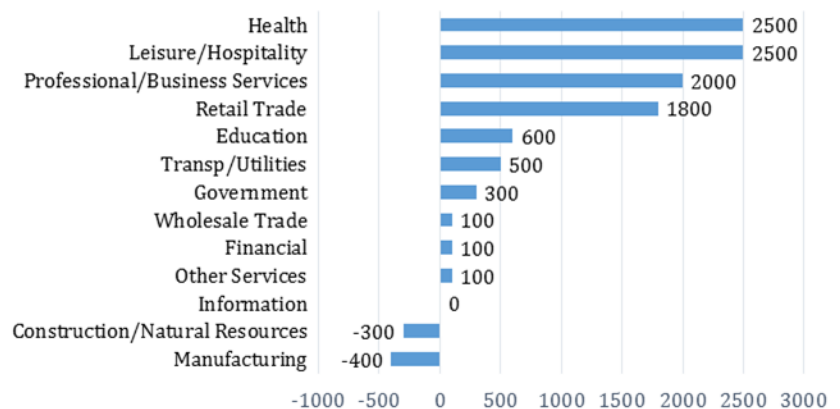
Table 3
Employment Breakdown by Industry^v
Worcester and Massachusetts

Employment Category	Worcester			Massachusetts		
	Percent change since June 2014	Avg. annual percent chg. since 2000	Share of total nonfarm employment	Percent change since June 2014	Avg. annual percent chg. since 2000	Share of total nonfarm employment
Total Nonfarm	3.6%	0.4%	100.0%	2.2%	0.6%	100.0%
Private Sector	4.1%	0.4%	86.2%	2.1%	0.3%	86.9%
Goods Producing	-1.9%	-2.7%	12.8%	1.7%	-2.1%	11.1%
Construction/Nat. Res.	-3.0%	-0.7%	3.4%	4.1%	0.2%	4.0%
Manufacturing	-1.5%	-3.3%	9.4%	0.4%	-3.1%	7.2%
Service Providing	4.4%	1.1%	87.2%	2.3%	0.7%	88.9%
Wholesale trade	0.9%	-0.2%	3.8%	0.9%	-0.7%	3.6%
Retail trade	5.9%	0.3%	11.3%	0.6%	-0.1%	10.0%
Transp./utilities	4.2%	2.5%	4.4%	-0.5%	-0.4%	2.6%
Information	0.0%	-1.0%	1.2%	0.5%	-1.7%	2.5%
Financial	0.7%	0.0%	5.0%	1.1%	-0.5%	6.0%
Prof. & bus. services	7.4%	-0.6%	10.1%	4.2%	0.6%	15.5%
Education	5.7%	2.4%	3.9%	-1.9%	0.9%	4.1%
Health	4.8%	3.0%	19.2%	3.1%	2.5%	16.9%
Leisure & hospitality	10.1%	1.9%	9.6%	4.1%	1.9%	10.8%
Government	0.7%	0.6%	13.8%	2.5%	0.8%	13.1%
Other services	0.9%	1.0%	3.8%	0.8%	1.4%	3.9%

Table 3 also shows employment in the Worcester leisure & hospitality industry grew the fastest over the past year, followed by professional & business services, and retail trade. The fastest growing industries statewide were professional & business services, construction, and leisure & hospitality. The industry that employs the largest share of workers in both Worcester and Massachusetts is health services which employs 19.2% of all workers in the Worcester area and 16.9% statewide.

Figure 2^v shows the net number of jobs added in each industry over the past 12 months. While health services only grew by 4.8%, its larger share meant it added 2,500 jobs, matching the jobs added in the leisure & hospitality industry. The top four sectors accounted for 8,800 of the 9,800 net new jobs. The only Worcester area industries which experienced a decrease in jobs were the goods producing industries of construction and manufacturing.

Figure 2
12 Month Employment Changes by Sector
Net new jobs, Worcester NECTA since 6/2014



that attempt to capture credit market conditions in the United States. Like the first quarter, the Leading Credit Index is adding 0.3% to the most recent forecast.

The interest rate spread, which is the difference between the yield on a 10-year Treasury bond and the federal funds rate, is included as a measure of monetary policy. Currently, this indicator is providing a modest +0.1% to the WEI forecast. Should the Federal Reserve increase its target for the federal funds rate as many are expecting in the coming months, the interest rate spread will likely decrease and therefore begin to enter into the WEI forecasts with a negative value.

Local Leading Indicators

There are currently three local leading indicators that are tracked as part of this project: online help-wanted advertisements, new business incorporations, and state initial unemployment claims. While the forecast of the Worcester Economic Index discussed above utilizes four national leading indicators, an examination of some more local measures of economic activity may provide additional insight into the direction of the Worcester economy. Currently, these indicators are mixed with two of the three providing positive signals for future economic performance.

The number of online help-wanted advertisements is a measure of the demand for labor by employers. It is considered a leading indicator

Table 4
Local Leading Indicators
Percentage Change from 2nd Quarter 2014

Indicator	Percent Change	Signal
Online Help Wanted Ads ^{vi}	12.2%	Positive
New Business Incorporations ^{vii}	-1.4%	Negative
Massachusetts Initial Claims ^{viii}	-13.3%	Positive

of employment because advertisements usually precede hiring and therefore an increase in help-wanted ads may signal additional employment down the road. The Conference Board's Help Wanted Online Data Series[®] totals the number of unique advertised job openings from thousands of online job-boards. The data shows that in recent months there has been an upswing in this indicator for the Worcester area. On a seasonally-adjusted basis the number of online job openings is up about 12% in second quarter of 2015 compared to 2014.^{vi} More job openings suggests additional hiring and is therefore a positive signal for the local economy.

The other indicator providing a positive signal at this time is Massachusetts initial unemployment claims, which were down over 13% in the second quarter compared to 2014. Fewer claims implies a reduction in the number of workers who have been laid-off due to weak demand.^{vii}

The third local leading indicator is the number of new business incorporations in the Worcester NECTA.^{viii} During the second quarter the average monthly number of incorporations decreased slightly from the same period in 2014. This data series is quite volatile even after taking into account seasonal variation. A fall in new business incorporations is considered a negative signal because fewer new businesses mean less new business hiring.

To sum up, the Worcester Economic Index (WEI) grew at an annual rate of 4.4% in the second quarter of 2015. The six-month forecast for the WEI indicates growth of about 3.0% during the last half of 2015. In addition, two of the three local leading indicators are currently sending a positive signal about future economic activity.

The next Worcester Economic Indicators report will be issued in early November 2015. Additional information about this project is available at:
<http://www1.assumption.edu/worcester-economic-indicators-project/>.

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ⁱ Author's calculations based on data from the Bureau of Labor Statistics. Payroll employment is obtained from the State and Area Employment Database (SAE) of the BLS. Household employment and the unemployment rate is obtained from the Local Area Unemployment Database (LAU) of the BLS. All employment data is for the Worcester NECTA which consists of the city of Worcester as well as 48 surrounding towns located in south central Massachusetts and northeastern Connecticut. The BLS data is not seasonally adjusted, so those data series are adjusted for seasonal variation using the X-12 ARIMA program developed by the U.S. Census Bureau.

ⁱⁱ Wu, T. 2004. "Two Measures of Employment: How Different Are They?," Federal Reserve Bank of San Francisco - Economic Letter, Number 2004-23, August, 2004.

ⁱⁱⁱ The leading indicators used to forecast the WEI are:

Consumer expectations: From the University of Michigan Survey of Consumer Sentiments.

S&P 500: Monthly closing value of the index.

Leading Credit Index™: The Conference Board's index of credit market conditions.

Interest rate spread: The yield on a 10-year Treasury bond less the federal funds rate.

The above leading indicators are obtained from The Conference Board's Business Cycles Indicators database.

^{iv} Retrieved from The Conference Board Business Cycles Indicators database.

^v Author's calculations based on data from the Bureau of Labor Statistics, State and Area Employment Database (SAE).

^{vi} The Conference Board Help Wanted Online® (HWOL).

^{vii} Massachusetts Department of Employment and Training. Initial claims for the Worcester area were originally part of the index, but that data has not been available since June 2013. Since it is desirable to utilize information that is as local as possible, if initial claims for Worcester becomes available in the future the index will be revised to include that data.

^{viii} Secretary of the Commonwealth of Massachusetts