

Worcester Economic Indicators

Third Quarter 2016

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<http://www1.assumption.edu/worcester-economic-indicators-project/>

WEI up 3.5% in Third Quarter

Steady growth expected to continue over coming months

Worcester Economic Index

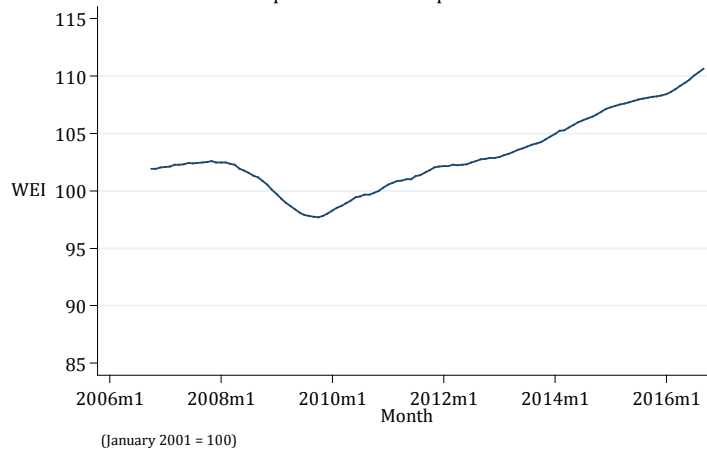
The Worcester economy continued its recent solid performance as the Worcester Economic Index (WEI) grew at a 3.5% annualized rate during the third quarter of 2016, up slightly from the revised 3.1% pace turned in during the second quarter.

Figure 1 shows the WEI over the past 10 years and the progress made by the local economy since the recession of 2008-09. The WEI is estimated using

employment and unemployment data for the greater Worcester economy released each month by the Bureau of Labor Statistics (BLS). Each of the variables used in the estimation of the WEI has improved over the past year. According to the BLS Current Population Survey, employment in the Worcester area has risen by about 1.9% over the 12-month period ending in September 2016, while the BLS payroll survey provides a similar estimate of 2.1% employment growth during the same period. In addition, the Worcester area unemployment rate fell to 3.7% in September which is down from the 4.8% estimate in September 2015.ⁱ

Table 1 shows the Worcester Economic Index over the past 13 months, its month-to-month change, and annualized quarterly growth rate. As the table shows, following a relatively weak performance at the end of 2015, the WEI has been picking up steam thus far in 2016. Since September 2015 the WEI has increased 2.3% and has exhibited consistent growth since the start of the year.

Figure 1: Worcester Economic Index
September 2006 - September 2016



A closer look at some of the BLS data shows the seasonal nature of employment and unemployment. Typically at end of the summer there is a decrease in the labor force as some seasonal jobs come to an end and young people who may have been working or looking for work leave the labor force and return to school. Table 2 shows the local labor force actually fell by over 2900 workers during the third quarter. However, by adjusting the data to take into account regular seasonal fluctuations in the labor market the adjusted estimates show the labor force expanded during the third quarter. Similarly, adjusting the payroll employment and household employment figures for seasonal factors reveals a substantial increase in employment, in contrast to the not-seasonally adjusted data that shows a somewhat stagnant labor market. Seasonally-adjusted data is preferable when attempting to track the general direction of the economy because it removes some of the noise in the data. For that reason, the model used to estimate the Worcester Economic Index utilizes seasonally-adjusted values for payroll employment, household employment, and the unemployment rate.

Table 1
Worcester Economic Index (WEI)
September 2015 - September 2016

Month	Worcester Economic Index	Change from previous month	Quarterly Growth Rate, Annualized
September 2015	108.1	0.1	1.1%
October 2015	108.2	0.1	
November 2015	108.2	0.0	
December 2015	108.3	0.1	0.7%
January 2016	108.4	0.1	
February 2016	108.6	0.2	
March 2016	108.9	0.3	2.0%
April 2016	109.1	0.2	
May 2016	109.4	0.3	
June 2016	109.7	0.3	3.1%
July 2016	110.0	0.3	
August 2016	110.3	0.3	
September 2016	110.6	0.3	3.5%

Table 2
BLS Employment Estimates
Worcester NECTA, June-September 2016ⁱⁱ

	Not Seasonally Adjusted			Seasonally Adjusted		
	June 2016	September 2016	Change Sept-June	June 2016	September 2016	Change Sept-June
Unemployment Rate	4.7%	3.7%	-1.0	4.5%	3.7%	-0.8
Payroll Employment	285,700	285,100	-600	282,969	284,375	1,405
Household Employment	333,674	334,224	550	335,315	336,763	5,898
Labor Force	349,977	347,049	-2,928	345,738	349,386	3,648

Worcester Economic Outlook

Over the coming six months, the Worcester Economic Index is expected to continue to grow, but at a more modest pace than the past two quarters. According to the forecast model which utilizes recent movements in the WEI as well as four leading indicators of the national economy, the WEI is projected to grow at a little more than 2% over the next two quarters. As table 3 shows, the September six-month forecast is 2.1%, while the average of the July, August, and September forecasts is a bit higher at 2.3%.

Table 3 also shows the growth forecast broken down into its 6 components. The first component is the long-run trend growth of the WEI which is estimated to be about 1.3% on an annualized basis. The values shown for each of the other components listed in table 3 represent the amount that each component contributes to the WEI forecast being above or below trend. At the present time, the component that makes the largest contribution to the

above trend forecast is the WEI itself. Past values of the WEI are included in the forecast model because economies tend to exhibit momentum and therefore recent economic performance tends to be an indicator of future performance. Since the WEI is based on BLS employment and unemployment data, the recent strong performance of the local labor market is the reason the WEI is contributing a bump of 0.9% to the forecast.

Table 3
Breakdown of Projected Growth of WEIⁱⁱⁱ
6-month growth forecast, annualized basis

Component	September 2016	Quarter 3 Average
Trend	1.3%	1.3%
Consumer Expectations	0.0%	0.0%
S&P 500	-0.1%	0.0%
Interest Rate Spread	-0.1%	-0.1%
Leading Credit Index™	0.0%	0.1%
WEI	0.9%	0.9%
Total	2.1%	2.3%

Components may not add to total due to rounding.

Focusing on the average forecast for quarter 3 we see that the four national leading indicators enter the growth forecast in a mostly neutral manner. The consumer expectations indicator, which is based on the University of Michigan Survey of Consumer Sentiments, currently shows no impact on the WEI quarter 3 forecast. This is due to the fact that the September Index of Consumer Expectations of 82.7 was little changed from the June estimate of 82.4.^{iv}

Changes in the S&P 500 stock index are included in the forecast model as a measure of investor attitudes toward future business conditions. As of October 31st, the S&P 500 is up about 4.0% since the start of the year, which is not enough to move the WEI forecast in a significant way.

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. The larger the spread the more growth-oriented the policy. Since December 2015 when the Federal Reserve increased its Federal Funds target range to 0.25-0.50% the interest rate spread has fallen, indicating a more restrictive monetary policy, and causing the spread to have a small negative (-0.1%) impact on the WEI forecast. If the Federal Reserve raises its target rate in December, as many anticipate, the spread will likely continue to have a negative impact on the growth forecast.

Conditions in the credit markets, as measured by the Leading Credit Index™, is currently providing a small positive impact to the WEI forecast. The Leading Credit Index™ is compiled by The Conference Board each month and is a composite of several financial sector variables that aims to capture credit market conditions in the US.

Local Leading Indicators

The above forecast of the Worcester Economic Index is based on four national leading indicators, recent WEI values, as well as its long-run trend. To supplement this forecast each quarterly *Worcester Economic Indicators* report includes a discussion of three local leading indicators: online help-wanted advertisements, new business incorporations, and state-wide initial unemployment claims. Table 4 shows how these three leading indicators

have performed over the past year. Currently, the three local leading indicators are offering mixed signals for the future direction of the economy.

Table 4
Local Leading Indicators
Percentage Change
Quarter 3 2015 to Quarter 3 2016

Indicator	Percent Change	Signal
Online Help Wanted Ads ^v	-24.4%	Negative
New Business Incorporations ^{vii}	19.4%	Positive
Massachusetts Initial Claims ^{viii}	0.2%	Negative

As with the past two quarters, online help-wanted advertisements have fallen substantially compared to a year ago and therefore this indicator is providing a negative signal at this time. The number of help-wanted advertisements is a measure of the demand for labor by employers. It is considered a leading indicator of employment because advertisements usually precede hiring so an increase in help-wanted ads may signal additional employment down the road. On a seasonally-adjusted basis the number of online job openings is down over 24% since the third quarter of 2015.^v Online help-wanted advertisements have also fallen at the national level, down about 10.5% since September 2015.^{vi} Fewer job openings is a sign that firms are reluctant to hire and therefore is a pessimistic signal for the economy.

New business incorporations in the greater Worcester area are providing a positive signal at this time. Compared to a year ago the number of incorporations is up about 19%.^{vii} An increase in incorporations is considered a positive signal because new businesses may look to hire workers in the near future.

The final indicator is the number of initial unemployment claims in the Commonwealth of Massachusetts. Compared to the third quarter of 2015 initial claims are up just 0.2%, so while technically a negative signal the rise in claims is so small that it is basically neutral at this time.^{viii}

To sum up, the Worcester Economic Index (WEI) increased 3.5% in the third quarter of 2016. The WEI is expected to grow at 2.1-2.3% over the coming six months. Both national and local leading indicators are providing mostly neutral signals concerning future economic activity.

The next Worcester Economic Indicators report will be issued in early February 2017.

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.

ⁱⁱ Not seasonally adjusted data obtained from the Bureau of Labor Statistics SAE and LAU databases. The BLS data is adjusted for seasonal variation by the author using the X-12 ARIMA program developed by the U.S. Census Bureau.

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} University of Michigan, Survey of Consumers, <http://www.sca.isr.umich.edu/>

^v The Conference Board Help Wanted Online® (HWOL).

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

^{vii} Secretary of the Commonwealth of Massachusetts

^{viii} 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.