

Worcester Economic Indicators

Third Quarter 2017

This report can be accessed online at:

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

WEI up 1.9% in Third Quarter

Modest growth expected to continue over next two quarters

Worcester Economic Index

During the third quarter of 2017 the Worcester Economic Index (WEI) increased at a 1.9% annualized rate, which is roughly the same pace as the revised 1.7% estimate from the second quarter. As figure 1 shows, the recent growth in the WEI follows a period in late-2016/early-2017 during which local economic activity was basically flat. The 1.9% third quarter growth rate of the WEI is below the 3.0% preliminary estimate of U.S. real GDP growth released by the

Bureau of Economic Analysis on October 27th.ⁱ The Worcester Economic Index is estimated using Bureau of Labor Statistics (BLS) data on employment and unemployment in the greater Worcester metropolitan area (NECTA). According to the BLS payroll survey, employment in the Worcester area increased by 0.8% over the 12-month period ending in September 2017, while the BLS household survey showed an increase of 1.2% for the same period.ⁱⁱ The growth in these two measures of employment contributed to the growth in the WEI over the past year.

Table 1 presents the Worcester Economic Index over the last 13 months, its month-to-month change, and annualized quarterly growth rate. While WEI is calculated on a monthly basis it is best not to read too much into changes in any single month, but rather consider changes in the index over quarterly or longer periods. Table 1 shows the economy slowed down in late 2016 through early 2017. Since September 2016 the WEI has increased 1.1%.

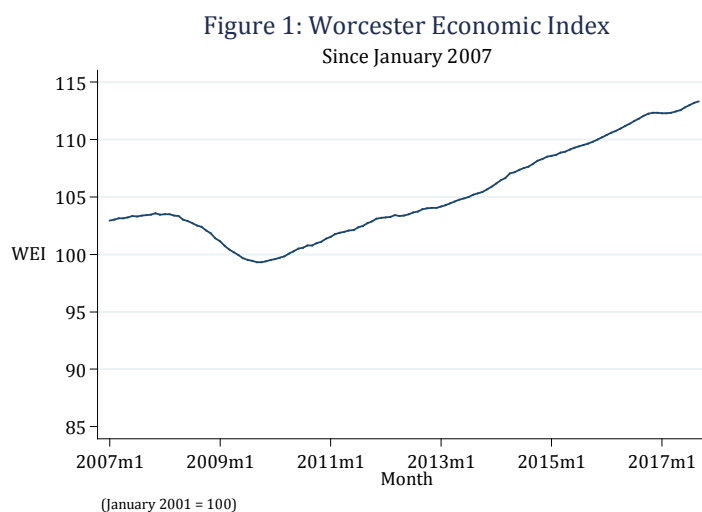


Table 2 shows how the employment data on which the WEI is based has changed during the third quarter. The seasonally unadjusted data reported by the BLS showed substantial drops in both payroll and household employment over the June to September period.ⁱⁱⁱ However, after adjusting for seasonal effects the decrease in household

Table 1
Worcester Economic Index (WEI)
September 2016 - September 2017

Month	Worcester Economic Index	Change from previous month	Quarterly Growth Rate, Annualized
September 2016	112.1	0.2	2.5%
October 2016	112.2	0.2	
November 2016	112.3	0.1	
December 2016	112.3	0.0	1.0%
January 2017	112.3	0.0	
February 2017	112.3	0.0	
March 2017	112.3	0.0	0.0%
April 2017	112.4	0.1	
May 2017	112.6	0.2	
June 2017	112.8	0.2	1.7%
July 2017	113.0	0.2	
August 2017	113.2	0.2	
September 2017	113.3	0.1	1.9%

employment was less dramatic (-1,234), while the seasonally adjusted payroll employment showed a modest increase (+400). The drop in the seasonally adjusted unemployment rate from 4.1% in June to 3.7% in September is due to an unusually large drop in the labor force during that time. The labor force tends to decline at the end of the summer as some seasonal jobs end and many students return to school, however even after taking into account such seasonal changes the labor force fell by over 3,500 workers. The smaller labor force contributed to the drop in the unemployment rate. The 3.7% seasonally-adjusted unemployment rate for Worcester is slightly below the US unemployment rate (4.2%) and the Massachusetts rate (3.9%) for September.ⁱⁱⁱ

Table 2
BLS Employment Estimates
Worcester NECTA, June 2017 - September 2017

	Not Seasonally Adjusted ^{iv}			Seasonally Adjusted ^{iv}		
	June 2017	Sept 2017	Change Sept - June	June 2017	Sept 2017	Change Sept - June
Unemployment Rate	4.6%	3.7%	-0.9	4.1%	3.7%	-0.4
Payroll Employment	289,800	287,400	-2,400	286,600	287,000	400
Household Employment	340,715	335,008	-5,707	338,478	337,244	-1,234
Labor Force	357,265	347,933	-9,322	353,871	350,361	-3,510

Worcester Economic Outlook

The Worcester Economic Index is based on employment and unemployment data for the local economy. In order to provide some insight into the future direction of the economy each issue of *Worcester Economic Indicators* includes both a 6-month forecast of the WEI estimated using past values of the index and several national leading economic indicators, as well as a discussion of some local leading indicators.

Looking forward, the Worcester Economic Index is expected to grow at or slightly above its long-run trend over the coming six months. According to the September forecast, the WEI is expected to grow at a 1.3% annualized rate over the next two quarters. Since the most recent WEI estimates have the greatest potential error, it is also useful to consider the

average of the forecasts for the three most recent months, which at this time is 1.6%. Table 3 shows both the September forecast and the average of the July, August, and September forecasts.

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.

Table 3
Breakdown of Projected Growth of WEI^v
6-month growth forecast, annualized basis

Component	September 2017	Quarter 3 Average
Trend	1.3%	1.3%
Consumer Expectations	-0.1%	0.0%
S&P 500	0.1%	0.0%
Interest Rate Spread	-0.1%	-0.1%
Leading Credit Index TM	0.1%	0.2%
WEI	0.0%	0.2%
Total	1.3%	1.6%

Components may not add to total due to rounding.

Currently, the four national leading indicators roughly offset one another with regards to their impact on the WEI forecast. For the September forecast, the recent performance of the S&P 500 and the Leading Credit IndexTM each provide a small positive bump in the forecast while consumer expectations and the interest rate spread are both pulling the forecast down causing the WEI forecast to be equal to its trend. The WEI itself did not have any impact on the September forecast. In contrast, the WEI provided a positive 0.2% increase to the third quarter average of forecasts. The fact that the WEI in September 2017 grew slightly less than the previous four months (see table 2) was enough keep it neutral with regard to the September forecast while WEI made a positive contribution to the quarterly average.

Currently, the estimate of consumer expectations derived from the University of Michigan Survey of Consumer Sentiments is making a small negative contribution to the September WEI forecast. This is due to the fact that the September Index of Consumer Expectations of 84.4 is down from 90.3 since the start of the year.^v

Changes in the S&P 500 stock index are included in the forecast model as a measure of investor attitudes toward expected future business conditions. As of October 27th the S&P 500 is up over 15% since the start of the year, which contributes a 0.1% boost to the WEI forecast.

Conditions in the credit markets, as measured by the Leading Credit IndexTM, are currently providing a positive contribution to the WEI forecast. The Leading Credit IndexTM 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 United States.

The final component, interest rate spread, is providing a small negative contribution to both the September and the average forecast. The spread, which is the difference between the yield on a 10-year Treasury bond and the federal funds rate, is a commonly used indicator of the direction of monetary policy. During much of the post-recession period the interest rate spread was pushing up the WEI forecast. As the Federal Reserve has

increased the federal funds rate four times since December 2015 with another increase anticipated next month the spread has become a neutral or slightly negative contributor to WEI forecasts. This indicator will be closely watched in the coming days as President Trump is expected to announce his choice for Chair of the Federal Reserve. If a nominee is perceived as likely changing the direction of monetary policy the interest rate spread will adjust accordingly, altering its impact on WEI forecasts.

Local Leading Indicators

The forecast of the Worcester Economic Index presented above is based on four national leading indicators, recent WEI estimates, as well as its long-run trend. To supplement this forecast each quarterly issue of *Worcester Economic Indicators* includes a discussion of several leading indicators that are more closely tied to the local economy. Local data can be more volatile than national data and therefore quarterly averages are compared on a year-over-year basis to avoid problems arising from month-to-month variation. Recent performance of two local leading indicators, new business incorporations for the Worcester NECTA and initial unemployment claims for Massachusetts are shown in table 4.

Table 4
Local Leading Indicators
Percentage Change
Quarter 3 2016 to Quarter 3 2017

Indicator	Percent Change	Signal
New Business Incorporations ^{vi}	4.0%	Positive
Massachusetts Initial Claims ^{vii}	-1.6%	Positive

Continuing the trend from throughout the past year, the number of new business incorporations in the Worcester area rose in the third quarter of 2017 compared to the same period in 2016. Compared to a year ago the number of incorporations has increased about 4.0%.^{vi} An increase in incorporations is considered a positive signal because new businesses may look to hire workers in the near future.

The number of initial unemployment claims filed during the second quarter in the Commonwealth of Massachusetts fell 1.6% from the third quarter of 2016. This is considered a positive signal because it suggests that fewer people were let go from their jobs and forced to apply for unemployment compensation^{vii}.

To sum up, the Worcester Economic Index (WEI) increased 1.9% in the third quarter of 2017. The WEI is expected to grow in the 1.3 – 1.6% range over the coming six months. Both new business incorporations and initial unemployment claims are providing positive signals at this time.

The next Worcester Economic Indicators report will be issued in early February 2018. Additional information about this project is available at:
<http://www1.assumption.edu/worcester-economic-indicators-project/>.

Prepared by:
Thomas White, Ph.D.
Department of Economics & Global Studies
Assumption College
508-767-7556
twhite@assumption.edu
November 1, 2017

ⁱ US Department of Commerce, Bureau of Economic Analysis,

https://www.bea.gov/newsreleases/national/gdp/2017/gdp3q17_adv.htm, accessed 10/27/17.

ⁱⁱ 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.

ⁱⁱⁱ Data obtained from the Bureau of Labor Statistics SAE and LAU databases.

^{iv} The not seasonally adjusted BLS data is adjusted for seasonal variation by the author using the X-12 ARIMA program developed by the U.S. Census Bureau.

^v 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.

^{vi} Secretary of the Commonwealth of Massachusetts

^{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.