Worcester Economic Indicators

Fourth Quarter 2018

Another Solid Quarter for the Worcester Economy
Worcester Economic Index increases 3.1%

Worcester Economic Index

During the fourth quarter of 2018 the Worcester area economy continued to grow, but at a more moderate pace than the prior two quarters. Since September, the Worcester Economic Index (WEI) has increased at a 3.1% annualized rate which is down from the revised 3.8% rate of the third quarter. The Worcester Economic Index is estimated using Bureau of Labor Statistics (BLS) employment and unemployment data for the greater Worcester area (NECTA). According to the BLS Current Population Survey of households, local employment has increased over 5% since December of 2017, while the BLS payroll survey results show an almost 2% increase in the number of jobs. The Worcester area unemployment rate remained low, falling to 2.9% in December 2018 down slightly from December 2017.[i] These measures of the labor market each contributed to the rise in the Worcester Economic Index over the past year.

Figure 1: Worcester Economic Index
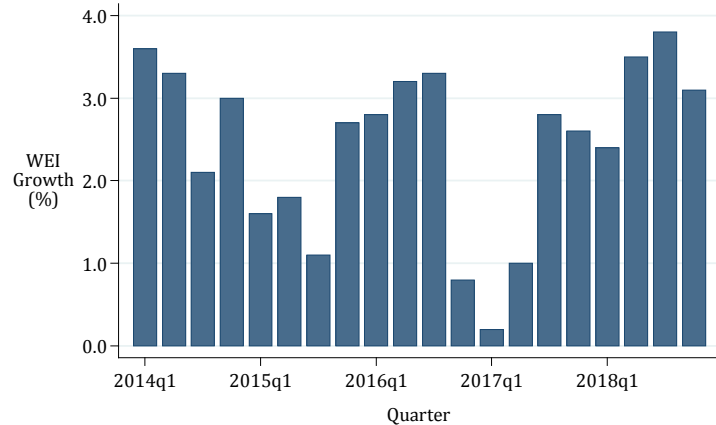Annualized Growth Rates
2014 - 2018

Figure 1 shows the annualized growth rate of the Worcester Economic Index for each quarter going back to 2014, and table 1 presents the Worcester Economic Index, its monthly change and annualized quarterly growth rates over the past year. While the WEI is calculated on a monthly basis it is best not to read too much into changes in any single month, but rather observe changes in the index over longer periods of time. As the table shows, the Worcester economy exhibited consistent growth over the past year. The 2.4% growth from the first quarter was followed by three consecutive quarters of above 3% growth. For the year, the Worcester Economic Index was up about 3.2%, the best annual performance since the 1990s.

The recently concluded federal government shutdown is not reflected in the latest estimates of the Worcester Economic Index. Bureau of Labor Statistics data from both the household and payroll surveys are based on employment status in the week that includes the 12th of each month. Therefore, the December BLS data was collected prior to the

Table 1
Worcester Economic Index (WEI)
December 2017 - December 2018

Month	Worcester Economic Index	Change from previous month	Quarterly Growth Rate, Annualized
December 2017	117.3	0.4	2.6%
January 2018	117.4	0.1	
February 2018	117.8	0.4	
March 2018	118.0	0.2	2.4%
April 2018	118.4	0.4	
May 2018	118.7	0.3	
June 2018	119.0	0.3	3.5%
July 2018	119.4	0.3	
August 2018	119.5	0.2	
September 2018	120.1	0.6	3.8%
October 2018	120.2	0.1	
November 2018	120.7	0.5	
December 2018	121.1	0.4	3.1%

shutdown, which started on December 22nd. However, the January figures which will be released next month will likely be affected by the shutdown, since furloughed federal workers who were not working during the week of January 12th will be counted as unemployed by the household survey. There are approximately 2,100 federal workers in the greater Worcester area.[ii]

Often, the final months of the calendar year coincide with an increase in employment as firms increase their workforce during the holiday season and this appeared to be the case for Worcester in 2018. Table 2 presents Bureau of Labor Statistics data for the fourth quarter. The seasonally unadjusted figures show substantial increases in both payroll and household employment during the September to December period.[iii] However, after adjusting for seasonal variation the employment data paint a more modest, but still positive picture of the labor market. Seasonally-adjusted payroll employment (+900), and household employment (+149) were both up but not much more than is typical during the end-of-year hiring season. And while the seasonally-adjusted unemployment rate (3.1%) fell during the quarter, the drop was due in part to a decline in the labor force (-246). Nevertheless, the seasonally-adjusted Worcester area unemployment rate was below both the Massachusetts (3.3%) and U.S. (3.9%) unemployment rate estimates for December 2018.[iv]

Table 2
BLS Employment Estimates
Worcester NECTA, September 2018 – December 2018

	Not Seasonally Adjusted[iv]			Seasonally Adjusted[iv]		
	September 2018	December 2018	Change Dec – Sept	September 2018	December 2018	Change Dec – Sept
Unemployment Rate	3.4%	2.9%	-0.5	3.4%	3.1%	-0.3
Payroll Employment	296,000	298,000	2,000	294,600	295,500	900
Household Employment	354,491	358,123	3,632	357,188	357,337	149
Labor Force	366,911	368,885	1,974	369,870	369,624	-246

Worcester Economic Outlook

Each quarter, following the estimation of the Worcester Economic Index, a forecast is presented regarding to the future path of the WEI. This forecast is derived from an

econometric model that uses past estimates of the WEI in combination with four national leading indicators. Based on data through the end of 2018, the model currently projects the Worcester Economic Index to continue to grow over the first half of 2019. As table 3 shows, the December six-month forecast is 2.7%, while the average of the October, November, and December forecasts is 2.2%.

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

Component	December 2018	Fourth Quarter Average
Trend	1.5%	1.5%
Consumer Expectations	-0.1%	0.0%
S&P 500	-0.3%	-0.3%
Interest Rate Spread	-0.2%	-0.2%
Leading Credit Index™	0.2%	0.2%
WEI	1.4%	1.0%
Total	2.7%	2.2%

Components may not add to total due to rounding.

Table 3 also shows the growth forecast broken down into its six components. The first component is the long-run trend growth of the WEI which is approximately 1.5%. Both the December and fourth quarter average forecasts are above this long-run trend. The values shown for the other components listed in table 3 represent the amount that each component contributes to the forecast rising above or falling below the trend.

At the present time the component that is the primary source for the above trend forecasts is the Worcester Economic Index itself. The local economy's solid performance over the last several quarters, as captured by the WEI, suggests the economy will maintain its strength in the coming months. Past values of the WEI are used in the forecast model because economies tend to exhibit momentum and therefore recent economic activity can serve as an indicator of the future path of the economy. The more modest rise in the Worcester Economic Index in October compared to November and December (see table 1) is the reason the WEI is providing a smaller contribution to the fourth quarter average forecast (+1.0%) than it does for the December forecast alone (+1.4%).

Conditions in the credit markets, as measured by the Leading Credit Index™, are also providing a positive contribution to the above trend WEI forecast. The Leading Credit Index™ (LCI) is compiled by The Conference Board each month and is a composite of six financial sector variables that aims to capture credit market conditions in the United States. Currently, the LCI is indicating that credit conditions are favorable, and therefore is providing a positive 0.2% bump to both the December and fourth quarter forecasts.[v]

The component which is having the largest negative impact on the WEI forecast is the S&P 500. During the fourth quarter of 2018 the index fell about 14%, and while the S&P 500 has risen since the start of the year, the index is still down since October 1st and therefore is acting as a drag on the WEI forecast.[vi] The S&P 500 lowers both the December and the fourth quarter forecasts by 0.3%.

The interest rate spread is also having a negative impact on the forecast for the Worcester Economic Index. 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. In December, the Federal Open Market Committee of the Federal Reserve

raised its target federal funds rate for the fourth time in 2018. In addition, Treasury bond yields have fallen about 50 basis points since early November[vii], which may be due to a movement of investment funds into the bond market in response to stock market losses. Together, the fall in Treasury bond yields combined with increases in the federal funds target have narrowed the interest rate spread, which indicates a tightening of monetary policy. As a result, the interest rate spread is decreasing both the December and quarterly average forecasts by 0.2%.

The University of Michigan Index of Consumer Expectations, which was 90.5 in September fell slightly in the final three months of the year, down to 87.0 in December. However, the preliminary estimate for January has been reported at 78.3, causing consumer expectations to provide a small negative contribution to the WEI December forecast.[v] The fall in consumer expectations could be related to the government shutdown or reflect concerns regarding the wider economy.

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 a 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 area and initial unemployment claims for Massachusetts, are shown in table 4.

Table 4
Local Leading Indicators
Percentage Change
Quarter 4 2017 to Quarter 4 2018

Indicator	Percent Change	Signal
New Business Incorporations[viii]	0.5%	Neutral
Massachusetts Initial Claims[ix]	-4.8%	Positive

Over the past several years, new business incorporations in the greater Worcester area have been consistently on the rise, which is considered a positive signal because new businesses may look to hire workers in the near future. The fourth quarter of 2018 saw another increase in new business incorporations compared to 2017. However, the increase was only 0.5%, and therefore is best categorized as only a neutral signal with regard to future economic conditions.[viii]

The number of initial unemployment claims filed during the fourth quarter in the Commonwealth of Massachusetts fell from the final quarter of 2017. 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.[ix]

To sum up, the Worcester Economic Index (WEI) increased at a 3.1% annualized in the fourth quarter of 2018. The WEI is expected to grow at about 2.2 – 2.7% over the coming

six months. The economy appears to have momentum, however volatility in the stock market, and a decline in the interest rate spread are restraining the forecast estimates. Massachusetts initial claims continue to provide a positive signal at this time.

The next issue of *Worcester Economic Indicators* be released in early May 2019. Additional information about this project is available at:
https://www.assumption.edu/people-and-departments/organization-listing/economics-and-global-studies/worcester-economic-index

Prepared by:
Thomas White, Ph.D.
Department of Economics & Global Studies
Assumption College
508-767-7556
twhite@assumption.edu
February 1, 2019

_____

[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] State and Area Employment Database, https://www.bls.gov/sae/, accessed January 25, 2019.
[iii] 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.
[iv] Data obtained from the Economy at a Glance of the BLS, https://www.bls.gov/eag/eag.us.htm, accessed January 25, 2019.
[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[TM]: 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] S&P Dow Jones Indices LLC, S&P 500 [SP500], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/SP500, January 28, 2019.
[vii] Board of Governors of the Federal Reserve System (US), 10-Year Treasury Constant Maturity Rate [DGS10], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/DGS10, January 25, 2019.
[viii] Secretary of the Commonwealth of Massachusetts
[ix] Massachusetts Department of Employment and Training.