Worcester Economic Indicators

First Quarter 2018
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Local economy grows 2.3% in First Quarter
*Strongest quarter since Q3 2016*

Worcester Economic Index

The pace of economic activity in the greater Worcester area picked up during the first three months of 2018. The Worcester Economic Index (WEI) grew at a 2.3% annualized rate during the first quarter which is the strongest single quarter since the third quarter of 2016 when the WEI also increased 2.3%. The model utilized to estimate the WEI makes use of Bureau of Labor Statistics data for the Worcester metropolitan area to estimate the path of the economy that is most consistent with recent employment and unemployment statistics. Over the course of the past year all three of the variables used to compute the WEI have moved in a positive direction. According to the Bureau of Labor Statistics Current Population Survey of households, employment in the Worcester area increased about 2.1% since March 2017, while the BLS payroll survey yielded a similar estimate of 2.0% employment growth. In addition, the local unemployment rate was 4.0% in March 2018 down from 4.3% in March 2017.[i] Figure 1 shows the WEI since 2007 and the fairly steady progress of the local economy since the 2008-09 recession. The 2.3% first quarter growth in the WEI is in line with the 2.3% advance estimate of first quarter United States real GDP released by the Bureau of Economic Analysis on April 27th.[ii]

Figure 1: Worcester Economic Index
Since January 2007

(January 2001 = 100)

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, the growth of the WEI has been picking up over the past year.
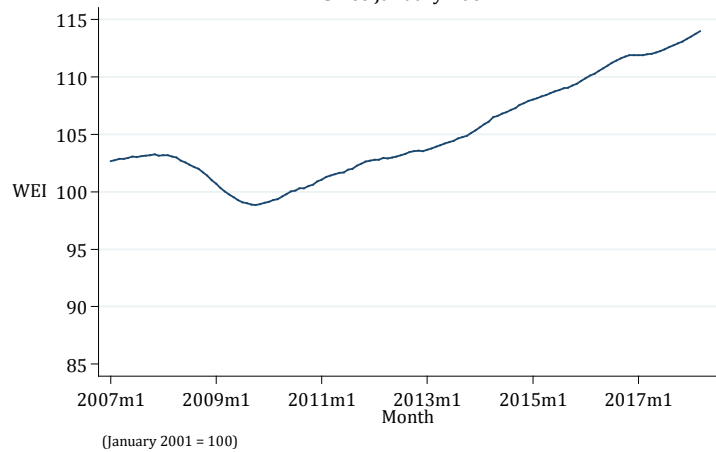
Often there is a fall in employment over the first few months of the year as seasonal hiring during the holidays unwinds. Table 2 shows that payroll employment fell during the first quarter, while household employment and the unemployment rate both increased.[iii] But month-to-month comparisons of not seasonally-adjusted data

	Table 1 Worcester Economic Index (WEI) March 2017 - March 2018		
Month	Worcester Economic Index	Change from previous month	Quarterly Growth Rate, Annualized
March 2017	112.0	0.1	0.2%
April 2017	112.0	0.0	
May 2017	112.1	0.1	
June 2017	112.3	0.2	1.1%
July 2017	112.4	0.1	
August 2017	112.6	0.2	
September 2017	112.8	0.2	1.8%
October 2017	112.9	0.1	
November 2017	113.1	0.2	
December 2017	113.3	0.2	2.0%
January 2018	113.5	0.2	
February 2018	113.8	0.2	
March 2018	114.0	0.2	2.3%

can be misleading and therefore the employment and unemployment data is adjusted for seasonal variation before being used to estimate the WEI. After adjusting the data to control for seasonal variation we see that the payroll employment number is up slightly, while the estimate of household employment is dramatically higher, suggesting a substantial amount of hiring activity, even though the seasonally-adjusted unemployment rate ticked up 0.1. There was also a significant increase in the labor force during the first quarter.[iv] While the labor force is not part of the WEI model it is worth noting that the rise in the labor force is actually somewhat larger than household employment. This explains why the unemployment rate increased slightly over the quarter, since more people are looking for jobs. The increase in the labor force is a sign of a strong labor market since some people may be entering the labor force because they believe that they will be successful at landing a job.

	Table 2 BLS Employment Estimates Worcester NECTA, December 2017 – March 2018					
	Not Seasonally Adjusted[iii]			Seasonally Adjusted[iv]		
	December 2017	March 2018	Change Mar – Dec	December 2017	March 2018	Change Mar – Dec
Unemployment Rate	3.2%	4.0%	0.8	3.7%	3.8%	0.1
Payroll Employment	292,200	287,700	-4,800	290,000	290,400	400
Household Employment	340,797	346,307	5,510	340,054	345,923	5,869
Labor Force	352.220	360,920	8,700	353,145	359,124	5,979

Worcester Economic Outlook

Over the coming six months the Worcester Economic Index is expected to continue to grow, but at a slightly more modest rate than the first quarter. According to the forecast model which utilizes recent movements in the WEI along with four leading indicators of the national economy, the WEI is projected to grow at about 1.8% over the next two quarters based on the average of the forecasts from January, February, and March.

Table 3 shows the growth forecast broken down into its six 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 those components contribute to the forecast rising above or falling below the trend.

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

Component	March 2018	First Quarter Average
Trend	1.3%	1.3%
Consumer Expectations	-0.1%	0.0%
S&P 500	-0.2%	-0.1%
Interest Rate Spread	-0.1%	-0.1%
Leading Credit Index™	0.1%	0.2%
WEI	0.4%	0.4%
Total	1.5%	1.8%

Components may not add to total due to rounding.

At the present time the component making 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 maintain momentum over the short-run, therefore recent economic trends can help explain future performance. The stronger showing of the WEI over the first three months of 2018 is why the WEI is providing a 0.4% boost to the forecast.

The University of Michigan Index of Consumer Expectations was 88.8 in March, down slightly from the prior month. While the index is still relatively high, the quarterly average of the index has not varied much in the past year, so consumer expectations are not having much of an impact on the WEI forecast.[v]

After finishing up 19.4% in 2017, the S&P 500 has had a bumpy start to the year. As of April 26th, the index was down over 7% from its record high on January 26th. As a result the slump in the S&P is lowering the WEI forecast slightly. 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.

Conditions in the credit markets, as measured by the Leading Credit Index™, are currently making a small positive contribution to the WEI forecast. The Leading Credit Index™ 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. This component contributes a 0.2% bump to the average forecast.

The interest rate 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. Following its March 21st meeting the Federal Open Market Committee of the Federal Reserve increased its federal funds rate target range to 1.50% - 1.75%. The higher target rate causes a decline in the interest rate spread which is an indication of a tightening of monetary policy. As a result this component shows a small negative impact on the WEI forecast.

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

New business incorporations continue to provide a positive signal for future economic activity. The number of new businesses incorporated during the first quarter of 2018 increased 13% from 2017.[vi] An increase in incorporations is considered a positive signal because new businesses may look to hire workers in the near future.

Table 4
Local Leading Indicators
Percentage Change
Quarter 1 2017 to Quarter 1 2018

Indicator	Percent Change	Signal
New Business Incorporations[vi]	13.0%	Positive
Massachusetts Initial Claims[vii]	-7.0%	Positive

The number of initial unemployment claims filed during the first quarter in the Commonwealth of Massachusetts fell from the 2017 level. This is also considered a positive signal because it indicates that fewer people were laid off from their jobs and forced to apply for unemployment compensation.[vii]

To sum up, the Worcester Economic Index (WEI) increased 2.3% in the first quarter of 2018. The WEI is expected to grow in the 1.5%–1.8% range over the coming six months. New business incorporations and Massachusetts initial claims are both offering positive signals at this time.

The next Worcester Economic Indicators report will be issued in early August 2018. 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] US Department of Commerce, Bureau of Economic Analysis,
https://www.bea.gov/newsreleases/national/gdp/2018/gdp1q18_adv.htm, accessed 4/27/18.
[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.