

Worcester Economic Indicators

Second Quarter 2018

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Steady Growth Continues in Second Quarter

Worcester Economic Index up 2.5%

Worcester Economic Index

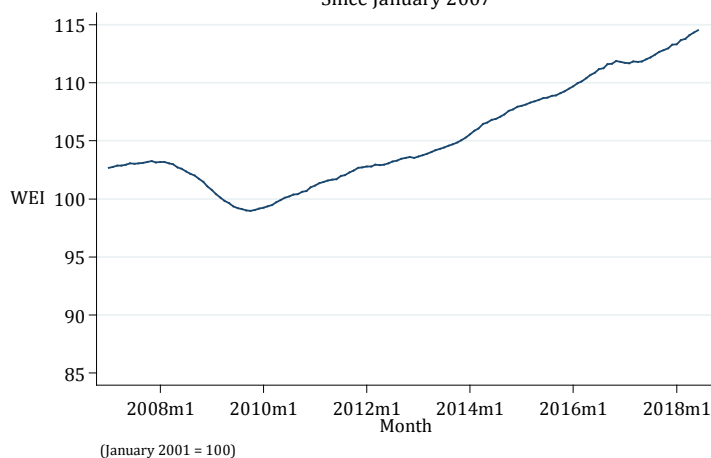
The Worcester economy continued to expand at a moderate pace during the second quarter of 2018. The Worcester Economic Index (WEI) increased at a 2.5% annual rate over the three months ending in June, up modestly from the revised 1.9% posted in the first quarter. The model used to estimate the WEI makes use of Bureau of Labor Statistics (BLS) employment and unemployment data for the greater Worcester area to find an index that best tracks the path of the local economy. Over the past year, each of

the variables used in the estimation of 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 rose about 3.8% over the 12-month period ending in June 2018, while the BLS payroll survey showed an increase of 0.4%.ⁱ In addition, the Worcester unemployment rate dropped slightly from 4.1% to 4.0% over the same period. Figure 1 shows the Worcester Economic Index since 2007 and the fairly steady progress of the local economy since the 2008-09 recession. The 2.5% second quarter growth in the WEI is below the 4.1% advance estimate for second quarter United States real GDP released by the Bureau of Economic Analysis on July 27th.ⁱⁱ

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 in the 2.0%-2.5% range during the past year.

Figure 1: Worcester Economic Index
Since January 2007



The second quarter often shows an increase in the number of jobs due to seasonal hiring during the summer months. This was true again this year as shown in table 2. Both of the BLS surveys showed employment increases from March through June with the payroll and household employment estimates up 3,300 and 6,647 jobs, respectively.

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

Month	Worcester Economic Index	Change from previous month	Quarterly Growth Rate, Annualized
June 2017	112.0	0.2	0.8%
July 2017	112.2	0.2	
August 2017	112.4	0.2	
September 2017	112.7	0.3	2.3%
October 2017	112.8	0.1	
November 2017	112.9	0.1	
December 2017	113.3	0.4	2.1%
January 2018	113.3	0.0	
February 2018	113.7	0.3	
March 2018	113.8	0.1	1.9%
April 2018	114.1	0.3	
May 2018	114.3	0.2	
June 2018	114.5	0.2	2.5%

The increase in employment remained even after taking into account seasonal variation, which indicates the hiring was more than just seasonal. In addition, the labor force showed a fairly substantial increase during the second quarter. While some of the increase is no doubt due to seasonal effects, the seasonally adjusted numbers show an increase of over 5,700 people. Growth in the labor force can be a sign of a strong labor market as individuals who for a variety of reasons may have been out of the labor force choose reenter the labor market due to heightened expectations of finding a job. Finally, while the unadjusted June unemployment rate was unchanged from March the seasonally adjusted rate fell from 3.9% in March to 3.6% in June.ⁱⁱⁱ

Table 2
BLS Employment Estimates
Worcester NECTA, March 2018 - June 2018

	Not Seasonally Adjusted ⁱⁱⁱ			Seasonally Adjusted ⁱⁱⁱ		
	March 2018	June 2018	Change June - Mar	March 2018	June 2018	Change June - Mar
Unemployment Rate	4.1%	4.1%	0.0	3.9%	3.6%	-0.3
Payroll Employment	287,700	291,000	3,300	290,000	291,000	1,000
Household Employment	345,706	352,353	6,647	345,323	349,855	4,532
Labor Force	360,301	367,569	7,268	358,508	364,290	5,782

See page 3 for a breakdown of job growth by industry sector using data from the BLS payroll survey.

Worcester Economic Outlook

Looking forward, the Worcester Economic Index is expected to continue to grow at a pace similar to the past year. Based on the recent performance of the WEI as well as four leading indicators of the national economy, the WEI is expected to grow by about 1.9% over the remainder of 2018. As table 4 shows, the June six-month forecast and the average of the April, May, and June forecasts are both 1.9%.

Table 4 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 estimated to be about 1.3% on an annualized basis. The values shown for each of the other components listed in table 4

A look at employment by sector.

Since June 2017, the greater Worcester area added about 5800 jobs according to the BLS Current Employment Statistics Survey.^{iv} This 2.0% growth is above the 1.5% increase of the prior year and is just slightly better than the 1.9% growth rate for Massachusetts as a whole. Table 3 breaks down employment growth by sector for both Worcester and Massachusetts. Over the past year, the goods producing sector grew more rapidly than the service sector due to increases in both construction and manufacturing jobs. The 8.7% growth in construction sector is well above its long-run average and is outpacing the statewide rate (7.3%). The 2.5% growth in manufacturing employment is noteworthy given the decades long decline in that sector. As for the service sector which accounts for over 86% of local jobs, the professional and business services sector saw substantial employment growth of 8.1%, following a year in which it had fallen 2.6%.

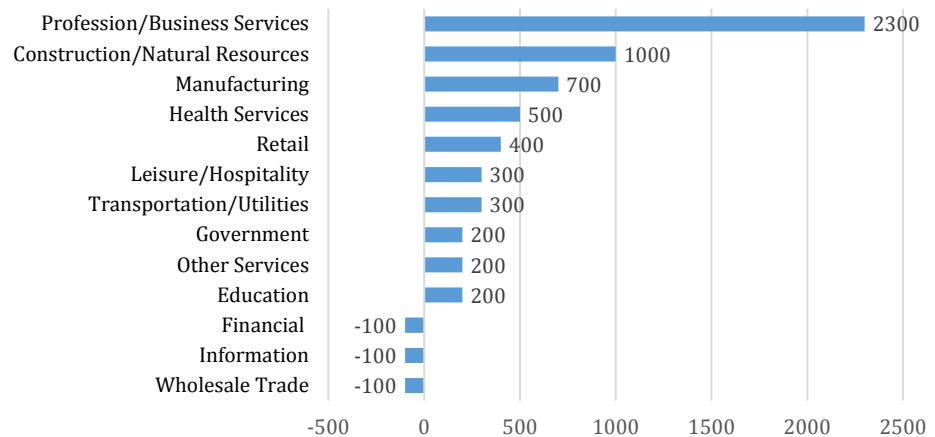
Table 3
Employment Breakdown by Industry
Worcester and Massachusetts

Employment Category	Worcester			Massachusetts		
	Percent change since June 2017	Avg. annual percent chg. since 2000	Share of total nonfarm employment	Percent change since June 2017	Avg. annual percent chg. since 2000	Share of total nonfarm employment
Total Nonfarm	2.0%	0.5%	100.0%	1.9%	0.5%	100.0%
Private Sector	2.3%	0.4%	85.3%	2.2%	0.6%	87.8%
Goods Producing	4.3%	-1.8%	13.9%	4.2%	-1.5%	11.3%
Construction/Nat. Res.	8.7%	0.9%	4.2%	7.3%	1.4%	4.5%
Manufacturing	2.5%	-2.5%	9.6%	2.2%	-2.7%	6.7%
Service Providing	1.6%	0.9%	86.1%	1.6%	0.8%	88.7%
Wholesale trade	-1.0%	-0.5%	3.5%	1.0%	-0.5%	3.4%
Retail trade	1.3%	-0.2%	10.5%	-0.1%	-0.2%	9.6%
Transp./utilities	2.3%	2.5%	4.6%	0.2%	0.4%	2.7%
Information	-2.6%	-0.1%	1.3%	-0.7%	-0.8%	2.4%
Financial	-0.7%	-0.1%	5.1%	0.4%	-0.2%	6.0%
Prof. & bus. services	8.1%	-0.3%	10.5%	5.3%	1.0%	16.2%
Education	1.9%	1.6%	3.6%	-0.1%	0.7%	4.2%
Health	0.9%	2.7%	19.3%	1.1%	2.4%	17.0%
Leisure & hospitality	1.1%	1.5%	9.2%	3.0%	1.8%	11.0%
Government	0.5%	0.8%	14.7%	-0.3%	0.2%	12.2%
Other services	1.8%	1.1%	3.9%	2.7%	1.3%	3.9%

As table 3 shows, the health care sector continues to provide the largest share of overall employment in both Worcester and statewide and while Worcester did see growth in the professional/business service sector its share of local employment (10.5%) is well below the statewide share in that sector (16.2%).

Figure 2 shows the net number of jobs added for each employment sector in the greater Worcester area over the past 12 months. Most sectors added jobs and the three that didn't saw fairly small declines in the actual number of jobs.

Figure 2
12 Month Employment Change by Sector
Net New Jobs, Worcester NECTA since June 2017



represent the amount that those components contribute to the forecast rising above or falling below the trend.

At the present time most of the forecast components are providing only modest contributions to the above trend forecast. The solid performance of the WEI over the

past few quarters is itself providing a positive boost to the forecasts. Past values of the WEI are included in the forecast model because economies tend to maintain momentum over the short-run, therefore past economic trends can help explain future outcomes. The recent strong showing of the WEI is why the WEI is providing a 0.2% contribution to the June 2018 forecast.

Table 4
Breakdown of Projected Growth of WEI^v
6-month growth forecast, annualized basis

Component	June 2018	Second Quarter Average
Trend	1.3%	1.3%
Consumer Expectations	0.1%	0.1%
S&P 500	0.1%	0.0%
Interest Rate Spread	-0.1%	-0.1%
Leading Credit Index™	0.3%	0.2%
WEI	0.2%	0.5%
Total	1.9%	1.9%

Components may not add to total due to rounding.

Conditions in the credit markets, as measured by the Leading Credit Index™, are currently providing a substantial 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. Over the past few months the LCI has fallen, indicating that credit is easier to obtain, and therefore is contributing a positive 0.3% bump to the June forecast.^v

The University of Michigan Index of Consumer Expectations was 87.3 in July, which is relatively high and therefore is providing a small positive contribution to the WEI forecast.

Changes in the S&P 500 stock index are included in the forecast model as a measure of investor attitudes toward future economic conditions. After a rough start to the year, the index has risen almost 6% from April 30 through July 30. As a result, the S&P 500 is providing a modest 0.1% boost to the June 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. The larger the spread the more growth-oriented the policy. After both its March and June meetings the Federal Open Market Committee of the Federal Reserve raised its target federal funds rate by a quarter point which has reduced the interest rate spread. This represents a tightening of monetary policy and as a result this component shows a small negative impact on the WEI forecast.

It should be noted that the WEI forecast does not explicitly take into account the potential of an escalating trade war. However, the components of the forecast should in theory account for that possibility. For example, the index of consumer expectations may fall if there are noticeable increases in the price of imported products, or if there are job losses resulting from a trade war. Similarly, if corporate profits fall due to trading partners imposing tariffs on US goods, the S&P 500 would likely decrease. Currently, both of those components are providing small positive contributions to the WEI forecast.

Additionally, if a trade conflict began to significantly slow the economy the Federal Reserve might choose to hold off on planned future interest rate increases, or even decrease the rate. Such an easing of monetary policy could potentially offset some of the impact of a trade war on the economy.

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 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 5.

Table 5
Local Leading Indicators
Percentage Change
Quarter 2 2017 to Quarter 2 2018

Indicator	Percent Change	Signal
New Business Incorporations ^{vi}	6.9%	Positive
Massachusetts Initial Claims ^{vii}	-8.7%	Positive

Following the trend over the past several quarters, new business incorporations continue to provide a positive signal for future economic activity. The number of new businesses incorporated during the second quarter of 2018 increased by almost 7% compared to 2017.^{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 first quarter in the Commonwealth of Massachusetts decreased 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 2.5% in the second quarter of 2018. The WEI is expected to grow in at about 1.9% 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 November 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/pdf/gdp2q18_adv.pdf, accessed 7/28/18.

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 State and Area Employment Database (SAE) of the BLS, accessed 7/29/18.

^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.