

ECONOMIC UPDATE

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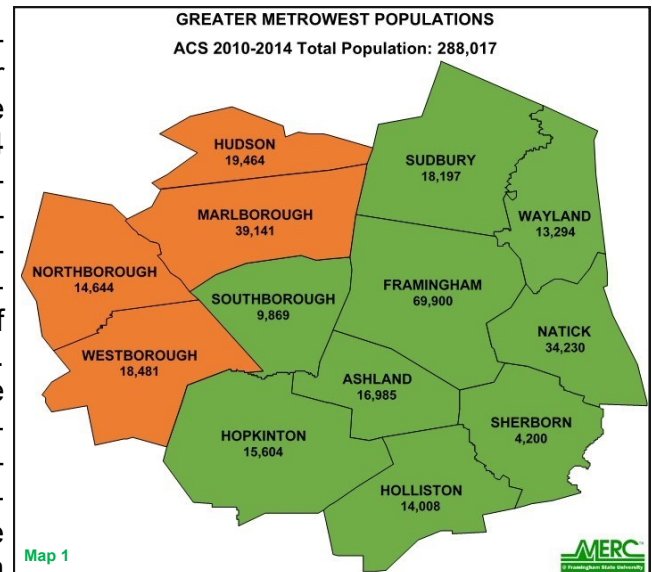
Fall 2016

Population & Race Distribution Throughout GMW

By: Cecilia Valentine

The MetroWest Economic Research Center (MERC) at Framingham State University used the 2010-2014 estimates from the U.S. Census Bureau's American Community Survey (ACS) to research the population distribution and demographics of Greater MetroWest (GMW). The primary purpose of the ACS is to measure the changing social and economic characteristics of the U.S. population. The ACS does not provide official counts of the population in between censuses. Therefore, the U.S. Census Bureau's population estimates will continue to be the official source for annual population totals.

GMW's communities are comprised of Ashland, Framingham, Holliston, Hopkinton, Hudson, Marlborough, Natick, Northborough, Sherborn, Southborough, Sudbury, Wayland, and Westborough, shown in Map 1. The ACS estimates that between 2010 and 2014 the total population of GMW was 288,017 individuals, compared to the total population of 280,917 individuals in Census 2010. Of the thirteen communities in the region, Framingham had the largest population, totaling 69,900 individuals or 24.3% of the GMW population. Marlborough had the second largest population with 39,141 individu-



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Manufacturing Dominates 495/MetroWest

By: Cameron Coburn

Manufacturing dominated the 495/MetroWest Corridor (495/MW) in 2015 with a higher concentration of both jobs and establishments than the state. The 495/MetroWest region consists of 35 communities located along Interstate 495 and I-90¹. Employment data for the region includes the

number of employees, total wages and the number of establishments. It refers to jobs at business establishments located within the 35 communities, not residents of the communities. Workers holding these jobs do not necessarily have to live in the communities. At MERC we track the concentration of jobs and establishments by supersec-

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By: Matthew Diver

Matthew Diver

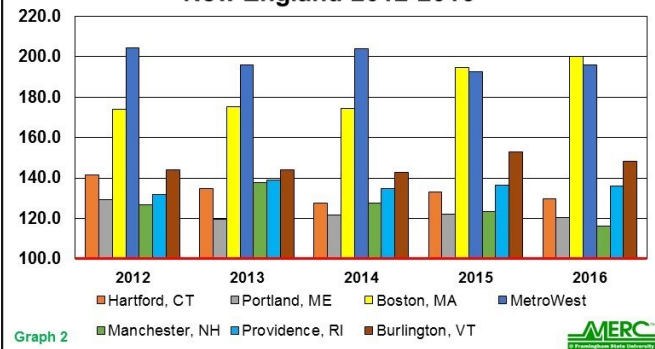
Intern II
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The Council for Community and Economic Research (C2ER) orchestrates a quarterly national Cost of Living Survey to measure the differences in the cost of living in communities across the country. There are 57 items specified by C2ER, each sorted into indexes. These sub-indexes are Health Care, Housing, Grocery Items, Utilities, Transportation, and Miscellaneous Goods and Services. The Overall Cost of Living Index is the weighted average of all of these sub-indexes.

The data examined here spans 2012 to 2016, looking specifically at MetroWest and six other New England communities. The value of the index each year is the average of each of the quarterly surveys conducted throughout the year. Each year's Index uses a base value of 100.0, indicated by the red line on the bottom of each of the charts, as the national average for each respective year. Please note that we cannot make direct comparisons from year to year as the goods priced or weight in the Index may change. However, we can observe trends across years because each community is related to the specific national average of that year. It can be said that Boston was 20%

Cost of Living Across New England

HOUSING INDEXES New England 2012-2016



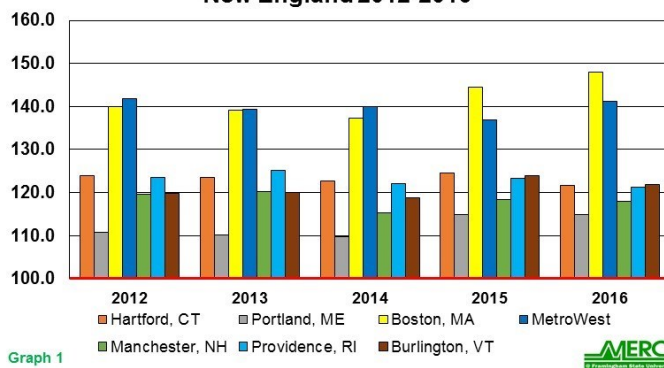
more expensive to live in than Burlington, Vermont in 2012, but it cannot be said that there was an x% change in Boston's Overall Cost of Living from 2012 to 2013.

In Graph 1 below we observe the Overall Cost of Living and can see the navy blue and yellow bars of MetroWest and Boston have significantly higher readings than all the other communities in each year. These two local communities had similar index values over these 5 years, always in the neighborhood of an index of 140. This means that in these areas, the Overall Cost of Living is roughly 40% higher than that of the national average. It is interesting to see that it was not until 2015 that the cost of living in Boston took the top spot holding an index value of 144.5 and then reported a higher index the following year with a reading of 148.0. Although all of the areas being reported are higher than the national average, Portland, Maine consistently had the lowest Overall Cost of Living in New England. At its lowest point in 2014, Portland had an Index value of 109.8. The rest of the communities are all pretty similar, averaging index values roughly between 115 and 125.

The information on Graph 2 above shows the sub-index data of Housing. This sub-index holds the second highest weight out of the six at 28%, only Miscellaneous Goods and Services has a higher weight than Housing at 32.8%.

Similar to the first graph shown,

OVERALL COST OF LIVING INDEXES New England 2012-2016





Timothy Bryan

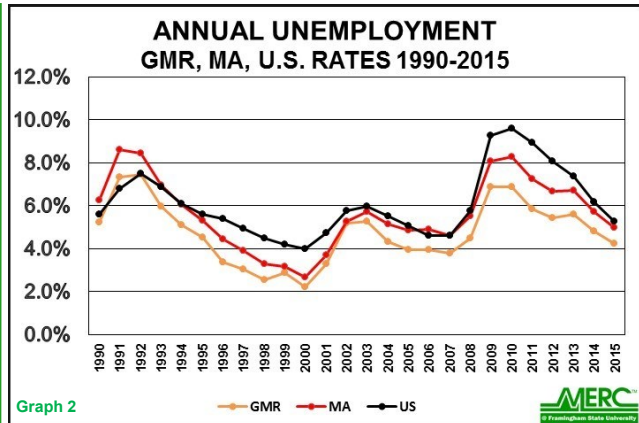
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By: Timothy Bryan

The Greater Marlborough Region (GMR) is composed of four communities: Hudson, Marlborough, Northborough, and Westborough. In August 2016, Hudson had the highest unemployment rate of 3.8%, followed by Northborough at 3.3%, and Marlborough at 3.2%. Among the four communities, Westborough had the lowest unemployment rate in August 2016 at 2.9%. During the same period, the U.S. had an unemployment rate of 5.0% which was higher than the state and the GMR as a whole. Massachusetts and GMR posted unemployment rates of 4.8% and 3.3%, respectively. See Graph 1 below.

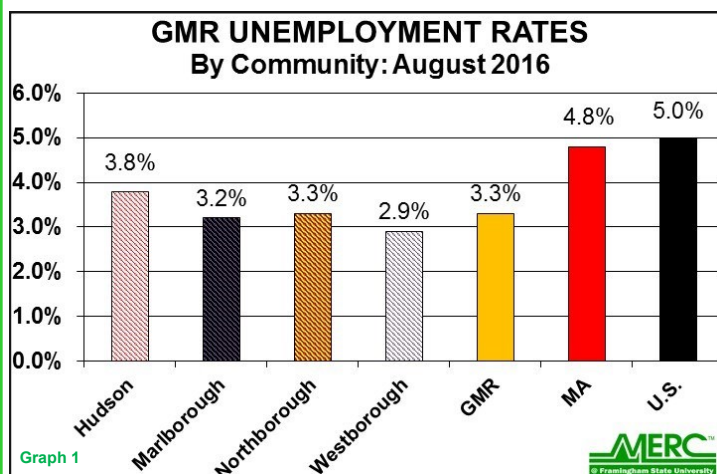
Looking back at annual unemployment rates from 1990 to 2015 for GMR, Massachusetts and the U.S., we can see a large fluctuation in rates over the years. The annual unemployment rates are computed by taking an average of the monthly unemployment rates for the entire year. In 2015 GMR posted an unemployment rate of 4.2%, which was lower than the United States and Massachusetts rates of 5.3% and 5.0%, respectively. These rates were all marginally lower than their rates in 2014. For the past twenty-six years the annual unemployment rate for GMR has always been lower than those of

GMR Unemployment Rates Outperform the State & Nation



the state and the nation except in 1991 and 1992 when GMR had rates above those of the nation. Over the span from 1990 to 2015, the sharpest increase in unemployment rates in GMR, the state, and the nation occurred from 2008 to 2009 during the Great Recession. During this period the largest increase was in the national rate which posted an increase from 5.8% to 9.3%. During the twenty-six year period, the Greater Marlborough Region, Massachusetts and the United States posted their lowest unemployment rates of 2.2%, 2.7%, and 4.0%, respectively, in 2000. See Graph 2 above.

The labor force in the Greater Marlborough Region in August 2016 was comprised of 52,887 individuals. Among the four communities that make up GMR, Marlborough contributed the most individuals to the region's total labor force with 23,704 individuals, about 45% of the labor force in GMR. Hudson and Westborough each contributed about 20% of the region's total labor force. Lastly, Northborough had the smallest portion of GMR's total labor force, with 7,926 individuals or 15% of the region's total labor force. So, Marlborough's labor force contributed nearly half of the whole region's total labor force and it was greater than that of Hudson's and Westborough's labor force combined. In fact, if we compare Northborough and Marlborough's labor forces, it turns out



Continued from page 1



Cecilia Valentine

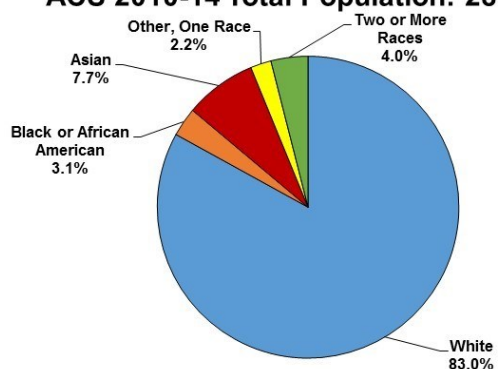
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als, closely followed by Natick with 34,230 individuals. The community with the smallest population was Sherborn, totaling 4,200 individuals or 1.5% of the region's population. The second smallest population was Southborough, with a total of 9,869 individuals.

Graph 1 below displays the race distribution throughout the thirteen communities in the region. The largest percentage of the population, 83%, self-identified as White. This means that

239,050 individuals of the total population of GMW self-identified as White. The second largest percentage of population self-identified as Asian, at 7.7%, or 22,215 individuals. This means more than 90% of the population selected White or Asian, leaving a small percent in the other three categories. Other, One Race recorded the smallest percentage of population at 2.2%. This category includes American Indian and Alaskan, Native Hawaiian, and any other single race not specifically identified. African American recorded the second smallest percentage of population at 3.1%. Two or More Races recorded a population percentage of 4.0%, or 11,429 individuals. This category

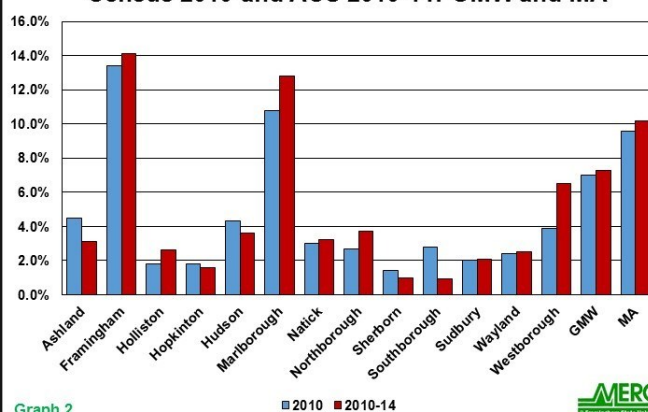
GMW RACE DISTRIBUTION ACS 2010-14 Total Population: 288,017



Graph 1



HISPANIC/LATINO POPULATION Census 2010 and ACS 2010-14: GMW and MA



Graph 2



includes the population that self-identifies as any two races, whether it be White and African American, or Asian and Native Hawaiian, or other combinations.

Graph 2 above represents the percent of Hispanic and Latino population for GMW and Massachusetts. According to Census 2010, "Hispanic or Latino" refers to a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race. The "Hispanic or Latino" question is therefore asked separately from race. Graph 2 shows the comparison between Census 2010 and ACS 2010-2014. From 2010 to 2014, Massachusetts had a slight increase of 0.6 percentage points in the Hispanic and Latino population, while GMW had a smaller increase of 0.3 percentage points. Overall, there were no major increases or decreases within the region between the two periods of time. Within the region, Framingham has the largest Hispanic and Latino population of 14.1% from 2010 to 2014, whereas Southborough has the smallest population of 0.9%. The town of Westborough had the largest increase of Hispanic and Latino population of 2.6 percentage points. While Southborough had the largest decrease in the Hispanic and Latino population of 1.9 percentage points. Ashland, Hopkinton, Hudson, and Sherborn also had decreases in Hispanic and Latino population. ■

Continued from page 1



Cameron Coburn

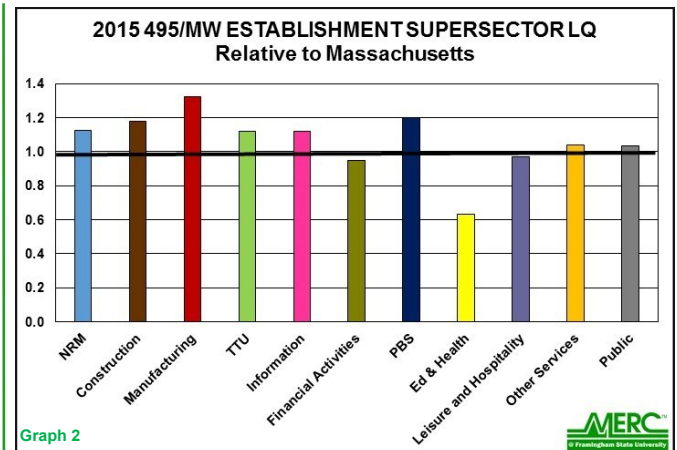
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tor compared to the rest of the state by examining the Location Quotients (LQ) of each supersector. A location quotient greater than one means there is a higher concentration of that supersector in the region compared to the state.

Graph 1 below displays the 2015 495/MetroWest employment LQs by supersector. In 2015 four 495/MW supersectors had LQs greater than 1.0: Natural Resources & Mining, Construction, Manufacturing, Trade, Transportation &

Utilities (TTU), Information, and Professional & Business Services (PBS). Manufacturing achieved the highest LQ in the region with 1.79 or a 79% higher concentration than the state. Five supersectors in the region had LQs below 1.0 in 2015: Financial Activities, Education & Health Services, Leisure & Hospitality, Other Services and the Public Sector.

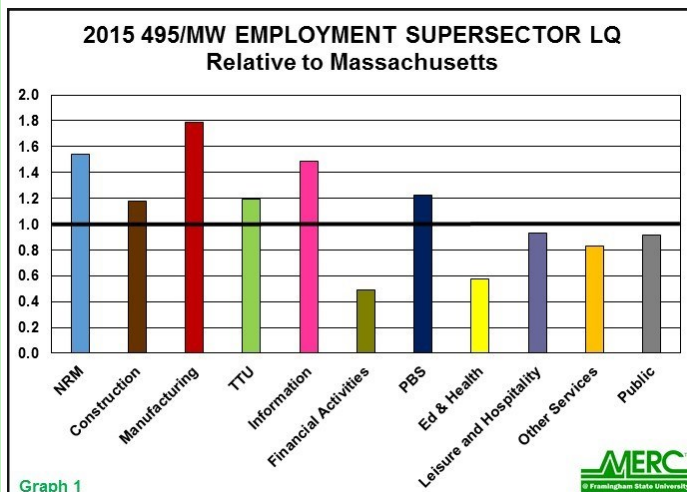
495/MetroWest establishment LQs by supersector are displayed above in Graph 2. Of the eleven supersectors, just three had a lower concentration of establishments than the state. Manufacturing and Professional & Business Services had the highest LQ with 1.32



and 1.20 or 32% and 20% higher concentration than the state, respectively. Education and Health Services had the lowest LQ in the region with 0.63 or 37% less concentration than the state.

In examining manufacturing in 495/MetroWest we see that not only is there a high concentration of jobs, but they are highly paid. The region had a manufacturing average wage of \$109,000 in 2015, higher than the state's at \$86,200. Graph 3 on page 7 displays towns with the highest average manufacturing wage in the region. Hopkinton and Marlborough's average manufacturing wage of \$137,000 and \$127,400 were higher than the region and state at \$109,000 and \$86,200, respectively. These high manufacturing wages can be explained mostly by the high-end tech and medical manufacturing firms in the region. Hopkinton and Marlborough each had the highest number of manufacturing employees in the region with 6,200 and 4,600, respectively. Manufacturing payroll made up 21% of the region's total payroll.

As we have seen, manufacturing dominated the 495/MetroWest region in terms of both employment and establishments in 2015. Professional & Business Services followed closely in both categories. The region's economy is diversified with six employment supersectors posting LQs greater than one, and eight establishment supersector LQs greater than one. Hopkin-



Continued on page 7

**James Alimi**

Intern II

Focus

Municipal Revenue

Major

Economics

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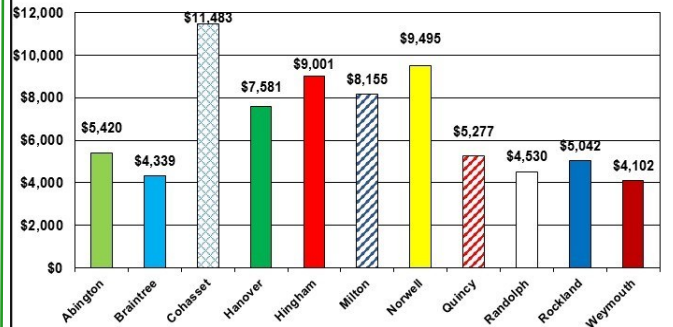
By: James Alimi

The South Shore (SS) region is made up of eleven communities: Abington, Braintree, Cohasset, Hanover, Hingham, Milton, Norwell, Quincy, Randolph, Rockland, and Weymouth. Each year the MetroWest Economic Research Center, MERC, gathers information from the Massachusetts Department of Revenue, Division of Local Services and updates information on municipal

revenue for several regions including the South Shore. Municipal revenue is made up of the sum of total tax levy, state aid, local receipts, and "all other." Total tax levy can be divided into four separate categories: residential, commercial, industrial, and personal property. State aid can also be divided into two categories; state aid for education in the form of Chapter 70 funds and state aid for general government operation. The amount of state aid received in Chapter 70 funds is determined by student enrollment categories, the property assessments of the community, and income of the residents. Local receipts is made up of charges from local revenues sources such as sewer, water, and motor vehicle excise. The "all other" category contains available free

Steady Growth for South Shore Municipal Revenue

AVERAGE SINGLE FAMILY TAX BILL
South Shore Communities FY2016

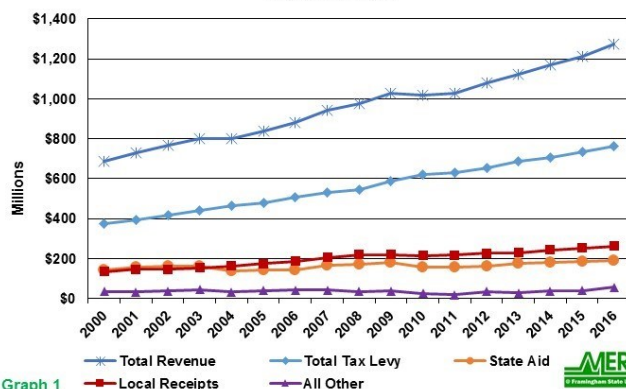


Graph 2

cash.

Graph 1 below shows that municipal revenue in South Shore communities increased from \$686 million in FY2000 to \$1.3 billion in FY2016, an increase of 86.8% over the sixteen-year period. The total tax levy and local receipts both outpaced the steady growth of total municipal revenue, while "all other" increased at a more modest pace and state aid increased very slowly. The region as a whole had the total tax levy grow from \$373 million in FY2000 to \$765 million in FY2016, an increase of 105%. Total tax levy rose more than \$20 million each year for the five most recent years, with the largest increase of \$33 million from FY2012 to FY2013. Local receipts, which also outpaced the growth of total municipal revenue, grew 95.5% with the largest increase from FY2006 to FY2007, an increase of \$19 million. The "all other" category, which increased more slowly than total municipal revenue over the period, had more variable growth. In six years the amount declined, the most recent of which was in the FY2012 to FY2013 period with a decline of \$7 million. State Aid grew by only 32.3% over the sixteen year period. Although there was steady growth in two periods, there were dramatic decreases in State Aid. From FY2003 to FY2004 State Aid declined \$20 million and from FY2009 to FY2010 during the economic crisis State Aid in the South Shore decreased by \$23 million.

FY2000-2016 TOTAL REVENUE
South Shore



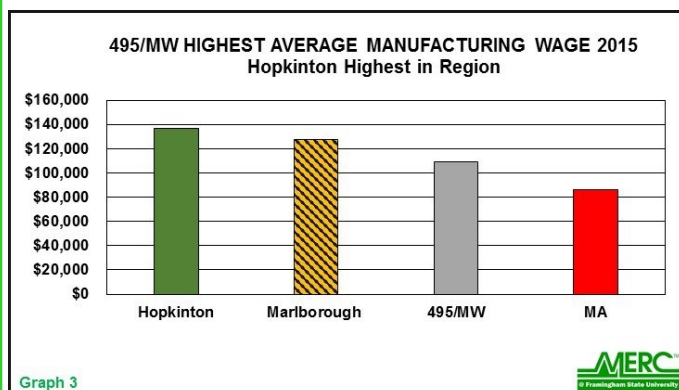
Graph 1



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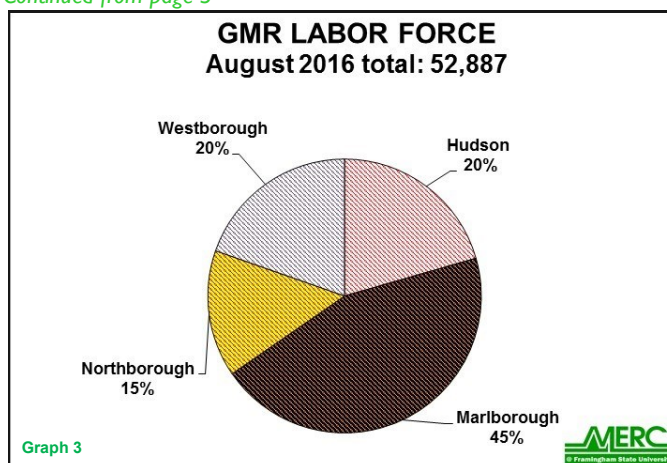
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ton and Marlborough led the region's dominance in manufacturing posting its highest number of jobs and average wage for the supersector. ■



¹495/MetroWest communities: Acton, Ashland, Bellingham, Berlin, Bolton, Boxborough, Foxborough, Framingham, Franklin, Grafton, Harvard, Holliston, Hopedale, Hopkinton, Hudson, Littleton, Marlborough, Maynard, Medfield, Medway, Milford, Millis, Natick, Norfolk, Northborough, Sherborn, Shrewsbury, Southborough, Stow, Sudbury, Upton, Wayland, Westborough, Westford, Wrentham.

Continued from page 3



Marlborough's labor force was three times as large as Northborough's. See Graph 3 above.

In summary, in August 2016 the four communities that make up GMR had unemployment rates lower than the nation and the state. If we look back at the annual unemployment rates for the last twenty-six years, GMR's unemployment rates were consistently lower than both the Massachusetts and national rates. The lowest unemployment rates for the GMR, Massachusetts, and the U.S. all occurred in the year 2000. Among the four communities in the GMR, Marlborough dominated the total labor force with 45% of the region's total labor force. ■

Former MERC Interns: Where Are We Now?

Since MERC's founding in 1991, more than 200 students have participated in the MERC Internship Program. We reached out to a few of the former interns to see where their careers have taken them since leaving MERC and graduating from Framingham State University. We received many responses and have highlighted two of them below.

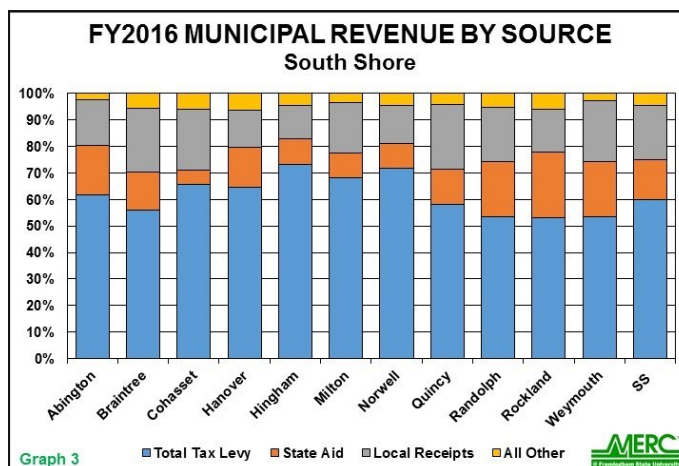
Kristy Reed interned with MERC from Fall 1998 to Spring 2000. Kristy currently works as a Marketing Analytics Manager at BJ's Wholesale Club Corporate Office. Kristy provides analysis and insight on various marketing initiatives, such as acquisition, retention, and win back. Kristy reports that her experience with MERC provided her the ability to analyze data and show the results in graphs and presentations. Kristy reminds current and future interns that networking is very important.

Andre Fernandes interned with MERC from Fall 2013 to December 2014. He currently works as a Business Analyst in analytics consulting for Liberty Mutual in Boston. His products are with Data Science and have been focused on financial and predictive modeling. He utilizes foundational knowledge gained while interning. Through MERC, Andre says he targeted working with data heavily out of college, and believes his current role has exposed him to numerous fields that he had not before considered. Andre reminds and advises interns at MERC to focus on internship opportunities before senior year.

Continued from page 6

Graph 2 on page 6 shows the average single family tax bill by community for each of the communities in the South Shore region in FY2016. Three communities had average tax bills higher than \$9,000: Cohasset, Hingham, and Norwell. Cohasset had the highest tax bill at \$11,483 while Hingham and Norwell both had bills under \$9,500. Hanover and Milton both fell between \$7,000 and \$9,000, and the remaining six communities of Abington, Braintree, Quincy, Randolph, Rockland, and Weymouth all had average single family tax bills below \$5,500. Weymouth had the lowest average single family tax bill at \$4,102. Cohasset's average single family tax bill was 2.8 times higher than Weymouth's. The difference between Cohasset and Weymouth is large enough to have covered the average single family tax bill in any of the five other communities amongst the six least expensive communities.

Graph 3 above shows the breakdown of municipal revenue in FY2016 by the four categories of total tax levy, state aid, local receipts, and "all other" for each of the communities that make up the South Shore, and for the region as a whole. The total tax levy averaged 60% for South Shore, with six communities running above and five below. The range runs from Hingham at 73% to Randolph, Rockland, and Weymouth all of which were at 53%. State aid makes up a much smaller portion of the regional municipal revenue



at only 15% for the South Shore with variation among the communities. The range was 19% with Cohasset receiving 6% of municipal revenue from state aid while Rockland received 25% of municipal revenue from state aid. Local receipts averaged 20% of total municipal revenue with a low of 12.5% in Hingham and a high of 24% in Braintree. As a category "all other" averaged only 4.5% of the total municipal revenue with a range of 2.5% in Abington to 6.5% in Hanover. ■

Intern of the Week

Look for updates on MERC's Facebook and Twitter about the intern of the week. The interns who are highlighted are chosen based upon their hard work and dedication to MERC.

METROWEST WELL BEING ECONOMIC CHART 2ND QUARTER 2016 REPORT

Produced quarterly by MetroWest Economic Research Center,
a unit devoted to economic research at Framingham State University.



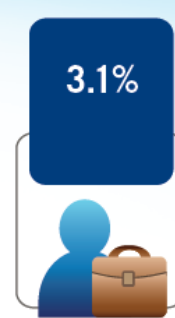
In cooperation with:



COST OF LIVING



MEDIAN PRICE OF EXISTING HOME SALES



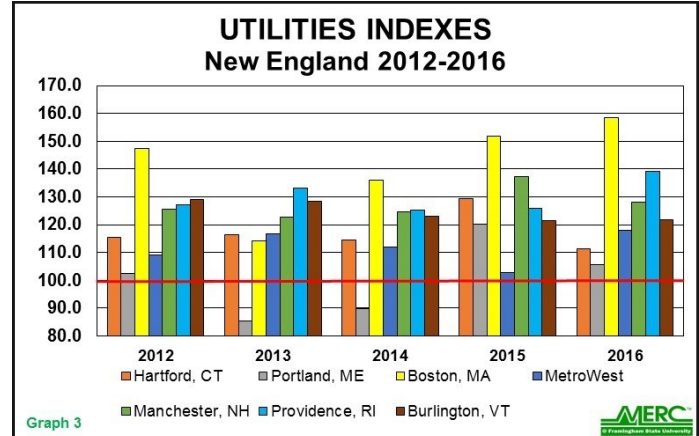
UNEMPLOYMENT RATE

Cost of Living and Median Price of Existing Home Sales represent Q1 to Q2 change;
Unemployment represents rate in Q2 2016 in Greater MetroWest.

Continued from page 2

MetroWest and Boston hold the top spots compared to the other areas being observed. Like the previous graph, it was not until 2015 that Boston outranked MetroWest in the Housing Index. One major difference in this graph compared to the last is that both MetroWest and Boston are more expensive than the rest, compared to the Overall Index. In the first graph, there was a high of 148.0, but in graph 2 the highest recorded Housing Index occurred in 2012 in MetroWest at 204.5. This means that the average cost of housing was 104.5% higher than that of the national average. The other New England areas also record a high index value compared to the national average. While in Graph 1 they were around 120, they lean closer to readings of 130-140. To put these values in perspective, the highest housing index in the country, Manhattan, New York dwarfs all these indexes with its most recent reading at 460.1.

The last index being discussed is the Utilities Index in Graph 3 above. This sub-index has a weight of 10.2% in the calculation of the Overall Index, fourth highest weight in the average. It can easily be seen that there is a different trend compared to the last two. While MetroWest was among the top 2 in the



Overall and Housing Indexes, it falls closer to the bottom of the list, and actually the bottom spot in 2015 with a value of 102.5. Providence, Manchester, Hartford, and Burlington, are clustered together at approximately 120. Portland, Maine was the only area in any of these Indexes that fell below the national average of 100, indicated by the red line, at any time. Boston consistently had the highest Index for utilities, except in 2013 where it dropped to 114.3. The highest Index value on the chart was recorded in Boston at 158.4 in 2016. ■

High School Visit Program

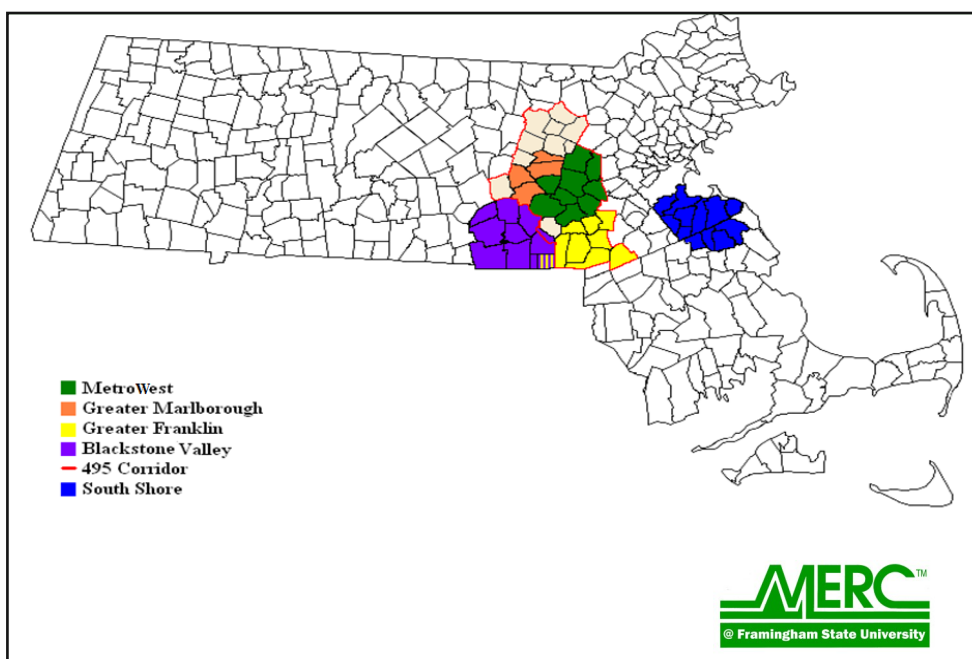
MERC senior interns Tim Bryan (on the left) and Matt Diver (center) continued the tradition in Fall 2016 by coordinating high school visits this semester to Bedford High School and Lincoln-Sudbury High School. Tim presented on Unemployment and Labor Force, while Matt incorporated his research on the Cost of Living. The two interns shared their research along with their MERC experiences with high school economics classes. Senior intern James Alimi (far right) joined them at Lincoln-Sudbury High School and presented municipal revenue.

The program is intended to stimulate thought and discussion pertaining to economics while also trying to spark interest for collegiate studies. The presentation allows high school students to be more aware of the broad impact economics plays in everyday life, and how they can apply economics to their future endeavors.



MERC SUBSTATE REGIONS MAP

MERC provides economic data and analysis for the 6 sub-state regions shown on the map: MetroWest CCSA™, Greater Marlborough Region, Greater Franklin Region, Blackstone Valley, 495/MetroWest Corridor, and the South Shore CCSA™.



There are several categories of unemployment rates. U-1 through U-6, not seasonally adjusted, are reported below for the U.S. period rates in September 2016. MERC uses the U-3 rate, which is the official unemployment rate.

Measures: U.S. September 2016

U-1	Persons unemployed 15 weeks or longer, as a percentage of the civilian labor force	1.9%
U-2	Job losers and persons who completed temporary jobs, as a percentage of the civilian labor force	2.2%
U-3	Total unemployed persons, as a percentage of the civilian labor force (the official unemployment rate)	4.8%
U-4	Total unemployed persons plus discouraged workers, as a percentage of the civilian labor force plus discourage workers	5.1%
U-5	(U-4) plus all other "marginally attached" workers, as a percentage of the civilian labor force plus all "marginally attached" workers	5.9%
U-6	Total unemployed persons, plus all "marginally attached" workers, plus all persons employed part time for economic reasons, as a percentage of the civilian labor force plus all "marginally attached" workers	9.3%

September 2016 UNEMPLOYMENT RATES Not Seasonally Adjusted (Preliminary Data)

495/MW	2.7%
Blackstone Valley	3.2%
Blackstone	3.5%
Douglas	2.8%
Grafton	2.9%
Hopedale	3.3%
Mendon	3.1%
Millbury	3.2%
Millville	3.6%
Northbridge	3.5%
Sutton	2.9%
Upton	3.1%
Uxbridge	3.1%
Greater Franklin	2.9%
Bellingham	3.1%
Blackstone	3.5%
Foxborough	2.9%
Franklin	2.9%
Medfield	2.7%
Medway	2.6%
Millis	2.9%
Norfolk	2.5%
Wrentham	2.5%
Greater Marlborough	2.8%
Hudson	3.2%
Marlborough	2.7%
Northborough	2.9%
Westborough	2.5%
MetroWest	2.6%
Ashland	2.3%
Framingham	2.6%
Holliston	2.8%
Hopkinton	2.9%
Natick	2.5%
Sherborn	2.1%
Southborough	2.8%
Sudbury	2.5%
Wayland	2.5%
Milford	3.3%
South Shore	3.4%
Abington	3.8%
Braintree	3.3%
Cohasset	2.5%
Hanover	2.7%
Hingham	2.8%
Milton	3.1%
Norwell	3.1%
Quincy	3.3%
Randolph	4.1%
Rockland	3.7%
Weymouth	3.6%
Massachusetts	3.3%
United States	4.8%

A Peek Inside MERC



MERC Interns: Fall 2016



Back Row: Eliezel Vargas, Mark Albano, Timothy Bryan, Matthew Diver, Cameron Coburn, John Murphy, Kyle Rosa

Front Row: Joao Paulo Dasilva Marinho, Rachel Kennedy, Joanna Lin, Cecilia Valentine, Dayna Marchant, James Alimi

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Friday, May 12, 2017
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