



*Mass*Benchmarks

THE JOURNAL OF THE MASSACHUSETTS ECONOMY

Massachusetts Faces Challenges Despite Continuing Prosperity

Massachusetts' Leisure, Hospitality, and Tourism Industry:
Anatomy and Prospects

Logan Airport's Dynamic Role in an Innovation Economy

The Price-Rent Ratio for Housing During the Boom and Bust:
Measurement and Implications

*A publication of the University of Massachusetts in
cooperation with the Federal Reserve Bank of Boston*

MassBenchmarks

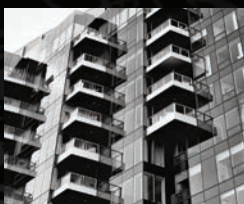
2018 | volume 20 issue 2



11



19



27

MassBenchmarks, published by the University of Massachusetts in cooperation with the Federal Reserve Bank of Boston, provides timely information about the Massachusetts economy, including reports, commentary, and data about the state's regions and industry sectors that comprise them.

The editors invite queries and articles on current topics involving the Massachusetts economy, regional economic development, and key growth industries from researchers, academic or professional economists, and others. Topical information and a brief biography of the author should be sent to info@donahue.umassp.edu.

Links to past issues, latest news, updates, and additional research on the Massachusetts economy can be found at www.massbenchmarks.org.

EXECUTIVE EDITOR

Robert Nakosteen, University of Massachusetts Amherst

COEDITORS

Michael Goodman, University of Massachusetts Dartmouth

Katharine Bradbury, Federal Reserve Bank of Boston

SENIOR CONTRIBUTING EDITOR

Alan Clayton-Matthews, Northeastern University

SENIOR MANAGING EDITOR

Mark Melnik, University of Massachusetts Donahue Institute

MANAGING EDITOR

Rebecca Loveland, University of Massachusetts Donahue Institute

FOUNDING EDITOR

Lynn Browne, Brandeis University; Federal Reserve Bank of Boston (retired)

EDITORIAL BOARD

Frederick Breimyer, Federal Deposit Insurance Corporation (retired)

Mary Burke, Federal Reserve Bank of Boston

Peter Doeringer, Boston University

Robert Forrant, University of Massachusetts Lowell

Michael Klein, Tufts University

Yolanda Kodrzycki, Federal Reserve Bank of Boston (retired)

Frank Levy, Massachusetts Institute of Technology

Alicia Sasser Modestino, Northeastern University

Christopher Probyn, State Street Bank

Geoffrey Somes, Federal Deposit Insurance Corporation

James Stock, Harvard University

David Terkla, University of Massachusetts Boston

Robert K. Triest, Northeastern University

Paul Willen, Federal Reserve Bank of Boston



2 Letter from the President
Martin T. Meehan

3 Notes from the Board
The expansion of the Massachusetts economy continues but inequality and concerns about sustainability persist.

4 Massachusetts Faces Challenges Despite Continuing Prosperity
Robert Nakosteen
In the third quarter of 2018, the state’s gross domestic product growth kept pace with the nation’s own strong GDP expansion. Massachusetts’ unemployment rate in September was half a percentage point lower than in September of 2017. State policymakers, however, must come to terms with labor market threats posed by daunting house prices and commutes.

11 Massachusetts’ Leisure, Hospitality, and Tourism Industry: Anatomy and Prospects
Mark Melnik
The Commonwealth’s Leisure, Hospitality, and Tourism industry employs 376,000 workers and generates more than \$28 billion. It spins off another 232,000 jobs and \$41 billion of output in other industries. It offers, however, the lowest wages of any industry in the state.

19 Logan Airport’s Dynamic Role in an Innovation Economy
Branner Stewart
The fastest growing component in Logan Airport’s rise to national prominence is its international passenger service accounting for one third of the airport’s growth. At the same time, international airfreight at Logan increased by 71 percent from 2010 to 2017. Those factors have helped Logan to catalyze Massachusetts’ innovation economy and Boston’s stature as a global city.

27 Endnotes — The Price-Rent Ratio for Housing During the Boom and Bust: Measurement and Implications
Jaclene Begley, Lara Loewenstein, and Paul S. Willen
The price-rent ratio over fifteen years captures falling home ownership rates leading to higher demand and prices for rentals.

FROM THE PRESIDENT



For over two decades *MassBenchmarks* has published timely analyses of conditions and policies that have a meaningful impact on the Massachusetts economy and the people and institutions that make up our Commonwealth. This issue is no exception.

In their *Notes From the Board*, the distinguished members of the *MassBenchmarks* Editorial Board again raise concerns about the sustainability of our current economic expansion, which is now entering its 10th year. While their concerns about labor supply, counterproductive federal policies, and housing affordability are well-established, they remind us that the fundamental competitive advantage of Massachusetts is its talented and innovative people, who have long made our economy the envy of other states and trading partners across the nation and the world. The editorial board members conclude their assessment of state economic conditions by once again urging state policymakers to prioritize strategic investments in our people and infrastructure. As always, the issue opens with a detailed review of current conditions in the Massachusetts economy prepared by UMass Amherst Professor and *MassBenchmarks* Executive Editor Robert Nakosteen. In his analysis, Professor Nakosteen documents the continuing expansion of the state economy, which, in many respects, continues to be performing well. However, he echoes the concerns of the Editorial Board and highlights the growth constraining effects of current national immigration and trade policies, which are serving to slow our expansion and create challenges for employers across the Commonwealth.

The feature articles focus on two stalwart contributors to the state economy, our large and vital Leisure, Hospitality, and Tourism industry, and the dynamic role that New England's largest airport — Logan International in Boston — plays in our regional economy. Authored by the UMass Donahue Institute's Dr. Mark Melnik and Branner Stewart respectively, these two articles remind us that although our vaunted innovation economy receives a disproportionate share of attention, our overall state economy still relies on traditional industries and critical pieces of basic infrastructure like our airports, roadways and public transit systems.

The issue concludes with a timely *Endnotes* prepared by researchers at Fannie Mae and the Federal Reserve system, led by editorial board member Dr. Paul Willen, a Senior Economist at Federal Reserve Bank of Boston. Notably, they find that growth in the housing "price-rent ratio" in the years since the Great Recession has been driven more by rising rents than home price appreciation. They observe that rising rents are in part the result of inadequate pace of new home construction across the nation during the same period. For a state like Massachusetts, which has produced new housing at an even slower pace, this development exacerbates the challenge that our employers will face attracting and retaining the talent needed to fuel future growth and sustain our economic expansion.

A handwritten signature in black ink that reads "Martin T. Meehan". The signature is fluid and cursive.

Martin T. Meehan, President
University of Massachusetts

NOTES FROM THE BOARD

*The expansion of the Massachusetts economy continues but
inequality and concerns about sustainability persist.*

The expansion that began in August of 2009 is far advanced, but recent growth has been the fastest since the start of the economic recovery. Gross state product is growing robustly, and on a percentage basis, state employment growth is very strong. Feeding this expansion is a rise in the state's labor force. Given the state's demographic profile — an older-than-national work force with a slow natural rate of growth — the expansion in the labor force is puzzling. The members of the *MassBenchmarks* editorial board discussed these issues and others at its September meeting. In addition, editorial board member Dr. Paul Willen, a senior economist and policy advisor at the Federal Reserve Bank of Boston, presented some emerging findings from his ongoing investigation of the relationship between house prices and rents, and the underlying dynamics driving them nationally and regionally.

Through August 2018, employment in Massachusetts grew at an annualized rate of 1.9 percent, faster than normal for the state. In June alone, the BLS estimated over 21,000 jobs were added. Leading the employment growth is the professional, scientific technical, and technical services sector, followed by construction, the information sector (primarily software), and education and health. In recent years, this journal has devoted considerable attention to the threat that slowing labor force growth is expected to play in restraining future economic growth in Massachusetts. So where are the additional workers coming from? Labor force participation is rising, and that certainly helps. International immigration, which has been a driving source of workforce growth for years, seems to be holding steady. That leaves domestic migration, which for years has been net negative. While hard data on domestic migration will not be available for quite some time, it stands to reason that the fuel for the state's recent labor force growth is the movement of workers into the state from other states. This could entail people both moving in to live and work in the state and an increase in workers commuting into the state.

The Board spent a good deal of time discussing housing conditions, with much of that discussion focused on the relationship between housing prices and rents led by Board Member and Boston Fed Economist Paul Willen. In light of the serious housing affordability challenges facing the Bay State, this discussion was both thought-provoking and timely.

Continuing a longstanding trend, the benefits of the robust economic growth that Massachusetts has experienced of late have not been spread uniformly across the state. But even the rapidly growing Greater Boston region has not been spared this troubling trend of widening inequality — Boston continues to experience some of the largest income inequality of any major American city, according the Brookings Institution. While all parts of the state have seen improvements, the gap between Greater Boston and the rest of the state remains large.

Given these conditions and the state's recent and substantial budget surpluses, the Board continues to strongly encourage state policymakers to take direct action to address the issues that exacerbate income inequality and constrain our future growth. These proposals include making strategic investments in closing the achievement gap in our public schools, increasing access to high-quality and affordable higher education, making long-awaited improvements to our transportation infrastructure and public transit systems, and facilitating and accelerating the production of housing to a level sufficient to bring its cost in line with household income.

*Prepared by Executive Editor Robert Nakosteen
September 28, 2018*

THE STATE OF THE STATE ECONOMY

ECONOMIC CURRENTS



Massachusetts Faces Challenges Despite Continuing Prosperity

ROBERT NAKOSTEEN

DRIVEN IN PART BY THE BOSTON AREA'S INNOVATION ECONOMY, MASSACHUSETTS' STRONG ECONOMIC PERFORMANCE HAS CONTINUED TO EXPAND. ITS GDP GROWTH HAS CONTINUED TO KEEP PACE WITH THE NATION'S. AT THE SAME TIME, MASSACHUSETTS' UNEMPLOYMENT RATE IN SEPTEMBER WAS HALF A PERCENTAGE POINT LOWER THAN IN SEPTEMBER OF 2017. IN SPITE OF THE COMMONWEALTH'S STRONG ECONOMIC PERFORMANCE, MASSACHUSETTS POLICY MAKERS MUST ADDRESS LABOR MARKET CHALLENGES ON THE HORIZON.

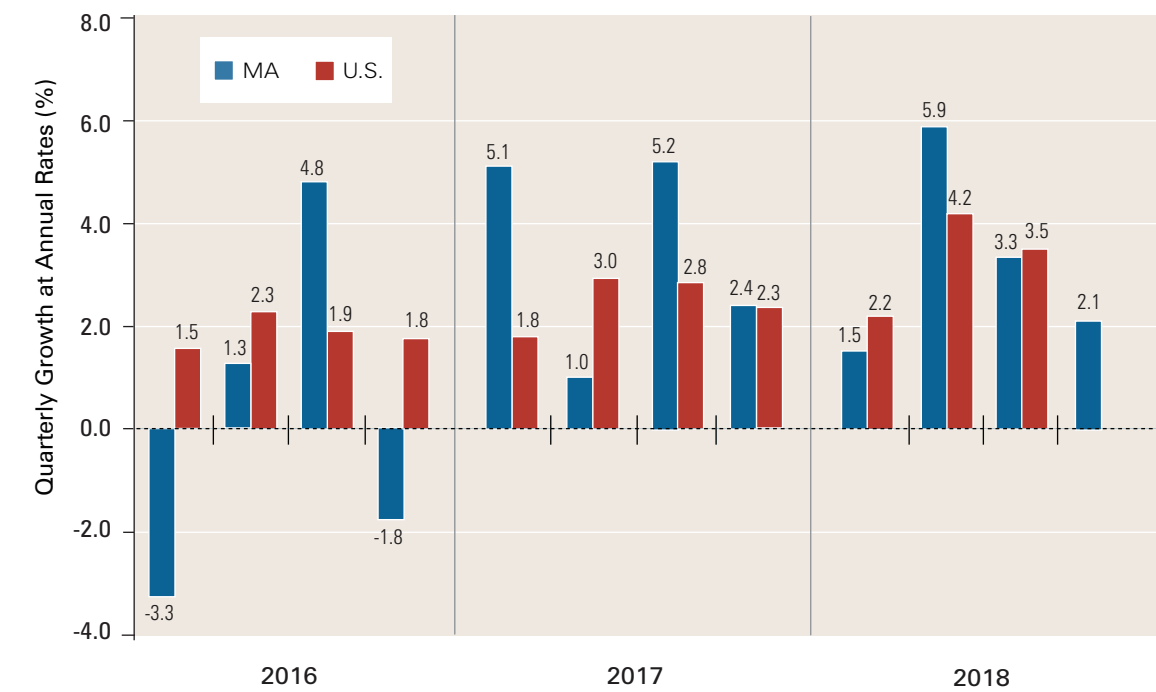
INTRODUCTION

Regular readers of this journal may have noticed a redundancy in our description of the state’s economy. For ten years now, economic growth has proceeded essentially without interruption. As measured by gross domestic product, state growth has consistently tracked — and in some periods exceeded — national growth. Unemployment continues to drop as the number of employed continues to grow. Economic stability, if not prosperity, seems to be spreading beyond the metropolitan Boston area, and virtually all sectors of the economy continue to grow. A possible yellow light may be flashing, in a shortage of qualified labor. This is a concern for the future, albeit the near future, but for now the state economy seems to be strong and on a positive trajectory.

STATE OF THE STATE ECONOMY
Output, Employment, Unemployment, and
Wages/Salaries

Gross domestic product (GDP) is the most comprehensive measure of overall economic activity. The *MassBenchmarks* Current Economic Index allows us to estimate state GDP for recent time periods, prior to the release of state GDP data by the Bureau of Economic Analysis. These data have shown a consistent growth pattern that, averaged over time, matches national growth. Since the second quarter of 2009, the annual growth of state GDP has been 2.2 percent, while the nation grew at 1.9 percent. More recently, in 2017 the state economy grew by 3.4 percent, exceeding national GDP growth of 2.4 percent. Since that time, state GDP remains close to that of the nation. In the most recent quarter of data, the third quarter of 2018, state GDP is estimated to have grown 3.3 percent compared with national GDP growth of 3.5 percent, both figures on an annualized basis.

Growth in Real Product, Massachusetts and the United States
2016 – 2018



Source: U.S.: Bureau of Economic Analysis (BEA); Massachusetts: BEA through 2018Q1; 2018Q2 and later, Dr. Alan Clayton-Matthews

In the 12 months ending in September of 2018, the state added over 63,000 jobs, up from slower employment growth the previous year. In a show of private sector strength, the Business and Professional Services sector added 28,300 jobs, by far the largest sectoral gain, and the strongest growth that sector has experienced in recent years. Construction, which added over 10,000 jobs, is growing at its fastest rate since 2014-2015. An additional 10,000 jobs were added in Education and Health Services, nearly all in health care.

As employment has grown steadily for nearly a decade, unsurprisingly the unemployment rate has fallen to levels not seen since early in the century. The unemployment rate for the state fell below 4 percent in May of 2016, where it has remained. In September, the unemployment rate for Massachusetts was 3.6 compared to 3.7 for the U.S. The Massachusetts rate remains virtually unchanged since September 2017, while the U.S. rate fell by half a percentage point from 4.2 percent in September 2017.

This is not a record rate of unemployment for Massachusetts (that was 2.6 percent for a number of months in 2000), but the persistence of this low rate is striking. The state rate may be staying level because the state is experiencing strong labor force growth, according to the Bureau of Labor Statistics’ Current Population Survey and model. One explanation is that, as the expansion has progressed, employers are increasingly tapping into segments of the population that previously had been on the sidelines.¹ As the Boston Globe reported earlier this year:

Like other employers struggling to fill jobs in a tight labor market, Shake Shack has started seeking out candidates it might not have considered before. Spaulding Rehabilitation Network is opening the door to those with criminal backgrounds, in partnership with the Suffolk County Sheriff’s Department. CVS is bumping up its efforts to attract workers with disabilities, while other employers are lowering experience and education requirements.

Many of these jobs are minimum-wage, entry-level positions, but they are bringing in people long relegated to the sidelines.

As Northeastern University economist Alicia Sasser Modestino puts it: “We have gone through all the easy-to-employ people, and we’re down to the hard-to-employ people.”²

For many years, an increasingly tight state labor market failed to yield increasing wages and salaries. During the second quarter of 2018, the state seemed to be at an inflection point as wages grew at a rate of over 19 percent, following an increase of over six percent in the first quarter. However, in the most recent quarter, wage and salary income declined by 10.6 percent. These conflicting, seemingly volatile findings may be the result of anomalies in the data. We need to see what pattern emerges in the future.

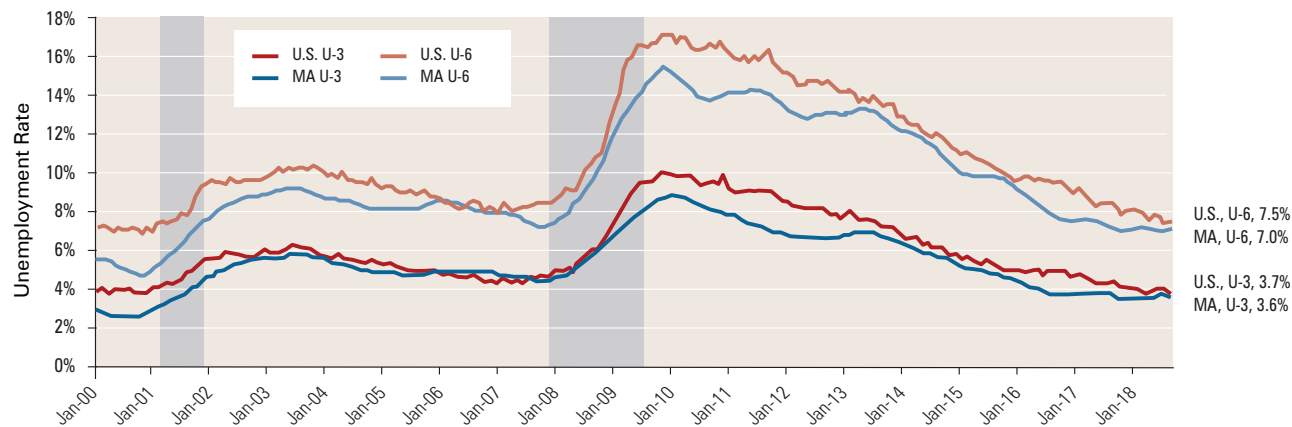
Economists have long warned that continuing economic growth in the state may ultimately be limited by a severe shortage of workers — qualified and unqualified.

Job Growth in Massachusetts by Industry since Last Year
Seasonally adjusted

Industry Super Sectors	Employment in September 2017	Employment in September 2018	Net Change	Percentage Change
Natural Resources & Mining	1,100	1,200	100	9.1%
Construction	153,300	163,600	10,300	6.7%
Manufacturing	243,900	247,300	3,400	1.4%
Trade, Transportation & Utilities	581,800	582,400	600	0.1%
Information	91,900	92,200	300	0.3%
Financial Activities	221,600	223,400	1,800	0.8%
Professional & Business Services	567,500	595,800	28,300	5.0%
Education & Health Services	797,200	807,600	10,400	1.3%
Leisure & Hospitality	367,200	369,500	2,300	0.6%
Other Services, excluding Public Administration	137,900	141,400	3,500	2.5%
Public Administration	450,600	453,000	2,400	0.5%
Total, All Industries	3,614,000	3,677,400	63,400	1.8%

Source: Massachusetts Executive Office of Workforce and Labor Development, Current Employment Statistics (CES-790); UMDI analysis

U-3 and U-6 Unemployment Rates, Massachusetts and the United States
January 2000 – September 2018



Source: U-3 from Massachusetts Executive Office of Labor and Workforce Development, Local Area Unemployment Statistics; U-6 from Alan Clayton-Matthews
Note: The Massachusetts U-6 rate is not seasonally adjusted but all other rates are seasonally adjusted. Shaded areas indicate periods of recession with dates obtained from the National Bureau of Economic Research (NBER).

We may be on the threshold of this development. Does the anecdotal evidence reported by the Boston Globe and recently accelerating wages and salaries suggest that labor market constraints have become binding? Is there remaining slack in the labor supply that could be tapped, allowing the expansion to proceed? Two measures that address “slack” issues are the U-6 unemployment rate and the employment-to-population ratio.

The “headline” unemployment rate is based on data referred to as the U-3 unemployment rate. But that rate has at least two deficiencies. First, it fails to account for those who have left the labor force but who would accept a job if offered (often referred to as the discouraged unemployed). Second, it fails to account for part-time workers who would prefer full-time work. Both groups might account for slack in the labor force. As the accompanying chart above shows, the U-6 unemployment rate has fallen in parallel with the U-3 rate since the beginning of recovery from the 2008 recession. The gap between U-3 and U-6 is larger now than just before the start of the recession; however, the current unemployment rate is nearly an entire percent lower than the lows seen in the most recent expansion. At the unemployment rate’s low point in the expansion leading up to 2008, the U-3 unemployment rate was 4.5 percent and the U-6 rate was 7.1 percent — a difference of 2.6 percentage points. The most recent data, for September, put the U-3 rate at 3.6 percent and the U-6 rate at 7.0 percent, a difference of 3.4 percentage points. Unemployment this low, with underemployment continuing to decline, points to a continuing tightening of labor market conditions. However, the problem of underemployment persists for some.

Another revealing measure of labor force “slack” is the employment-to-population ratio. This ratio’s numerator

and denominator measure the number of people employed against the total working age population (those 16 years of age and older). While there has been growth in the employment-to-population ratio since 2013, indicating increasing employment levels, it has yet to reach its year 2000 level. Clearly, there is room for further growth.

Employment-to-Population Ratio

Year	Massachusetts	United States
2000	65.7%	64.4%
2001	65.5%	63.7%
2002	64.9%	62.7%
2003	64.2%	62.3%
2004	63.8%	62.3%
2005	63.6%	62.7%
2006	63.7%	63.1%
2007	63.7%	63.0%
2008	62.9%	62.2%
2009	60.9%	59.3%
2010	60.8%	58.5%
2011	60.8%	58.4%
2012	60.8%	58.6%
2013	60.6%	58.6%
2014	61.6%	59.0%
2015	62.1%	59.3%
2016	62.6%	59.7%
2017	63.1%	60.1%

Source: U.S. Bureau of Labor Statistics, Current Population Survey; Massachusetts Office of Labor and Workforce Development, Local Area Unemployment Statistics; UMDI analysis

Both the U-6 unemployment rate and the employment-to-population ratio suggest remaining underutilized capacity in the labor market. Much of the slack in the labor force is among less-educated members of the population. Current Population Survey data reveal that recipients of baccalaureate degrees and those with higher levels of education have employment rates (employment-to-population ratios calculated for a specific group) that have hovered near 80 percent. As educational attainment decreases, the employment rate decreases with it. Those with less than a high school education, for

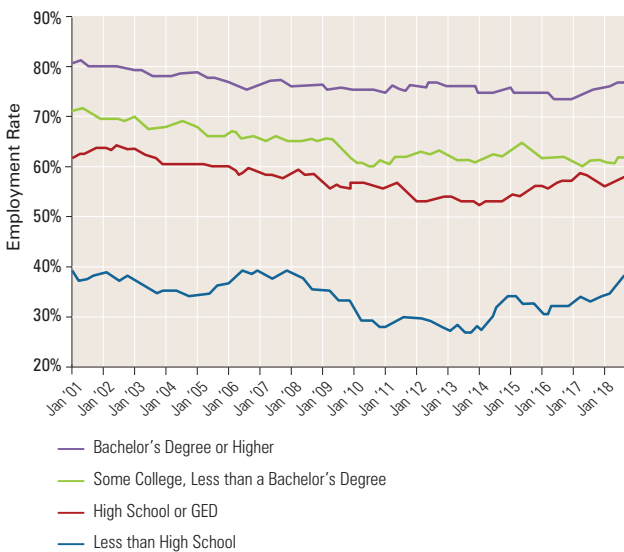
instance, have an employment rate below 40 percent. This trend underscores the high educational barriers to entry for many jobs across the state. There is also considerable variation in employment by age and race.

Employers may now be more successful at retaining recent college graduates and attracting out-of-state workers, both of which go against historical trends. Without those developments, job growth in the state would be difficult to explain. A continuation of these trends may be unlikely, given the long-running obstacles to buying a home and rising costs of living in the Commonwealth. Going forward, the ability to find and utilize previously underutilized workers will be crucial for continued expansion.

In the midst of concerns about a labor force shortage, recent data are hard to explain. According to the BLS, the Massachusetts labor force grew at an unusually high annual rate of 8.0 percent in the third quarter and has grown by 3.9 percent since the third quarter of 2017. In a recent release of the *MassBenchmarks* economic indexes, Professor Alan Clayton-Matthews commented on the veracity of these data:

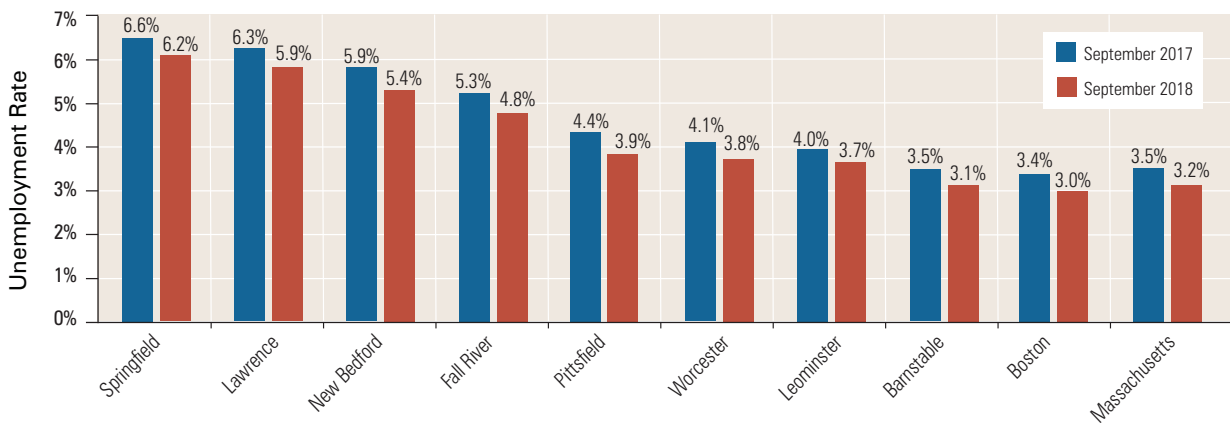
The magnitudes of these labor force growth estimates are too large to be credible. However, they appear to point to unexpected underlying strength in the state labor force. It is difficult to reconcile the steady and strong job growth in some knowledge-based sectors such as professional, scientific, and technical services — which have grown 6.5 percent since September of last year — with state demographics unless one assumes that the Commonwealth is attracting skilled workers who are relocating or commuting from outside the state.

Massachusetts Employment Rates by Educational Attainment
January 2001 – September 2018
12-Month Moving Average



Source: Alan Clayton-Matthews' analysis of U.S. Current Population Survey data

Unemployment Rates by City, September 2017 and September 2018
Not seasonally adjusted



Source: Massachusetts Executive Office of Labor and Workforce Development, Local Area Unemployment Statistics

For many years, the state has experienced negative net migration, and if the state is now a net recipient of domestic migrants, this would be a sea change. There is much room for skepticism regarding these data, but there is no denying some unexpected elasticity of supply in the state’s labor force.

Economic performance beyond Boston, as measured by the unemployment rate, is less dynamic but improving. Compared with September of 2017, major cities tracked by *MassBenchmarks* have all improved according to this metric. All but Springfield now have unemployment below six percent. The longer the expansion lasts, the further out from Boston will its salutary effects encompass.

Exports in an Era of Trade Wars

The Trump administration has implemented increased tariffs on a number of imports on many of the nation’s most important trading partners. This has led to threats of retaliation from those countries, which will certainly affect the state’s export sector. The overall effect on the state should not be especially large, given that our international sector, as measured by merchandise exports, represents less than five percent of the state’s GDP. Even that number overstates the significance of Bay State exports, many of which contain content from outside the state’s borders. However, the state’s export sector receives inordinate attention and is of interest to policy makers. This is because much of the state’s dynamic high-technology sector, in no small part, depends on international exports.

The looming tariff increases and potential trade war have focused on Canada, Mexico, China, and the European Union. That group represents eight of the

Massachusetts’ Top 10 Export Partners, 2017

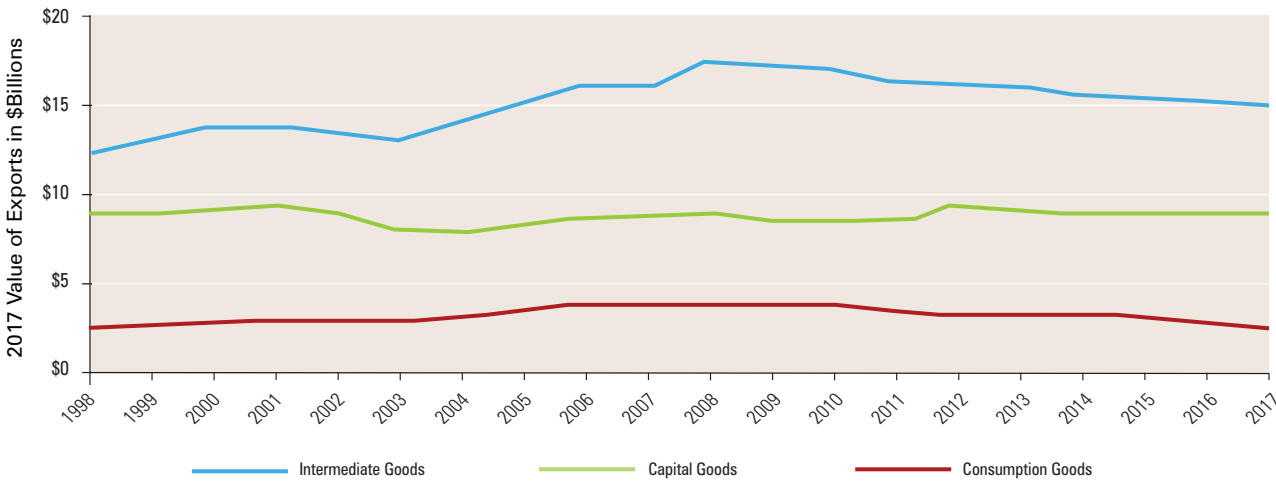
Trading Partner	Export Value (\$2017, in billions)
Canada	\$3.0
Mexico	\$2.6
China	\$2.3
United Kingdom	\$2.1
Germany	\$1.8
Hong Kong	\$1.3
Japan	\$1.3
Netherlands	\$1.3
Republic of Korea	\$1.2
Switzerland	\$1.1
Total, Top 10 Trading Partners	\$18.0
Total, All Trading Partners	\$27.6

Source: WISER Trade; UMDI analysis

state’s top trading partners. Given the tit-for-tat nature of trade wars, it is likely that these targeted countries will impose reciprocal tariffs on imports from the United States. From press reports, the retaliation against U.S. exports will focus on some consumer goods, primarily transportation equipment (including automobiles), but will mainly target intermediate and agricultural goods.³

How will state exports fare under these uncertain conditions? As the graph below shows, the largest category of the state’s exports is intermediate goods, unfinished products that are inputs for creating a finished or final good. Capital goods (finished goods, like machinery, that are used to produce other goods),

Massachusetts Exports by Broad Economic Category, 1998 – 2017
3-year Moving Average



Source: U.S. WISER Trade and UN Goods in Trade Statistics; UMDI analysis


are not far behind, with consumer goods (final goods that are purchased for use by consumers), a distant third. Because our top exports are optical, medical, and surgical equipment; industrial machinery, and electrical machinery, these data suggest some vulnerability to a trade war. While the magnitude of this vulnerability may be small compared to overall state economic activity, companies that rely heavily on international exports may well suffer.

Housing

From the depths of the recession to the recent past, residential house construction, as measured by permits, has increased steadily. After the recession, the construction of housing was increasingly geographically constrained — activity has moved from outside to inside metropolitan Boston. For the past couple of years, however, activity has plateaued, with some restoration of geographic balance.

CONCLUSION

The state’s economic expansion marches on. However, an impending labor shortage, especially in metro Boston, has begun to germinate, though it is not yet a determining constraint. There is certainly evidence that employers are experiencing difficulty in finding qualified workers with goalpost developments in what is considered a qualified

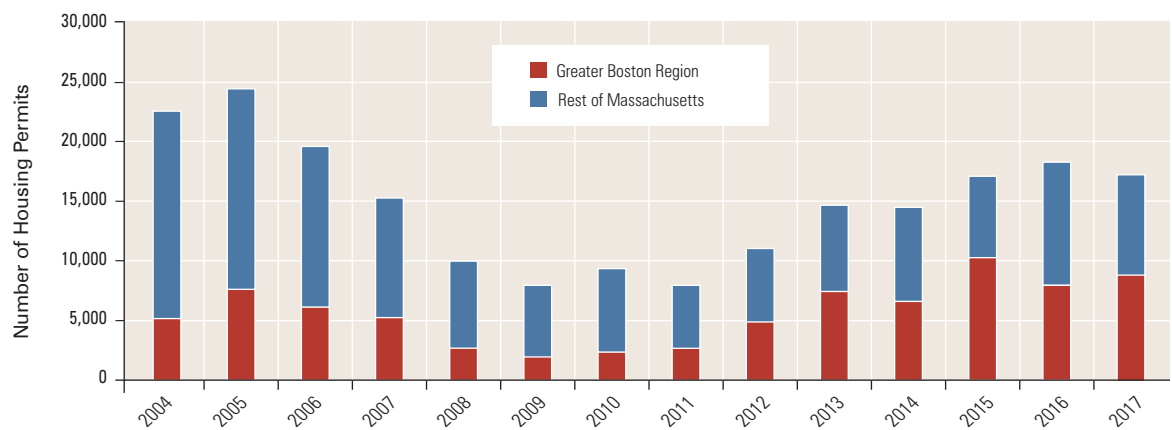
employee. There are probably other factors blunting the labor shortage. A greater percentage of college graduates from Boston-area colleges and universities may be staying in the state. Add to that the likelihood of increased migration of workers into Massachusetts. It is unclear, though, whether either of these trends will last. With that said, the price of housing in metro Boston will remain a daunting check on labor force growth. 

ROBERT NAKOSTEEN is a professor of economics at the Isenberg School of Management at UMass Amherst and Executive Editor of this journal.

Endnotes

- 1.) For more on this issue, see “Massachusetts’ Tightening Labor Market,” by Mary Burke and Alicia Sasser Modestino in the Spring 2018 issue of *MassBenchmarks*, Volume 20 Issue 1.
- 2.) “Overlooked Workers are Finding it Easier to Land Jobs,” by Katie Johnston, *Boston Globe*, January 6, 2018.
- 3.) “How to Lose a Trade War,” by Paul Krugman, *The New York Times*, July 7, 2018. <https://www.nytimes.com/2018/07/07/opinion/how-to-lose-a-trade-war.html>

**Total Housing Permits for the Greater Boston Region and Rest of State
2004 – 2017**



Source: U.S. Bureau of the Census, Building Permits Survey; UMDI analysis.
Note: Data represent reported data plus the data imputed for non-reporters and partial reporters. The Greater Boston Region consists of Suffolk and Middlesex counties.



Massachusetts' Leisure, Hospitality, and Tourism Industry: Anatomy and Prospects

MARK MELNIK

AN INVESTIGATION INTO MASSACHUSETTS' LEISURE, HOSPITALITY, AND TOURISM INDUSTRY EXAMINES INDUSTRY AND WORKFORCE TRENDS, CAREER PATHWAYS, AND EMPLOYER AND STAKEHOLDER PERSPECTIVES. THE INDUSTRY, WHICH EMPLOYS 376,000 WORKERS AND GENERATES MORE THAN \$28 BILLION, SPINS OFF ANOTHER 232,000 JOBS AND \$41 BILLION OF OUTPUT IN OTHER INDUSTRIES. IT OFFERS, HOWEVER, THE LOWEST WAGES OF ANY INDUSTRY IN THE STATE. THE STUDY'S POLICY RECOMMENDATIONS CONSIDER TRAINING, WAGES, STATE FUNDING FOR MARKETING AND PROMOTION, AND THE IMPACT OF SHORT-TERM RENTALS LIKE AIRBNB.

INTRODUCTION

For those of us who live or work in Massachusetts, it can be easy to take for granted all that the state has to offer in the way of the Leisure, Hospitality, and Tourism (LHT) industry. In reality, the Commonwealth is a destination not only for visitors, but for locals as well. Our recent study for the Boston Foundation (TBF) shines a light on the industry, so important to the Commonwealth but also facing significant labor force issues. LHT employs and supports many jobs in the state, but characteristics of the labor force, tight margins, and traditionally low wages lead to considerable turnover and difficulty for workers to make ends meet in a high-cost state. Our analysis includes an examination of industry and workforce trends, an assessment of available training programs and career pathways into LHT occupations, and an understanding of employer and stakeholder perspectives.¹

The Leisure, Hospitality, and Tourism industry,² which provides recreational and leisure-time services to both resident and tourist markets, is large, stable, and growing. It is the third largest industry in the Commonwealth, providing work for more than one in ten Massachusetts residents, and it has grown steadily since at least 2000. Employment in LHT has also been more resilient to economic shocks than other Massachusetts industries: While many other industries experienced serious employment setbacks beginning with the 2001 recession, LHT employment went unaffected until the Great Recession of 2007–2009. It then took less time to recover from the downturn and grew at a faster rate than all other Massachusetts industries combined.

The Commonwealth’s LHT industry employs some 376,000 workers and generates more than \$28 billion in economic output, but its impact on the state economy extends beyond that. Spending and other economic activity associated with the industry spins off another 232,000 jobs and \$41 billion of additional output in industries that benefit from its presence. Also important, LHT jobs provide Massachusetts-based consumer goods and services. They cannot be outsourced, thus contributing to the Commonwealth’s overall economic stability.

For all the industry’s strengths in size and performance, however, LHT aggregate wages are the lowest of any industry in the Commonwealth. The Leisure, Hospitality & Tourism sector makes up roughly ten percent of the state’s total employment, but accounts for only four percent of total wages. Much of this is due to the significance of the Food & Beverage industry within the sector. Overall, 71 percent of all jobs in LHT are in Food &

Beverage businesses, where the average wage is just over \$22,000 annually.³

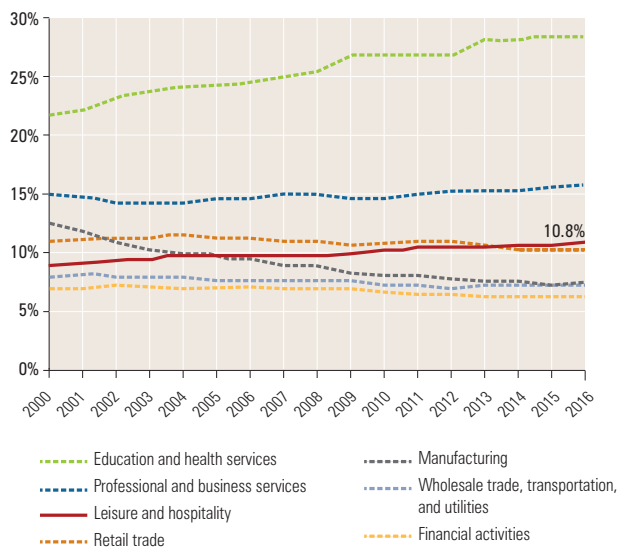
INDUSTRY OVERVIEW

Employment

A striking feature of the industry is its disproportionate significance for the broader Massachusetts economy. The Bay State is widely known for its strengths in higher-wage sectors such as Education and Medical Services, Biotech, and Finance, which demand formally educated workers. So it often comes as a surprise, as **Figure 1** shows, that the LHT industry accounts for over ten percent of the state’s total employment, providing more than 376,000 jobs. The LHT industry is outranked in employment by Education & Health Care and Professional & Business Services (including Life Sciences), but is ahead of such major employers as Finance, Retail, Wholesale Trade, and Manufacturing.

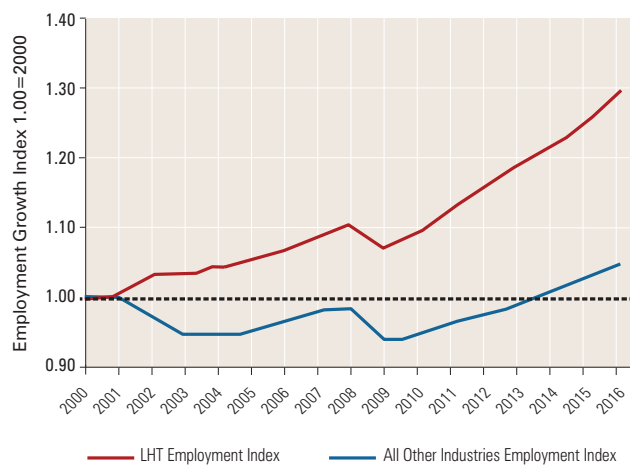
Employment in the LHT industry has also grown steadily, at an average annual rate of 1.6 percent between 2000 and 2016 — four times the state’s employment growth rate average of 0.4 percent over that time. LHT’s employment growth rate was second only to the Education & Health Care Services powerhouse, which grew at an average of 2.1 percent over that period.

Figure 1. Largest Supersectors’ Share of Total State Employment



Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages; UMDI analysis

Figure 2. Employment Growth in LHT and All Other Massachusetts Industries



Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages; UMDI analysis

Since 2000, the LHT industry has enjoyed comparatively high employment growth rates and has better withstood economic downturns than other industries in the Commonwealth. Comparing LHT employment growth with all other Massachusetts industries in aggregate, **Figure 2** shows that other industries that faced significant employment losses following the 2001 recession had not recovered by the Great Recession’s advent in 2007, and were unable to rebound to their pre-2001 recession

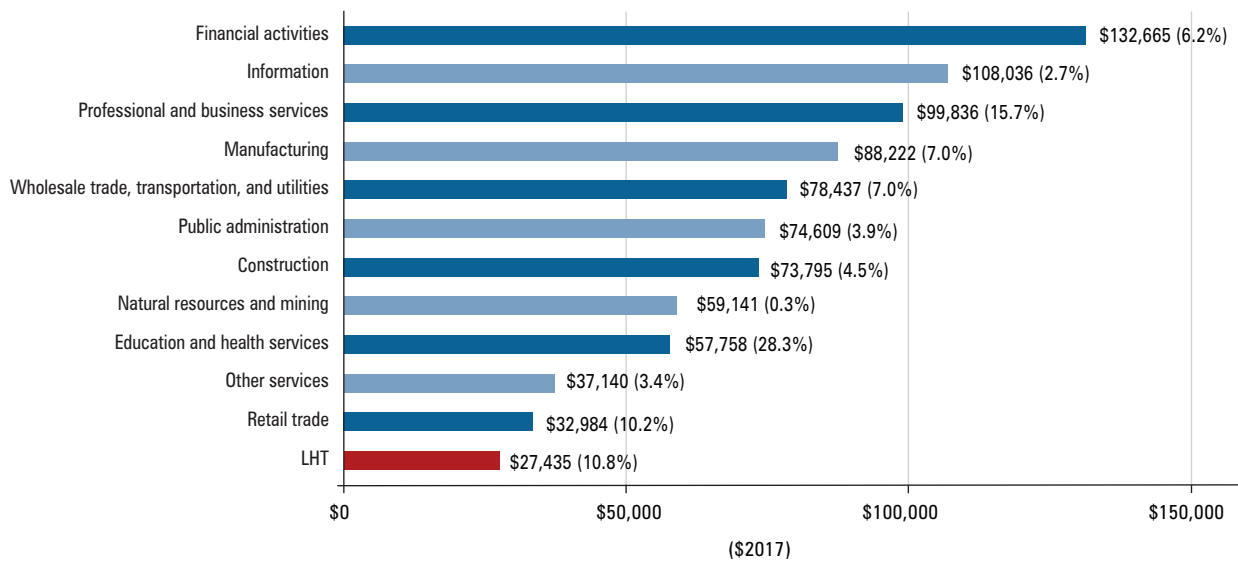
levels until 2014. In marked contrast, LHT employment grew before, during, and after the 2001 recession. Due to the downturn’s sheer magnitude, LHT employment levels did not avoid pain during the Great Recession, but the industry rebounded much faster than other industries — and continues to perform comparatively well.

Wages

Although the LHT industry is among the Commonwealth’s largest employers, **Figure 3** makes clear that its average annual earnings are the lowest. The spread between the highest- and lowest-compensated industries is also extreme: the average annual wages in the Financial Activities industry is more than four and a half times that in the LHT industry.⁴

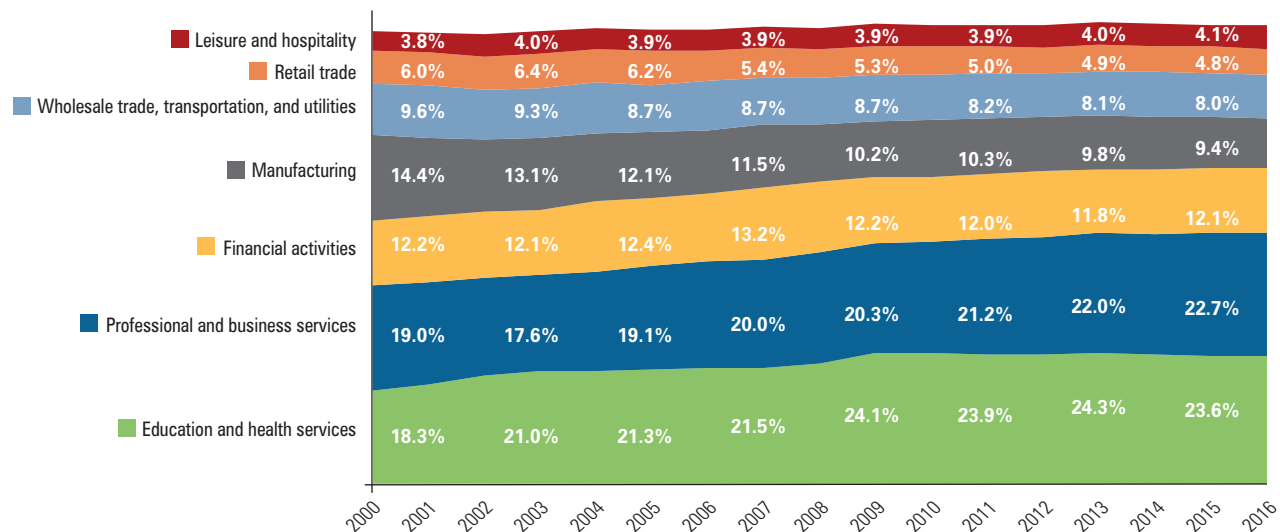
Despite the LHT industry’s employment growth and resilience during economic and technological upheaval, average wages have been consistently low. **Figure 4** shows the seven largest sectors in the state and each of their proportion of total wages over the last 17 years. Over that period, the LHT has consistently accounted for only four percent of total wages, even as its share of employment and contributions to Gross State Product have risen. Over that same period, Education & Health Services and Professional & Business Services have accounted for an increasing share of total wages, moving from 37 percent in 2000 to over 46 percent in 2016. In contrast, manufacturing’s share of total wages has dropped significantly since 2000, due largely to its reduced size in the state economy.

Figure 3. Massachusetts’ Largest Employers: Average Annual Wages and Employment Share, 2016



Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages; UMDI analysis

Figure 4. Largest Massachusetts Industry Sectors and their Contribution to Total Massachusetts Wages, 2000 – 2016



Source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages; UMDI analysis

MASSACHUSETTS LHT WORKFORCE OVERVIEW

Data from the U.S. Census Bureau’s American Community Survey (ACS) reveal significant differences between LHT workers and the Commonwealth’s workforce as a whole. To begin, the LHT workforce is comparatively young. An extraordinary 56 percent of the LHT workforce is under age 35, compared with just over 30 percent of workers in all other industries. Of these young workers, 63 percent are concentrated in the Food & Beverage subsector. Clearly, the LHT industry — particularly Food & Beverage — is an important labor market entry point, where many have their first formal workplace experiences.

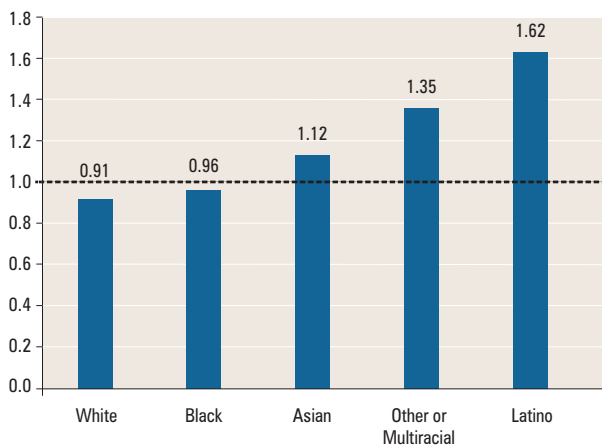
LHT workers also have lower levels of educational attainment than their non-LHT counterparts, but they are more likely to be in school while employed. Across other industries in Massachusetts, 12 percent of workers are enrolled in formal schooling of some sort. Among the LHT workforce, however, more than twice that proportion — 26 percent — is pursuing educational advancement. Of those, more than 90 percent are enrolled in high school, community college, or college.

As for race and ethnicity, the Latino labor force (and the immigrant labor force generally) plays a critical role in providing the LHT industry with workers. Figure 5 shows the concentration of each of the four main racial and ethnic groups in Massachusetts in LHT relative to their representation in the workforce overall.⁵ A ratio of 1.0 reflects perfect parity between LHT and total workforce representation. A ratio over 1.0 indicates that the group is overrepresented in LHT. As shown in the figure, the employment ratio of white workers in LHT is

0.91, indicating an underrepresentation of white workers. On the other end of the spectrum, Latino workers’ employment ratio is 1.62, a concentration of Latinos in LHT almost two times higher than for other industries.

Nearly a quarter of the LHT workforce is foreign-born, compared with 18 percent in all other industries. With that significant concentration, the LHT industry has reason for concern about more restrictive federal immigration and visa policies. Given the uneven distribution of foreign-born LHT workers across the state, such policy changes might be more disruptive in some regions than in others. Due to notably higher concentrations of

Figure 5. LHT Employment Representation by Workers’ Race and Ethnicity



Source: U.S. Census Bureau, American Community Survey, 2016 5-Yr Data

foreign-born LHT workers in Boston, the Northeast, and Cape Cod and the Islands, LHT venues in these locales would likely be most hard-pressed. In particular, 42 percent of all LHT workers in Boston are foreign-born. Yet tightening access to immigration and temporary work permits perhaps poses the greatest economic threat to Cape Cod and the Islands. Although the region employs roughly 14 percent of the state’s foreign-born LHT workforce — about a third of Boston’s LHT workforce — Leisure, Hospitality & Tourism is the region’s primary industry. Much of the industry in that region is also seasonal and, with the area’s aging population, heavily dependent on temporary foreign-born labor.

As noted earlier, LHT workers earn much less than non-LHT workers.⁶ Looking at the 2012-2016 ACS Public Use Microdata Sample (PUMS) data:

- The median personal wage or salary income of LHT workers is just under \$17,000, compared with \$45,000 for non-LHT workers.
- Over 50 percent of LHT workers earn less than \$20,000 annually, compared with 21 percent of workers in non-LHT industries.
- One in 10 LHT workers lives in poverty, compared with one in 25 non-LHT workers.

Job Openings, Projections, and Training Opportunities

The LHT industry employs many different occupations. The largest groups work in the food service industry. It is no surprise to note the industry’s heavy concentration

of workers in food-related professions, including servers, chefs, dishwashers, fast-food workers, baristas, bartenders, and restaurant support staff. Other top industry occupations include amusement and recreation attendants, maintenance and repair workers, and landscapers and groundskeepers.

Given its size, growth, and the occupational structure of its sectors, the LHT industry offers substantial employment opportunities — now and in the future. Using short-term employment forecasts developed by the Commonwealth’s Executive Office of Labor and Workforce Development (EOLWD), our research projects that the LHT industry will generate nearly 6,500 new jobs annually over a three-year period,⁷ accounting for almost 12 percent of total annual employment growth (54,658) in the entire state. While growth is important for the expansion of the industry, replacement jobs — when workers permanently leave a position due to events such as retirement or changing industries — account for the vast majority of job opportunities in the industry. Based on EOLWD’s estimates, we estimate that an additional 59,000 jobs in LHT open up annually due to replacement. Jobs with the largest number of total annual openings include food and beverage service workers, such as baristas and fast-food workers, servers, cooks, and bartenders.

Most of the jobs in LHT, particularly positions with the most annual openings, require limited education and training. But the pace of industry growth, concerns about federal immigration policy (including the availability of immigrant labor), and the high turnover

Table 1: Top 10 LHT Occupations in Massachusetts by Employment, with Average Annual Wages (2016)

Occupation Title	2016 Employment	Percent of Total MA LHT Employment	2016 Annual Average Wages
Food and Beverage Serving Workers except Bartenders, Waiters and Waitresses ⁸	71,548	19.0%	\$25,930
Waiters and Waitresses	59,953	15.9%	\$30,280
Cooks, Restaurant	25,863	6.9%	\$30,910
First-Line Supervisors of Food Preparation and Serving Workers	18,238	4.8%	\$40,080
Bartenders	16,031	4.3%	\$30,490
Dishwashers	14,273	3.8%	\$26,380
Food Preparation Workers	12,576	3.3%	\$28,770
Dining Room and Cafeteria Attendants and Bartender Helpers	8,827	2.3%	\$27,550
Cashiers	7,744	2.1%	\$25,580
Cooks, Short Order	5,043	1.3%	Not Reported

Source: Massachusetts Executive Office of Labor and Workforce Development, DUA 2016–2018 Short-Term Industry Staffing Pattern Projections; UMDI analysis

rates for most industry jobs place considerable pressure on employers. As for job training, the LHT industry in Massachusetts draws on a broad network of occupational and skill training activities, some of which are specifically responsive and tailored to local labor market and employer needs. For example, there are a variety of training programs from nonprofits, for-profits, trade associations, and government providers. Most of these are geared toward workers who are vulnerable to chronic unemployment and underemployment. The programs, moreover, are often tailored to the needs of the local labor market (e.g. Community Servings, Future Chefs, Best Corp, and others).

Higher education works with employers to meet industry needs. Examples included the partnership between MGM Springfield and regional colleges, Holyoke Community College (HCC) and Springfield Technical Community College (STCC). MGM gave HCC \$500,000 to expand its culinary school and renovate its facilities, now renamed the *HCC MGM Culinary Arts Institute*. Both community colleges are also collaborating with MGM in the development of its gaming school, providing administrative scaffolding (personnel support, funding-stream coordination, scholarship administration) for the Massachusetts Casino Career Training Institute.

The state also has elite four-year degree and graduate programs that serve the hospitality industry. (Most four-year college and graduate programs are not developed solely with local labor market needs in mind nor are their graduates tethered to the local labor market after graduation.) Eleven of the Commonwealth's more than 70 colleges and universities that grant bachelor's or higher-level degrees offer LHT concentrations. Most are bachelor's programs, with a sprinkling of associate's or graduate-level offerings. Boston University's Metropolitan College offers a high-profile certificate in culinary arts. The program was founded by Julia Child and Jacques Pépin in 1989. UMass Amherst and Boston University offer Ph.D. programs that prepare students for careers in academic research and teaching or private consulting. These programs prepare students for a variety of activities in their sectoral concentration, although the skills and knowledge that they acquire can be transferable to other industries.

Employer Perspectives

The perspectives of LHT employers are integral to an understanding of the industry, including what works in doing business in Massachusetts and meeting industry challenges. To benefit from these insights, we conducted a 32-question survey of nearly 300 LHT businesses statewide, including employers from the private sector as well

as public and nonprofit institutions. To supplement the survey findings, we conducted hour-long interviews with a cross-section of leaders and stakeholders in the LHT industry across Massachusetts.

Our survey and interviews show that — with some regional variations — most employers have confidence in the industry and are optimistic about its future. Businesses are mainly concerned about their workforce. These issues include the cost of labor, available labor supply, and the consequences of more restrictive immigration policies. Other major concerns include transportation access, both for tourists and workers, and competition from the sharing economy, such as Airbnb. Employers are also concerned about the increasing costs of housing, health care, labor, and utilities that, if not brought down, will likely damage their business prospects and ability to grow over the next five years.

As for regional issues, businesses in Greater Boston and the Cape and Islands were acutely concerned about labor costs and cost of living issues for staff. Concerns about utility costs run high across all regions. It appears that cell and internet costs as well as service availability are of particular concern in the Berkshires. Employers in the Cape and Islands, particularly those with seasonal businesses, feel burdened by sharing equally the cost of sewer buildout, snow plowing, and other year-round services. Worker and customer transportation access are also cause for concern, especially in the Berkshires, the Pioneer Valley, and Greater Boston. With few regional exceptions, employers are generally satisfied with their local and regional business organizations and their customer bases.

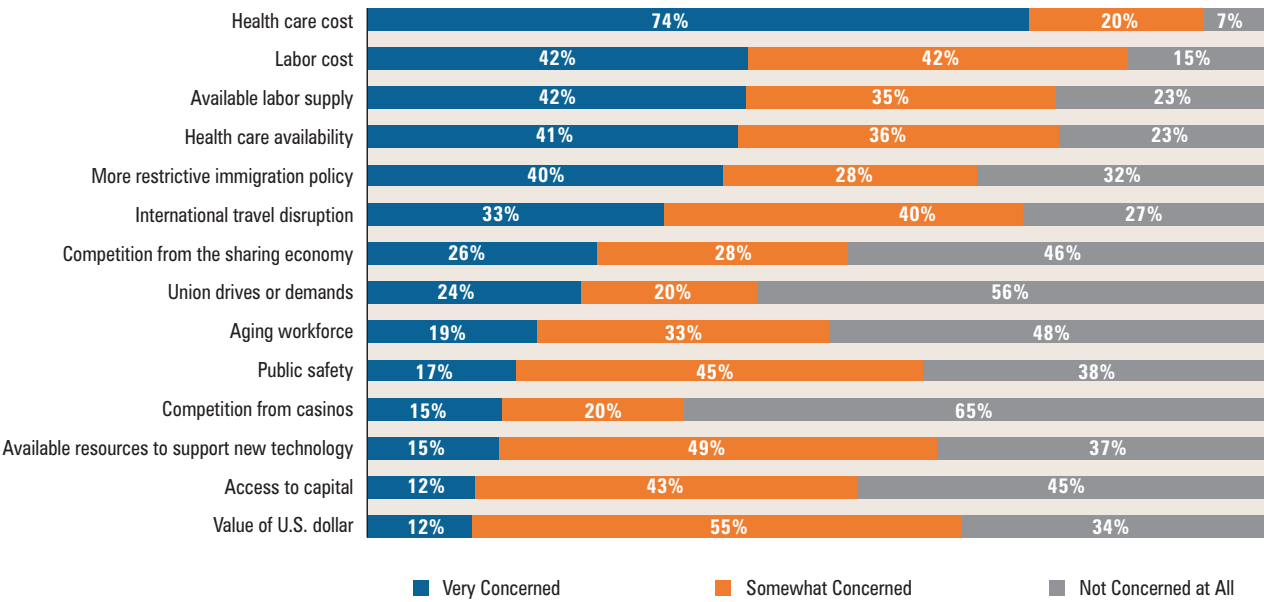
The survey also showed that employers are generally satisfied with their customer bases and the level of support they receive from local and regional business organizations. Roughly two-thirds of respondents say they have difficulty finding appropriately skilled workers across all job types, while dissatisfaction with state programs — particularly reduced marketing support for the LHT industry — runs high.

Overall, employers and other leaders say that the Massachusetts LHT industry is strong but could be strengthened by addressing these issues and by embarking on a better-funded, more consistent state tourism marketing program with greater regional, national, and international reach.

Thoughts about Policy Support for the Leisure, Hospitality, and Tourism Industry

Our analysis of the LHT sector highlights many of its strengths and challenges. Based on our analysis, we developed specific policy considerations that reinforce what works and does not work for the industry. In

Figure 6. Massachusetts LHT Employer Concerns over the Next Five Years



Source: UMass Donahue Institute LHT Employer Survey, October 2017 to January 2018

particular, industry leaders expressed concerns about general costs and support in the industry and how Massachusetts industry can better compete with other states for visitors, as well as contend with emerging disruptive technologies in the future, such as Airbnb.


- For employees, LHT is the state’s lowest-paid industry in the aggregate, especially in Food and Beverage, which employs 71 percent of the LHT workforce. Recent debates about minimum-wage policy, which have the greatest effect on the low-paid service industry, led last year to a statewide increase to \$11 per hour, and a \$3.75 per hour service rate supplemented by tips. Pressure is on to further raise it progressively, to \$15 per hour and \$9 per hour, respectively, by 2022. Advocates are right to argue that hard-working service workers deserve a “living wage.” However, while large corporations may be able to afford such increases, most LHT businesses and venues are small, particularly in Food and Beverage. As the minimum wage debate unfolds, it may be prudent to consider including a lower training wage in the mix. This would be easier for small businesses to absorb, especially those relying on young, seasonal workers.
- A remarkably high share of the employers that we surveyed — hovering around two-thirds — said that finding appropriately skilled workers for all job types is a challenge. Employers report a dearth of well-trained workers for LHT’s largest field — culinary work — and they lack a reliable pipeline for finding them.

Unfortunately, no one entity tracks the educational and training programs available for acquiring LHT skills. The pipeline for hiring these workers is more patchwork than optimal. Funding from the private and philanthropic sectors, as well as the state’s education and workforce development programs, could close the gap with a regularly updated educational and training program database available online to employers, students, potential workers, and educators. The Workforce Skills Cabinet, convened by Governor Baker in 2015, is charged with creating and implementing a strategy to enable workers to improve their skills and technical capacity to meet the hiring demands of employers. While action plans and next steps are still being determined, employers and stakeholders in the LHT industry should continue to highlight and advocate for the industry’s workforce training needs.

- LHT employers and other stakeholders told us that the state does too little to market their industry with appropriate funding and thoughtfully targeted promotion. While the industry in the state is performing well, its leaders feel threatened by competition with other neighboring states. To that end, industry leaders argued throughout our research that state funding should increase for marketing and promotion within and beyond the state. One approach is to re-fund the Regional Tourism Councils (RTCs), whose grant-funding was slashed in half in 2016 and redirected to the General Fund. Another approach would involve a

novel policy concept used in several other states, that allows regions to form Tourism Destination Marketing Districts (TDMD) funded by a locally approved 1-3 percent hotel room assessment (in addition to room taxes collected by the state). Massachusetts TDMD revenue would provide consistent, dedicated funding for individual RTCs, which would use it to drive marketing aimed at increasing overnight visitors to area hotels.

- LHT employers, especially in the hotel industry, also seek relief from unregulated competition from short-term rentals such as Airbnb. It is unclear whether states, municipalities, or both would be the best regulatory vehicles and tax beneficiaries. So far, municipalities such as Boston have taken the lead. This makes sense given that they are responsible for zoning, code enforcement, road and lighting maintenance, health and safety inspections, and other services that ensure the smooth functioning of residential and commercial neighborhoods. Regulations might include annual caps on the number of nights that hosts can rent out, registration fees and taxes, and restrictions on host properties where the owner or renter is not living on the premises.

The LHT industry is a robust, wide-ranging, and essential element of the Massachusetts economy. We cannot, however, afford to overlook its shortcomings, or take its resilience for granted. Those directly affiliated with the industry would not be sole beneficiaries of its strengthened policy support. As we have shown, the LHT industry contributes much more to the Massachusetts economy than its strong employment numbers and business revenue would suggest. Employers, workers, and stakeholders in other Massachusetts industries, along with the Commonwealth's tax base, would surely benefit from efforts to enhance LHT's prosperity. 

The author wishes to acknowledge the LHT project's research team, including Cathy Tumber for her project management, as well Rod Motamedi, Liz Williams, and Mike McNally for their contributions to this report. In addition, the author would like to thank the Boston Foundation, notably Paul Grogan, Keith Mahoney, Rose Corcoran, Sandra Kendall, for their generous support and feedback throughout the project. The research also relied heavily on participation and support from people and organizations (far too many to list here) affiliated with the industry. Thanks to all for their enthusiasm for this project.

MARK MELNIK is Director of Economic and Public Policy Research at the UMass Donahue Institute and Senior Managing Editor of this journal.

Endnotes

- 1.) For the full analysis conducted on the LHT industry in the state, please see: <https://www.tbf.org/-/media/tbf/reports-and-covers/2018/2018-work-of-leisure-reportpdf.pdf>.
- 2.) For this research, we defined the LHT industry as the combination of Arts, Entertainment & Recreation (North American Industrial Classification Code—NAICS71) and Accommodation & Food Services (NAICS 72), as well as selected NAICS codes in Transportation (Scenic & Sightseeing Transportation and Inland Water Passenger Transportation) and other tourism-related activities (Travel Agencies, Tour Operators, Convention and Visitors Bureaus, and Convention & Trade Show Organizers). A full list of the NAICS can be found in the published report at the link above. This intentionally conservative approach to defining the industry excluded other industries that support LHT, such as broad aspects of retail and other forms of travel. The economic contribution analysis in this study did capture the “spin off” nature of these support industries related to the broader LHT sector.
- 3.) Wage data collected by the U.S. Bureau of Labor Statistics (BLS) include tips, as they are supposed to be reported for tax purposes. It is likely that some of these wages go underreported.
- 4.) Wage data collected through the BLS' Quarterly Census of Employment and Wages (QCEW) include “bonuses, stock options, severance pay, profit distributions, cash value of meals and lodging, tips and other gratuities, and, in some states, employer contributions to certain deferred compensation plans such as 401(k) plans.” See <https://www.bls.gov/cew/cewfaq.htm> for more information.
- 5.) The LHT Employment Ratio is generated for each representative racial/ethnic group, covering white, black, Asian, and Hispanic workers. It is calculated as the share of workers of each racial/ethnic group in the LHT workforce out of the share of workers of each racial/ethnic group in the total state workforce. For example, if black workers made up 75 percent of the LHT workforce and 50 percent of the total workforce, the black LHT Employment Ratio would be calculated as $[\text{.75}/\text{.5}] = 1.5$. The Employment Ratio metric is similar to a location quotient in both construction and logic, as both are intensity measures that quantify concentrations relative to larger or comparative areas.
- 6.) The wage and salary data reported here differ from wage data presented in Chapter 1 of the larger report. The ACS data in this chapter rely on self-reported data derived from five-year weighted averages that include collections between 2012 and 2016.
- 7.) The latest short-term projections for the state ran from 2016-2018 at the time of this writing.
- 8.) Food and Beverage Workers, except Bartenders, Waiters & Waitresses, includes the Standard Occupational Classification (SOC) System Occupations 35-3021 (Combined Food Preparation and Serving Workers, including Fast Food), 35-3022 (Counter Attendants, Cafeteria, Food Concession, and Coffee Shop), and 35-3041 (Food Servers, Non-restaurant).



Logan Airport’s Dynamic Role in an Innovation Economy

BRANNER STEWART

A KEY CATALYST IN MASSACHUSETTS’ GROWTH AND BOSTON’S STATURE AS A GLOBAL CITY, LOGAN INTERNATIONAL AIRPORT HELPS FUEL THE STATE’S KNOWLEDGE-BASED ECONOMY, INCLUDING ITS INFORMATION TECHNOLOGY, LIFE SCIENCES, FINANCE, EDUCATION, AND HEALTHCARE INDUSTRIES. AMONG THE NATION’S 20 BUSIEST AIRPORTS, ONLY SEATTLE-TACOMA AND FORT LAUDERDALE EXPERIENCED FASTER GROWTH IN PASSENGER TRAFFIC BETWEEN 2010 AND 2017. THE FASTEST GROWING COMPONENT OF LOGAN’S BUSINESS IS INTERNATIONAL PASSENGERS, ACCOUNTING FOR ONE THIRD OF ITS GROWTH. AT THE SAME TIME, INTERNATIONAL AIRFREIGHT AT LOGAN INCREASED BY 71 PERCENT. THESE AIR SERVICE ASSETS DRIVE THE EXCHANGE OF IDEAS AND MATERIALS — CORNERSTONES OF THE STATE’S INNOVATION ECONOMY.

Since the bottom of the last recession in the late 2000s, Massachusetts and particularly the Boston area have emerged as growth leaders for the Northeast and in many regards, for the United States. Growth since 2010 has been historically strong across a range of indicators, including population, jobs, income levels, gross domestic product, new construction, and venture capital investment. Over this same period, Boston’s prominence as a global city, combining its strengths in technology, life sciences, finance, higher education, and healthcare, has been on the rise. Today, in real estate and investment circles, Boston is considered among the “big six U.S. gateway cities,” a group that also includes Chicago, Los Angeles, New York, San Francisco, and Washington, D.C. — high-amenity cities that attract large volumes of domestic and international capital.

A catalyst for Massachusetts’ growth and Boston’s rise in stature as a global city is Logan International Airport, by far the busiest airport in New England. Since 2010, Logan’s rapid expansion in terms of passenger volume and international air service is emblematic of the Commonwealth’s relative economic success. The airport’s expansion has helped make Massachusetts more attractive for expanding businesses. At the same time, the convenience of increased nonstops is bringing in more visitors from around the world.

Past issues of *MassBenchmarks* have analyzed other factors that have contributed to the current period of robust economic growth in Massachusetts (e.g., educational attainment and the expansion of tech industries) or that are outcomes of this growth,

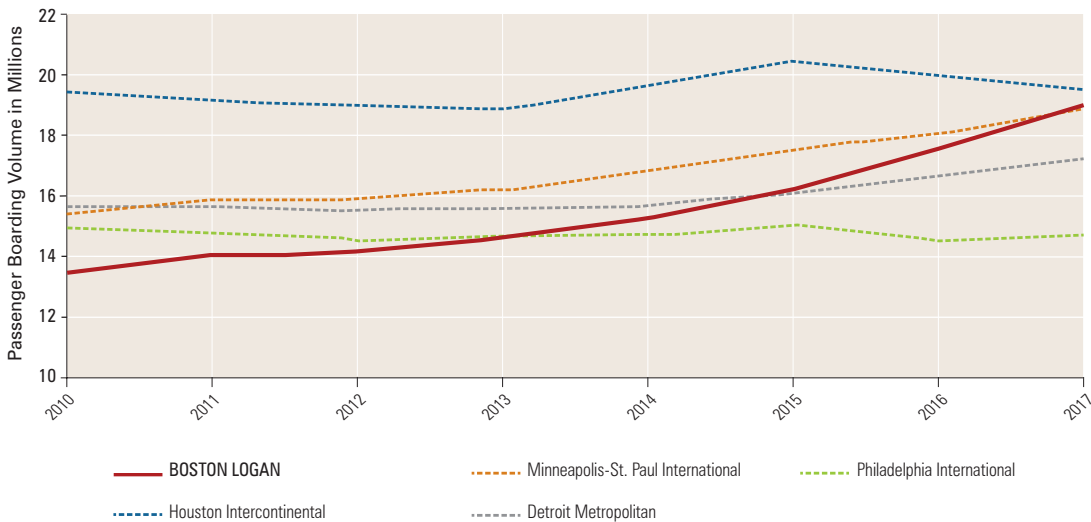
both positive (rising income levels, greater economic opportunity) and negative (e.g., congestion, housing supply issues, social and geographic equity). In that vein, this article focuses on the rapid expansion of international air service at Boston’s Logan International Airport and what it means for economic performance and opportunity in Massachusetts.

Logan Airport Is Outpacing Its Closest Peers in Passenger Growth

In terms of total passenger boardings, Logan International Airport ranked 19th among the nation’s 20 busiest airports in 2010. Over the 2010 to 2017 period, boardings increased by 41 percent, from 13.6 million to 19.1 million. Among the nation’s 20 busiest airports, only Seattle-Tacoma and Fort Lauderdale experienced faster growth in passenger traffic. With over 5.5 million net new passengers, Logan Airport’s growth was nearly equivalent to adding the entire volume of Kansas City International Airport in just seven years. By 2017, Logan had surpassed Philadelphia International, Detroit Metropolitan, and Minneapolis-St. Paul International (see **Figure 1**), all large hubs for connecting passengers, to become the 16th busiest airport in the United States, barely trailing Houston’s George Bush Intercontinental Airport for the 15th ranking.

International passengers are the fastest growing component of Logan’s business. Accounting for only 13.4 percent of Logan’s passengers in 2010, international travelers represented nearly one-third of Logan’s growth between 2010 and 2017. Through September

Figure 1. Passenger Boardings — Logan Airport Compared to Airports of Similar Size, 2010–2017



Source: U.S. Department of Transportation, Federal Aviation Administration Air Carrier Activity Information System (ACAIS), Passenger Boarding (Enplanements) and All-Cargo Data for U.S. Airports.
Note: Passenger boarding figures represent half of total passenger activity at an airport, as they do not include passengers deplaning.

2018, Logan Airport continued to grow quickly in terms of both domestic and international passenger numbers. Today, international traffic represents 18.6 percent of Logan's passengers.

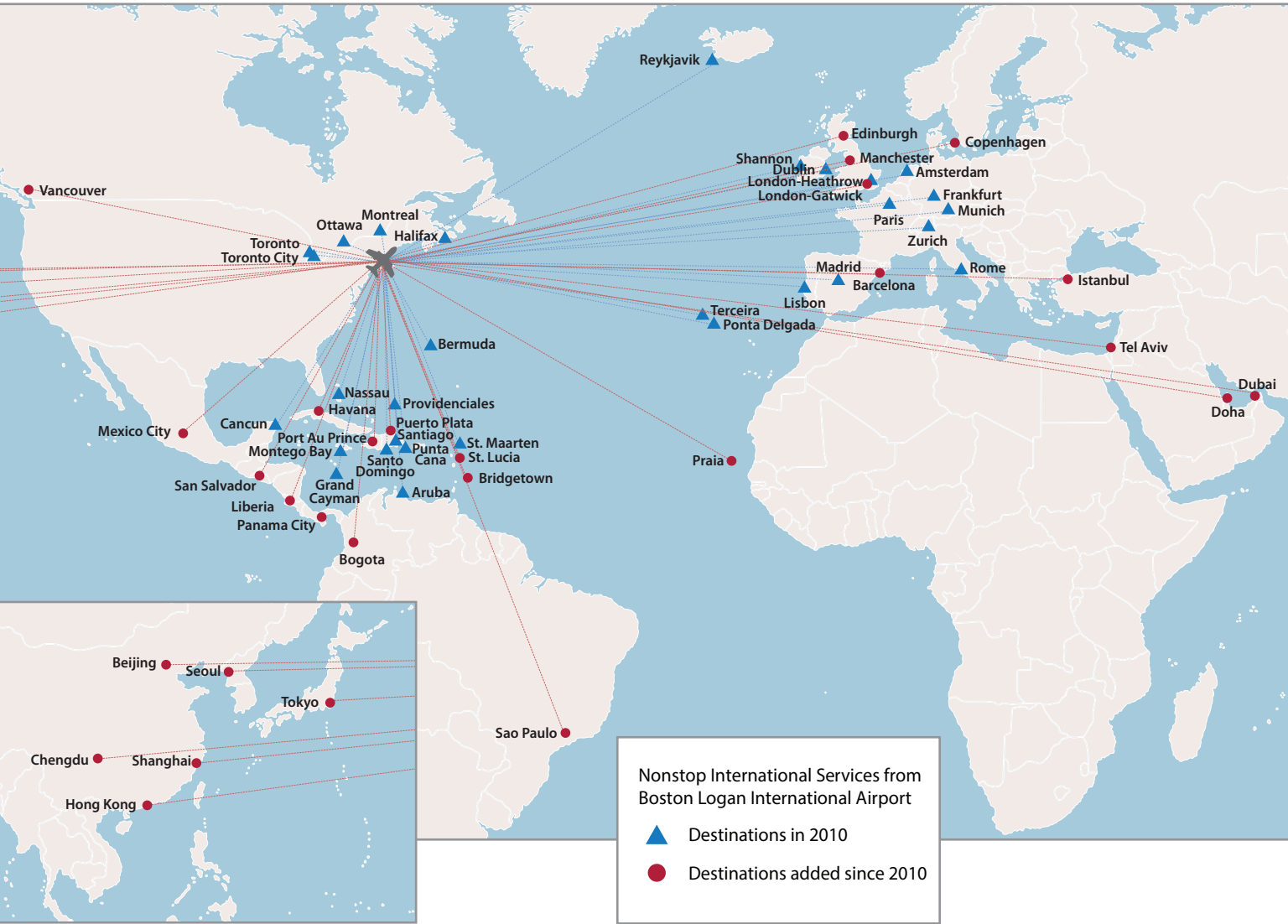
International Nonstops from Logan Airport Have Increased Markedly Since 2010

The increase in passengers at Logan Airport has gone hand-in-hand with the expansion of international service at the airport. Since 2010, the number of international cities reachable on nonstops from Logan has increased from 30 to 55 (see map in **Figure 2**) and is expected to rise by an additional three in 2019, when service will be introduced from Boston to Seoul, Chengdu, and Edinburgh. Until recently, travelers could only reach destinations in Canada, Europe, and the Caribbean on non-stop flights from Logan. For decades, these three

regions accounted for all international traffic from Logan. Service to the nearby Canadian cities of Halifax, Montreal, Ottawa, and Toronto reflected centuries of social, business, and cultural connections linking New England with Canada. The strong Caribbean service out of Logan has catered to winter travelers seeking warmer climates, and, finally, since the advent of long-distance air travel, geographic proximity has traditionally made Boston one of the main U.S. gateways to Western Europe. For decades, these three markets have helped sustain moderate growth in international passenger volumes at Logan.

While air service to Canada, Europe, and the Caribbean has been available for years, travelers originating in New England but going to other major locations throughout the world, namely East Asia, the Middle East, Central or South America, and Mexico,

Figure 2. Change in International Nonstop Flights Originating from Logan Airport, 2010 to 2018



have needed to change planes to reach their destinations. Changing planes, often through delay-prone hubs like John F. Kennedy International, San Francisco, and Chicago O’Hare, adds hours to trips and reduces reliability (i.e., the odds of missed flights and not making it to a destination on time increases with every change of flight). As an example of the advantage of a direct flight, the new Japan Air Lines nonstop to Tokyo, launched in 2013, now provides 14-hour service to the Japanese capital compared to the 17+ hours needed (when all goes right) with a plane change on the West Coast.

With the introduction of new carriers at Logan, international passenger service and options continue to grow. In 2010, 15 international and U.S. carriers offered international nonstops from the airport. Today, that has more than doubled to 35 (see **Table 1**) and will grow further in 2019, pending approvals, with the introduction of air service to Seoul by Korean Air and Chengdu, China by Sichuan Airlines. The expansion of airlines at Logan, however, will be somewhat negated by the suspension of service to Mexico City by Aeromexico, though a nonstop flight to Mexico City will remain available via JetBlue.

Beyond the advantages of the new nonstops to places like Panama City, Dubai, Istanbul, Bogota, and Sao Paulo, and many other new destinations, these flights add flight options and improve access, via connections, from Boston to hundreds of cities around the world. For instance, flights on COPA and AVIANCA from Boston to Panama City and Bogota also allow New Englanders (and others transiting through Boston) to more easily reach first- and second-tier Central and South American cities like Medellin, Colombia or Lima, Peru. Flights to Sao Paulo open up the huge Brazilian market and increase options to Argentina, Uruguay, and Chile. Similarly, the growth of Middle Eastern airlines at Logan, including Emirates, Qatar Airways, and Turkish Airlines, greatly improve access to Africa, the Indian subcontinent, and Southeast Asia. In addition to being a boon for business and leisure travel, these new flights make it more convenient for Massachusetts’ large Brazilian and South Asian populations to visit family abroad.

The Expansion of Service Has Helped Make Logan a Growth Leader in International Passengers

The large-scale increase in international air carriers and global destinations available from Boston has made Logan one of the fastest-growing airports in the country in international passenger service. Between 2010 and 2017, the number of international passengers served by Boston Logan rose by 88 percent (see **Figure 3**). Among the country’s large air hubs, only Fort Lauderdale and Orlando saw faster growth.

Table 1. Airlines Offering International Service from Logan International Airport, Growth Since 2010

Airlines Offering International Service in 2010	New International Airlines Since 2010
Aer Lingus	Aeromexico*
Air Canada	AVIANCA
Air France	Cathay Pacific Airways
Alitalia	COPA
American Airlines	EI AI
British Airways	Emirates
Delta Air Lines	Hainan Airlines
Iberia	Japan Airlines
Icelandair	Korean Air**
JetBlue Airways	LATAM Airlines Brasil
Lufthansa	Level
Porter Airlines	Norwegian Air Shuttle A.S
SATA Internacional (now Azores Airlines)	Norwegian Air UK Ltd
SWISS	Qatar Airways
Virgin Atlantic Airways	Scandinavian Airlines System
	Sichuan Airlines**
	TAP Portugal
	Thomas Cook Airlines
	Transportes Aereos de Cabo Verde (TACV)
	Turkish Airlines
	WestJet
	WOW Air

* Service to be suspended

** Pending, 2019

Source: Massport

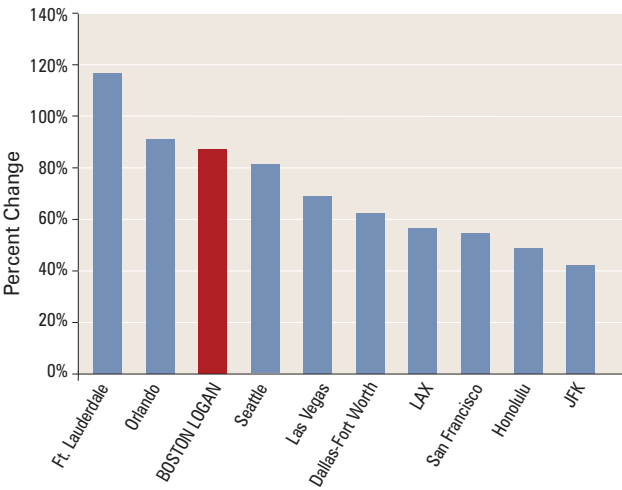
In net terms, Logan Airport added 3.2 million international air passengers between 2010 and 2017, the sixth highest increase of any airport in the United States (see **Figure 4**). In 2017, 6.8 million international passengers either landed or took off from Logan, making it the 12th busiest overseas gateway in the United States. Data through the first three quarters of 2018 indicate that international passenger volumes at Logan are continuing to increase. While not growing as quickly as Logan in percentage terms, the much larger John F. Kennedy (JFK) and Los Angeles International (LAX) airports added far more passengers, overall. These two airports serve the largest and second largest cities in the country, respectively, and also have long been, along with Miami, the top three gateways for international travelers to and from the United States. JFK and LAX are both global gateways with flights arriving from all over the world, while Miami continues to be the leading

hub connecting the United States with Latin America. Today, the network of international flights originating from Logan is more like a smaller version of JFK or LAX (i.e., service to destinations on multiple continents) rather than Miami's airport, which is more concentrated in a single region.

The surge in international passengers at Logan since 2010, as shown in Figures 3 and 4, has also given the airport a steadily rising share of total U.S. international

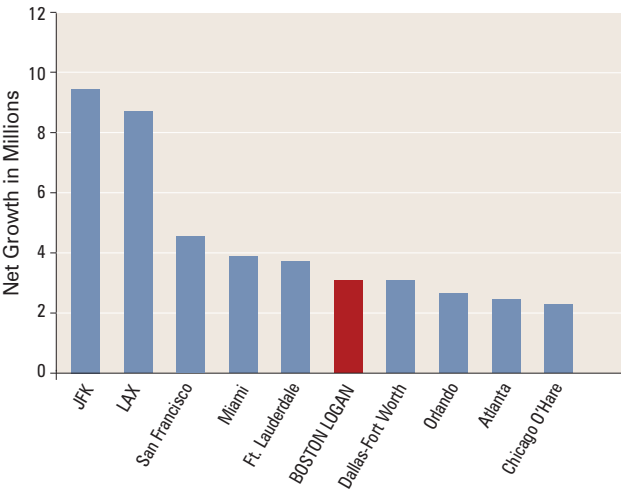
passenger traffic. In 2017, Logan accounted for 3.0 percent of all international air passengers moving through U.S. airports, an increase from the 2.2 percent share recorded as recently as 2013 (see Figure 5). The rise in Logan's market share reflects the attractiveness of the Boston-area market for air carriers. The airline industry is capital-intensive with popular long-range planes like the Boeing 787 and Airbus A350 listing for over \$250 million. Airlines carefully analyze market

Figure 3. Fastest Growing U.S. Airports by Percentage Change in International Passengers, 2010 – 2017



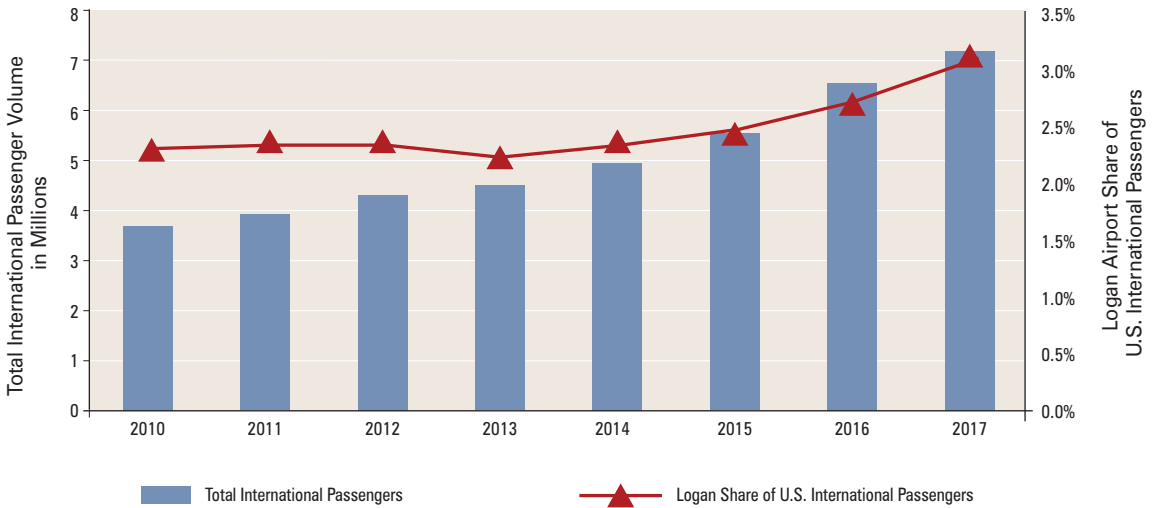
Source: US Department of Transportation T-100 Segment Data

Figure 4. Fastest Growing U.S. Airports by Net Change in International Passengers, 2010 – 2017



Source: US Department of Transportation T-100 Segment Data

Figure 5. Growth in International Passenger Volume at Logan Airport, 2010 – 2017



Source: U.S. Department of Transportation T-100 Segment Data; Massport, Airport Statistics. Annual shares are calculated based on USDOT scheduled service passenger figures. Note: Massport figures are slightly higher than USDOT's as they include international passengers from all sources, including charters, in addition to scheduled service passengers.

potential (e.g., passenger demand, notably for higher-fare business travel) before placing costly aircraft on new routes. The competition between major U.S. airports for international carriers and new routes is intense. In periodic presentations to carriers, international airports make the economic case that their facility can sustain long-term, profitable air service. Logan’s growing passenger volumes and rising share of U.S. international air travel are clear evidence that the city’s market potential as an international air hub is receiving recognition.

Logan Now Handles More Passengers Bound for Europe and Is Seeing New Growth in Flights to Asia, the Middle East, and Latin America

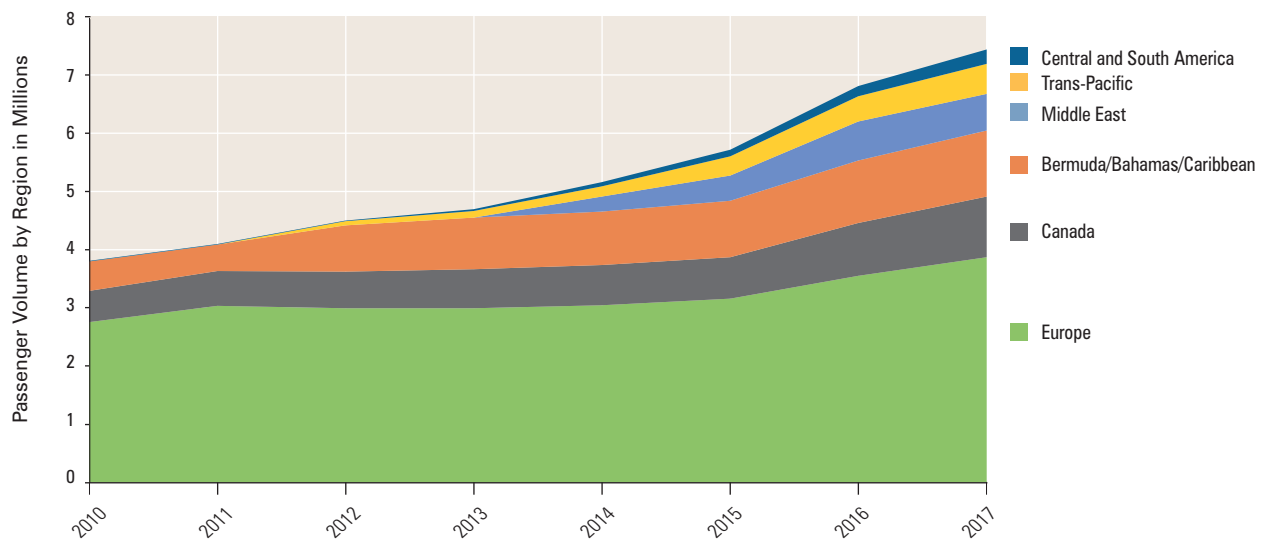
New nonstops and more air carriers are translating to increased international traffic to all the global regions served from Logan (see **Figure 6**). The three “traditional” markets with direct flights from Logan — Canada, the Caribbean, and Europe — are all seeing robust growth in passengers. Since 2010, service has been added to Vancouver, numerous beach destinations in the Caribbean, and several European business centers, including Copenhagen, Barcelona, and Manchester. While the traditional markets continue to handle the largest share of Logan’s international passengers by far, a transformation at the airport since 2010 is the expansion of flights to East Asia, the Middle East, and Central and South America. Those routes give Boston direct linkages to a wide array of key global markets for the first time. Over a half million passengers used new

services to Tokyo, Beijing, Shanghai, and Hong Kong in 2017 alone. That figure should continue to rise with the introduction of new nonstops to Seoul and Chengdu in 2019. Today, the 8,000 mile, 16-hour flight on Cathay Pacific to Hong Kong is Logan’s longest. With four carriers — El Al, Emirates, Qatar Airways, and Turkish Airlines — now serving the Middle East from Logan, passenger volume to that region now exceeds 600,000 annually. In Central and South America, new flights to Bogota and Sao Paulo will add to the quarter million passengers who flew to these regions from Logan last year. The growth in international travelers at Logan has become diverse, spread among many global regions, in only a short number of years.

New International Service Is Also Contributing to Increased Freight Volumes at Logan Airport

Airfreight is transported in two ways — by dedicated freight carriers like FedEx and DHL, and in the bellies of passenger aircraft. Compared to other freight modes, such as trucks, rail, and ships, air is the most expensive and the fastest way to move a good or product. Shippers prefer to use airfreight for high-value, lightweight goods, especially when the timeliness of a delivery is essential. The types of goods and services produced in Massachusetts have a particularly good fit with airfreight. The life sciences industry makes high-value, frequently perishable medicines, making air a preferred mode for shipping goods. Similarly, the state’s electronics and medical equipment industries produce very high value,

Figure 6. International Passenger Volume at Logan Airport by World Region, 2010 – 2017



Source: Massport, Airport Statistics

generally lightweight goods, often including parts and components that are transported by air as part of a global supply chain. Massachusetts is also a leading processor of seafood consumed throughout the world. For fresh seafood, air is the only shipping option for reaching distant markets like Japan. Massachusetts shippers in these industries and others are benefiting from the new capacity that has become available from international airlines at Logan.

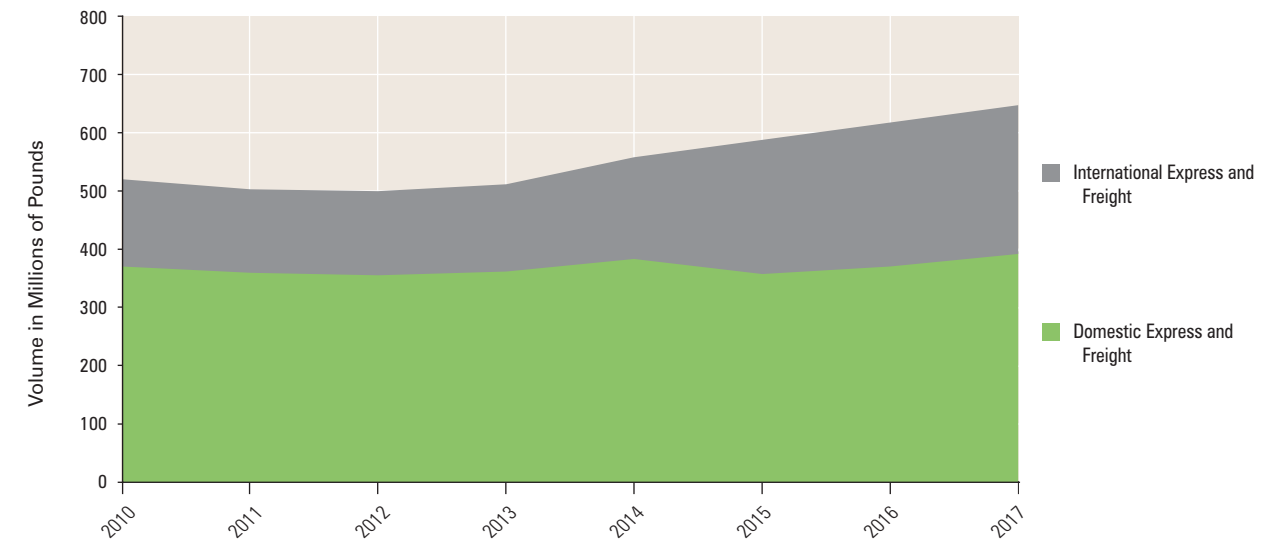
At Logan Airport, this new capacity has increased airfreight volumes. While domestic airfreight levels have remained relatively constant at 400 million pounds per year (see **Figure 7**), the volume of international airfreight handled at Logan increased by 71 percent between 2010 and 2017, from 156 million to 266 million pounds.

In 2017, just under 40 percent of airfreight at Logan was international.

Air Services-related Jobs Are Growing in Massachusetts

In conjunction with Logan’s rising passenger numbers, air services-related jobs in Massachusetts have grown considerably since 2010. Defined by three industries (see **Table 2**), “scheduled air transportation,” “nonscheduled air transportation,” and “support activities for air transportation,” air services-related employment grew from 9,834 to 12,208 jobs between 2010 and 2017. Not surprisingly, more than three-quarters of these jobs and nearly all the recent growth have been in Logan’s home of Suffolk County.

Figure 7. International and Domestic Freight Volumes at Logan International Airport, 2010 – 2017



Source: Massport, Airport Statistics

Table 2. Air Services-related Jobs in Massachusetts, 2010 – 2017

NAICS	NAICS Description	2010	2017	Net Change	Percent Change
4811	Scheduled air transportation	6,642	7,717	1,075	16%
4812	Nonscheduled air transportation	205	502	297	145%
4881	Support activities for air transportation	2,987	3,989	1,002	34%
	Air Industries, Total	9,834	12,208	2,374	24%
	All Industries	3,151,206	3,544,095	392,889	12%

Source: Massachusetts Executive Office of Labor and Workforce Development, ES-202

What Does the Expansion of Air Service at Logan Do for the Massachusetts Economy?

Well beyond the 12,200 jobs in air services-related jobs in Massachusetts that directly support Logan and the state's other airports, the expansion of nonstop service from Logan has helped feed the growth of Massachusetts' knowledge-based economy since the last recession. Air service is vital to Massachusetts' information technology, life sciences, finance, education, and healthcare industries — the foundations of the state's economy and the lynchpins of its growth. By bringing people together and encouraging face-to-face meetings and the exchange of ideas, air service supports the innovation that helps set Massachusetts apart in industries like life sciences. In this sense, Logan Airport's international air service is further fueling the business and personal connections that catalyze thriving hives of research and innovation, like Kendall Square. Long-distance air travel makes these linkages possible. And it transpires more easily when people can get to Boston directly without changing planes.


The vastly expanded international route network from the airport and its global connectivity have undoubtedly brought a new level of economic opportunity to Boston and the Commonwealth. Being better able to reach dozens of large markets throughout the world improves Massachusetts' competitiveness and cements its position as a top-tier global location for business, research, education, technology, and tourism.

A recent study by MassEcon, "Choosing Massachusetts for Business: Key Factors in Location Decision-Making," corroborates Logan's importance and its international service for companies that choose to locate or expand in Massachusetts:

Another frequently cited asset is Boston's Logan International Airport, which offers hundreds of domestic flights, helps to connect multinational companies with European offices, and is growing the

number of direct flights to global locations throughout the world.

A number of the companies interviewed have European headquarters or other operations. These companies highly value the proximity of Massachusetts to Europe and the ever-growing number of daily flights from Logan. For example, one company relies on the airport for streamlined access to its international staff, who frequent Boston for orientation and training. Another company, with wide-ranging international operations, relies on the airport for critical access to its foreign programs and European headquarters.

Massachusetts' economic success, centered on innovation, is dependent on its talent pool. The types of people that the state's businesses need to attract and retain are very diverse and globally oriented. These people and their companies expect and need to travel to global economic centers quickly and with relative ease. In years past, the ability to move goods was paramount in economic growth. This resulted in the emergence of great cities like Chicago that facilitate the movement of commodities like cattle and steel. Today, moving people who share and generate ideas matters even more. Thus, the expanded network of international flights from Logan Airport is expediting the social and economic connections that are raising the Commonwealth's global profile, market performance, and competitive edge. 

BRANNER STEWART is a senior research manager with the Economic and Public Policy Research Group at the UMass Donahue Institute.



The Price-Rent Ratio for Housing During the Boom and Bust: Measurement and Implications

JACLENE BEGLEY, LARA LOEWENSTEIN, AND PAUL S. WILLEN

THE PRICE-RENT RATIO OVER FIFTEEN YEARS CAPTURES FALLING HOME OWNERSHIP RATES LEADING TO HIGHER DEMAND AND PRICES FOR RENTALS.

The price-rent ratio for housing is central to understanding and interpreting real estate valuations. Economic theory suggests a close relationship between the two. If prices get too high relative to rents, people will rent rather than buy and drive rents up and prices down. The opposite will occur if rents get too high. Economists use price-rent ratios to answer many questions about the housing market. Are prices too high? Do market participants expect prices to rise more in one city than another? Are prices rising because rents are going up or because people believe prices are rising? Is productivity rising in a city or is in-migration driving increasing demand for a scarce resource? Tracking price-rent ratios provides answers that separate tracking of prices or rents cannot.

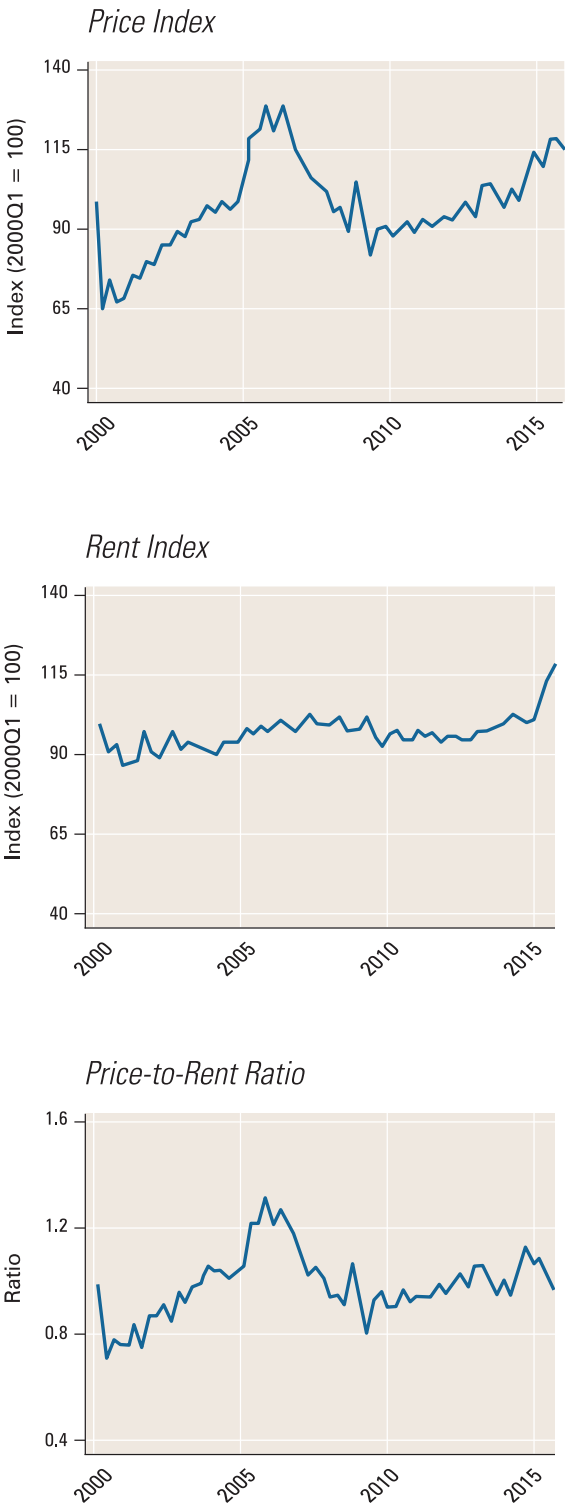
Historically, measuring the price-rent ratio has been a challenge because price data come from sales of owner-occupied properties and rent data come from rents on renter-occupied properties. Causal empiricism tells us that renter-occupied properties and owner-occupied properties are systematically different. First they usually differ in location and structurally. (Renter-occupied property is more likely to be urban and multifamily.) They also tend to differ in ways that are difficult to measure. (Renter-occupied properties, for example, typically aren't maintained at the higher standards of owner-occupied properties.) As a result, economists have been careful to qualify observations made with price-rent ratios.

In our research, we have constructed new measures of the rent-price ratio. Our innovation is that we use data that allow us to measure prices and rents on the same properties. That solves the problem of comparing renter- and owner-occupied properties. For rental data, we use Multiple Listing Service (MLS) data. "For sale" listings of renter-occupied properties often include recent rental income that helps buyers to value properties. The "for rent" listings, of course, contain the rent. For sales transactions, we use public records data for properties matched to the MLS listings. We also use commercial real estate data for large multi-family properties.

The figures on the right show a key finding from our research. The top panel illustrates a repeat-sales price index for renter-occupied properties for the last 16 years and shows two well-known facts: residential real estate prices boomed in the mid-2000s and then collapsed but have recovered since. Our data allow us to decompose that increase into an increase in rents (middle panel) and the price-rent ratio (bottom panel). The takeaway is that while the boom in the mid-2000s was largely an increase in the price-rent ratio, the price recovery has been driven by increased rents.


Our decomposition of rents versus the price-rent ratio has important policy implications. Rapid house price appreciation during the housing boom of the 2000s

Price and Rental Indices for Combined Data
Renter-Occupied Properties



Source: CoreLogic Real Estate Database.

Note: The description of the repeat sale index methodology is described in the appendix of the unabridged version of this article.¹ The top panel is the ratio of the indices in the bottom two panels.

did not cause an affordability crisis, because households could simply opt out of ownership. Indeed, starting in 2004, the homeownership rate in the U.S. started falling. Without the option of renting at a reasonable price, households face a much more challenging housing environment. Higher rents are, potentially, an unwelcome consequence of the slow pace of new construction since the financial crisis. 

JACLENE BEGLEY is an economist at the Federal National Mortgage Association (Fannie Mae).

LARA LOEWENSTEIN is an applied microeconomist at the Federal Reserve Bank of Cleveland.

PAUL WILLEN is a senior economist at the Federal Reserve Bank of Boston and a faculty research fellow at the National Bureau of Economic Research.

Endnote

1.) Begley, J., Lowenstein, L. and Willen, P. (2018). The Rent-Price Ratio During the Boom and Bust: Measurement and Implications. In preparation.

UMass Donahue Institute
100 Venture Way, Suite 9
Hadley, MA 01035-9462
C102525
Change Service Requested

NON PROFIT ORG
U.S. POSTAGE
PAID
PERMIT NO. 2
AMHERST, MA



MassBenchmarks is published by the University of Massachusetts in cooperation with the Federal Reserve Bank of Boston. The views expressed in this publication are not necessarily those of the University of Massachusetts, the Federal Reserve Bank of Boston, or the editorial board. The contents of this publication may be reproduced only if all sources are credited. All rights reserved.

Art Director: Moira Clingman

Consulting Art Director: Chris Bell

Managing Editor: Rebecca Loveland

Economic and Demographic Data Analyst: Andrew Hall

Copy Editor: Louis Wigdor

***MassBenchmarks* is produced by the UMass Donahue Institute Economic and Public Policy Research Group**

- Mark Melnik, *Director*
Shannon Bernacchia, *Finance and Administration Manager*
Carrie Bernstein, *State Data Center Manager/Lead Research Analyst*
Meghan Flanagan, *Senior Research Analyst*
Andrew Hall, *Senior Research Analyst*
Rebecca Loveland, *Senior Research Manager*
Michael McNally, *Research Analyst*
Rod Motamedi, *Research Manager*
Thomas Peake, *Senior Research Analyst*
Abigail Raisz, *Research Analyst*
Matthew Schlaikjer, *Research Analyst*
Branner Stewart, *Senior Research Manager*
Susan Strate, *Population Program Manager*
Gail Waterhouse, *Research Analyst*