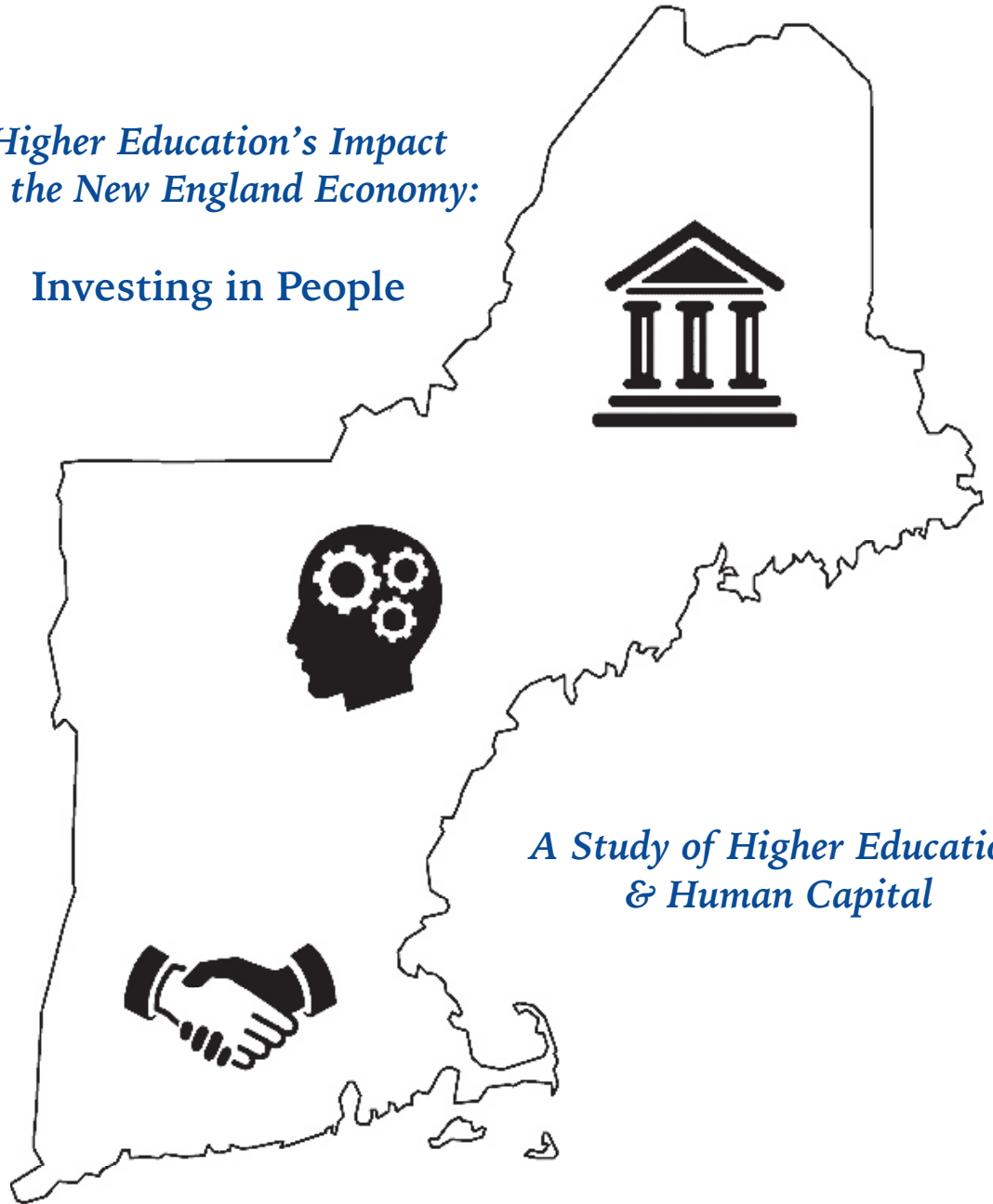




*Higher Education's Impact
on the New England Economy:*

Investing in People



*A Study of Higher Education
& Human Capital*

Gretchen Syverud
Candace Williams

August 2016

New England
Board of Higher
Education

www.nebhe.org



Higher Education's Impact on the New England Economy

Investing in People

Table of Contents

| | |
|---|----|
| INTRODUCTION. | 3 |
| PART I. TO WHAT EXTENT AND IN WHAT WAYS DO NEW ENGLAND INSTITUTIONS ATTRACT NEW HUMAN CAPITAL RESOURCES? | 4 |
| Students, faculty and staff from across the country and around the globe flock to colleges and universities in New England. | 4 |
| Attracting students from outside the region and outside the nation. | 4 |
| Attracting faculty and administrative staff from outside the region and outside the nation. | 5 |
| New England institutions develop talent and resources that then attract, support and sometimes create firms and employers. | 6 |
| Creating the skilled labor and resources for which employers will locate or relocate. | 6 |
| Connecting students with resources to create innovative ideas and companies. | 7 |
| PART II. TO WHAT EXTENT AND IN WHAT WAYS DO NEW ENGLAND INSTITUTIONS DEVELOP LOCAL HUMAN CAPITAL RESOURCES? | 9 |
| By making higher education accessible, New England's postsecondary institutions help boost regional productivity. | 9 |
| Making it easier for residents to enroll close to home. | 9 |
| Allowing residents to complete coursework when it is convenient. | 10 |
| Reducing other barriers to higher education. | 12 |
| Helping residents afford college. | 13 |
| Helping residents persist and complete credentials and degrees. | 14 |
| New England institutions align curricular and service offerings to local workforce needs. | 16 |
| Preparing graduates to meet the region's changing and future workforce demands. | 16 |
| Developing the technical skills and knowledge currently demanded by regional employers. | 17 |
| Connecting graduates to the labor force through career services. | 19 |
| By creating a labor market with high overall levels of education, higher education institutions help to increase the wages of all workers. | 20 |
| CONCLUSION. MAINTAINING AND STRENGTHENING HIGHER EDUCATION'S IMPACT. | 21 |
| Investment in human capital has waned at a time when it is increasingly critical. | 21 |
| STATE APPENDICES | 22 |

August 2016

New England
Board of Higher
Education

www.nebhe.org

A STUDY OF HIGHER EDUCATION AND HUMAN CAPITAL

Higher education institutions—as major employers of the workforce, purchasers of goods and services, managers of real estate, and attractors of external investment—are frequently the subject of research measuring economic impact. This research often falls into one of two categories: institution-focused studies that measure the monetary contributions to a city or community, or sector- or state-focused studies that measure the production of knowledge and its effects on a regional or national economy. As separate parts of a bigger picture, what is impossible to glean from these analyses is how higher education broadly contributes to the two primary methods of economic growth: attracting new resources and improving the productivity of existing resources.

The first in a new series from the New England Board of Higher Education (NEBHE), this brief explores how higher education fuels the regional economy through attracting, developing and retaining its most critical resource: human capital, or, put simply, people.

Higher Education in New England at a Glance

- Over one million students are enrolled in New England's 265 higher education institutions.
- Of the region's 265 institutions, 57% are private, nonprofit 4-year colleges or universities, 16% are public 4-year universities and 16% are public 2-year institutions.
- Of every 10 students enrolled in the region (both undergraduate and graduate), five attend a 4-year private nonprofit college, three attend a public 4-year college, and two attend a community college.
- Seventy percent of undergraduate students are attending college full-time, while 30% are enrolled part-time. Of those who enroll part-time, 58% attend a community college.
- One in 10 students enrolled in higher education in the region are attending graduate school.
- Approximately one of three undergraduate students in New England is between the ages of 25 and 64. At public 4-year universities, 20% of undergraduate students are over the age of 25 and at community colleges, 40% are 25 and over.
- Four in 10 first-time full-time undergraduate students receive a federal Pell Grant. On average, a Pell Grant awardee in the region receives \$4,267 per year.

NEBHE is grateful for the methodological advisement of its partners at the New England Public Policy Center and other experts at the Federal Reserve Bank of Boston, as well as Northeastern University professor Dr. Alicia Sasser Modestino.

TO WHAT EXTENT AND IN WHAT WAYS DO NEW ENGLAND INSTITUTIONS ATTRACT NEW HUMAN CAPITAL RESOURCES?

Students, faculty and staff from across the country and around the globe flock to colleges and universities in New England.

Attracting students from outside the region and outside the nation.

One of the most effective ways New England colleges attract new people to the region—particularly people building and using their skills and knowledge—is by enrolling students from the rest of the nation and across the globe. New England institutions are distinctly known for drawing a much larger share of students from beyond the region’s borders than other regions across the nation.ⁱ

NEBHE’s analysis of students who enrolled in college for the first time in fall 2014 reveals that more than 35,000 students came to New England from the rest of the U.S. for college (Figure 1). This is a 6% increase over the approximately 33,000 U.S. students who began at New England colleges in fall 2012, and a faster increase than in nearly every other region across the nation. Since this count is available for only *first-time* (first-year or freshmen) students, the total of all U.S. undergraduates from outside the region enrolled at New England colleges is likely several times higher.

A look at the number of students from foreign countries who enrolled at New England colleges gives a deeper view, as it is not limited to first-time undergraduate students (Figure 2). In counting all students from other countries—undergraduate and graduate students across each year of study—our analysis reveals that New England colleges attracted more than 71,000 students in fall 2014. Overall, the number of students in the region coming from abroad is split evenly between undergraduate and graduate/professional study. Foreign student enrollment in fall 2014 saw a dramatic 18% increase over the approximately 60,800 students who enrolled in fall 2012—an influx that

outpaced increases in foreign student enrollment in the majority of regions across the U.S.

Adding to the skills and knowledge that students bring to and build in the region, many students from across the nation and globe choose to stay in New England after graduating. Research conducted by Alicia Sasser Modestino showed nearly one in five students from outside the region who completed a bachelor’s degree at a New England college in 2008 remained in the region a year later.ⁱⁱ

Figure 1: First-time Undergraduate Students from Outside the Region Enrolled at New England Colleges Fall 2014

| State of College | U.S. Students from Outside Region |
|--------------------|-----------------------------------|
| Connecticut | 7,033 |
| Maine | 1,310 |
| Massachusetts | 16,585 |
| New Hampshire | 3,847 |
| Rhode Island | 3,856 |
| Vermont | 2,458 |
| New England | 35,089 |

Note: This includes only first-time degree-seeking undergraduate students from outside New England that enrolled at New England degree-granting institutions in fall 2014.

Source: NEBHE analysis of data from U.S. Department of Education

Figure 2: Undergraduate and Graduate Students from Foreign Countries Enrolled at New England Colleges Fall 2014

| State | Undergraduate | Graduate | Total |
|--------------------|---------------|---------------|---------------|
| Connecticut | 4,161 | 6,149 | 10,310 |
| Maine | 1,348 | 240 | 1,588 |
| Massachusetts | 24,316 | 25,054 | 49,370 |
| New Hampshire | 1,618 | 1,645 | 3,263 |
| Rhode Island | 3,229 | 1,758 | 4,987 |
| Vermont | 1,223 | 275 | 1,498 |
| New England | 35,895 | 35,121 | 71,016 |

Note: This includes students who identify as nonresident alien that enrolled at New England degree-granting institutions in fall 2014.

Source: NEBHE analysis of data from U.S. Department of Education

i Sasser, Alicia C. “The Future of the Skilled Labor Force in New England: The Supply of Recent College Graduates.” (NEPPC Research Report No. 08-1, Federal Reserve Bank of Boston, 2008.)

ii *Ibid.*

Assuming the share of college graduates who stay in the region is cyclical (i.e., moves with the business cycle), **NEBHE estimates that 3,600 to 12,800 undergraduate students from outside New England who completed bachelor's degrees within the region in 2013-14 stayed at least a year later.**ⁱⁱⁱ

Given that New England colleges attract a disproportionately high share of graduate students compared with other regions in the U.S., the retention of graduate students is of great interest as well. Without a similarly robust source of information on students who move to the region to attend graduate and professional school, it is difficult to estimate how many advanced degree earners choose to stay and work in the region afterward. However, the region's industries and job openings do call for a high share of workers with advanced degrees—especially in STEM fields, in which foreign degree earners are allowed to stay in the region longer to work.^{iv}

Attracting faculty and administrative staff from outside the region and outside the nation.

New England institutions of higher education also attract and retain faculty and administrative staff from outside the region. Colleges and universities encourage and support relocation through various programs, services, partnerships and initiatives. A common partnership that attracts talent to New England is an endowed faculty position, wherein a professor's compensation is funded by private individuals, foundations or corporations, sometimes jointly with the institution. The prestige and opportunities that accompany endowed professorship draws scholars from across the nation and the globe. A positive spillover of colleges' efforts to attract employees and ease their relocation is the benefit to employees' families and communities. For example, many colleges offer relocation assistance, home-buying assistance in local neighborhoods, assistance with partners' job searches (e.g. academic dual-career searches), and creation or support of local childcare, early education, and K-12 schools.

Spotlight on Massachusetts & Connecticut

- Several private nonprofit colleges in the Boston area participate in the Real Estate Advantage Program, in which college employees can receive significant savings on the purchase and sale of homes, reduced closing costs on mortgages and competitive rates on the movement of household goods. The program helps attract faculty to relocate to and settle in greater Boston and defrays the cost burden to do so.
- Since 1994, the Yale Homebuyer Program has given permanent Yale University employees working 20 or hours or more a week—including faculty, clerical and technical staff, service and maintenance staff, and management and professional staff—a substantial income benefit if they purchase a home to own and occupy in designated areas in New Haven. The program provides up to a \$30,000 total benefit to participants: a \$5,000 first-year bonus and an annual \$2,500 grant for up to 10 years to faculty and staff as long as they continue to own and live in the home and remain employed by Yale. More than 1,100 homebuyers have participated in the program since its inception.
- Hartford's Homeownership Incentive Program (HIP), through Trinity College, makes forgivable loans available to Trinity employees on a first-come, first-served basis to qualified homebuyers. The loans are forgiven in their entirety if the buyer lives in the residence for five years and stays at Trinity. The program is administered by Southside Institutions Neighborhood Alliance (SINA), a community development corporation that is a partnership between Trinity College, Connecticut Children's Medical Center, and Hartford Hospital.

ⁱⁱⁱ This analysis is based on NEBHE calculations of the number of students who completed bachelor's degrees in 2013-14, 95% confidence intervals of the share of graduating seniors who were not native to New England and 95% confidence intervals of the share of graduating seniors who were not native to New England who remained one year later. As the most recent data on college graduate retention are from the Great Recession, retention rates during the economic recovery may be slightly different for two reasons: (1) in general there is less migration during periods of recession, and (2) parts of New England fared better during the Great Recession, so workers were less likely to leave for job opportunities elsewhere. Thus, recent college graduates in 2013 may be less likely to stay in New England given that the labor market has improved in other parts of the country. Data are from the U.S. Department of Education's Integrated Postsecondary Education Data System and Baccalaureate and Beyond study.

^{iv} U.S. Citizenship and Immigration Services. *Understanding H-1B Requirements*.

New England institutions develop talent and resources that then attract, support and sometimes create firms and employers.

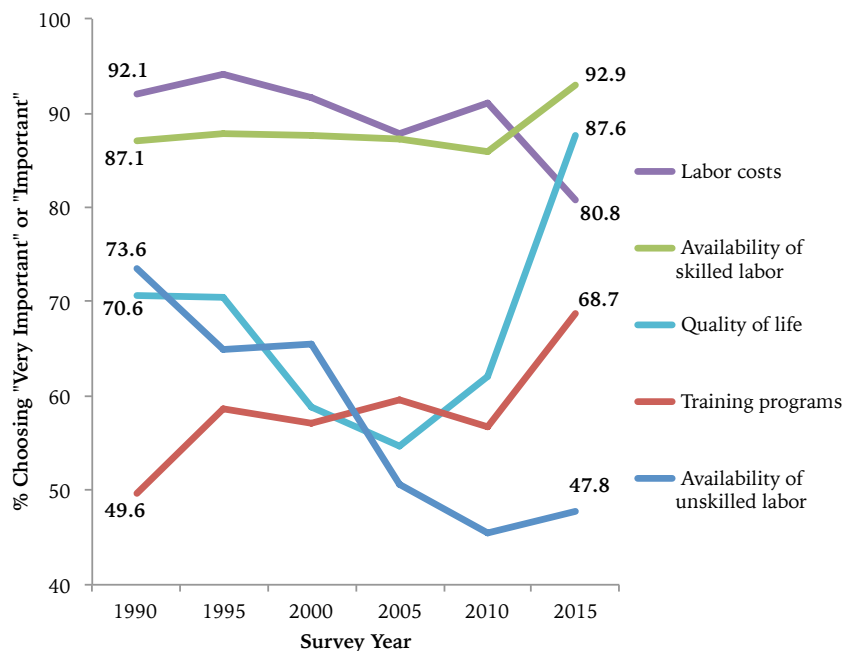
Creating the skilled labor and resources for which employers will locate or relocate.

New England’s colleges and universities are responsible for educating the majority of skilled labor in the region.^v Skilled labor is already overwhelmingly driving firms’ decisions of where to locate new or expanded business, and as the regional economy increasingly derives its value from people—as opposed to physical or natural resources—the importance of skilled labor will continue to grow.

Business owners, CEOs, CFOs and other corporate officers confirmed this in Area Development’s 30th Annual Corporate Survey: 93% of respondents rated skilled labor a “very important” or “important” factor in selecting sites for doing business. Skilled labor was the highest rated factor: more important than labor costs, and far above factors of tax considerations (e.g. corporate tax rate, tax exemptions). While the share of corporate officers citing skilled labor as “very important” or “important” has been consistently high throughout the past 30 years of survey administration, it recently jumped from 86% in 2010 to 93% in 2015 (Figure 3).

Further, New England colleges play a critical role in supporting regional clusters of economic activity—geographic concentrations of interconnected firms, such as clean-tech in northern Vermont or life sciences in greater Boston—not only through producing and supporting a highly skilled talent pool, but also through creating and sustaining resources that make clusters thrive. Many of the forces that drive these “hot spots of productivity and collaboration” come from or are aided by colleges, such as knowledge spillover (e.g. technology transfer offices), and support for innovation (e.g. services for entrepreneurs).^{vi} While regional clusters promote growth of companies within a specific industry—such as biotech—that growth leads to opportunities for talent in other areas within those companies or areas that complement that industry—such as business and law.

Figure 3: Site Selection Factors Rated by Importance, as Rated on Area Development’s Corporate Survey 1990-2015



Note: Quality of life ratings for years before 2015 are the average of ratings of nine factors, including climate, housing availability, housing costs, healthcare facilities, ratings of public schools, cultural opportunities, recreational opportunities, colleges and universities in area, and low crime rate.
Source: Area Development, <http://www.areadevelopment.com/Corporate-Consultants-Survey-Results/Q1-2016/>

^v Sasser, Alicia C. “The Future of the Skilled Labor Force in New England: The Supply of Recent College Graduates.” (NEPPC Research Report No. 08-1, Federal Reserve Bank of Boston, 2008.)

^{vi} Muro, M. and Katz, B. (2010). *The New ‘Cluster Moment’: How Regional Innovation Clusters Can Foster the New Economy*. Brookings.

Spotlight on Massachusetts, Connecticut & Maine

- As the largest company in New England by market cap, General Electric's recent decision to relocate its headquarters drew close attention from residents across the six states. When General Electric (GE) ultimately decided to move from Fairfield, CT to Boston, GE officials noted the role of colleges and the cluster of industries colleges support. Specifically, as reported by the Boston Globe, "officials pointed to Greater Boston's concentration of elite universities and nimble tech firms as the main draw. 'We want to be at the center of an ecosystem that shares our aspirations,' chief executive Jeffrey R. Immelt said in a statement."ⁱ
- GE's soon-to-be former headquarters have proven to remain a desirable place to do business due to the talent pool and resources in the area. Kleban Properties, a real estate investment and development company, has already expressed interest in developing GE's property in Fairfield, CT. This partnership stems from the company's history of working with Fairfield University, including Fairfield University's business accelerator and entrepreneurial programs, according to Kleban Properties' president.ⁱⁱ
- Sometimes, institutions play more active roles in attracting employers. In Maine, Colby College, Thomas College and Kennebec Valley Community College teamed up to present a strong case for Collaborative Consulting of Massachusetts to establish a new branch office in Waterville. William C. Robichaud, founder and CEO of Collaborative Consulting, explained Waterville's draw: "Waterville's proximity to major urban markets and its talent pool won us over, as did the opportunity to partner with Colby College and the state of Maine." Colby defrayed the company's startup costs, and the company offers internships and job opportunities for students and graduates.ⁱⁱⁱ

i Chesto, J. (2016, January 13). GE confirms it's heading to Boston. The Boston Globe.

ii Donahue, C. (2016, March 28). Kleban Joins Forces With Fairfield University To Redevelop GE Headquarters. Fairfield Daily Voice.

iii Colby College. (2015, December 9). Colby Partners with IT Company to Bring 200 Jobs to Waterville.

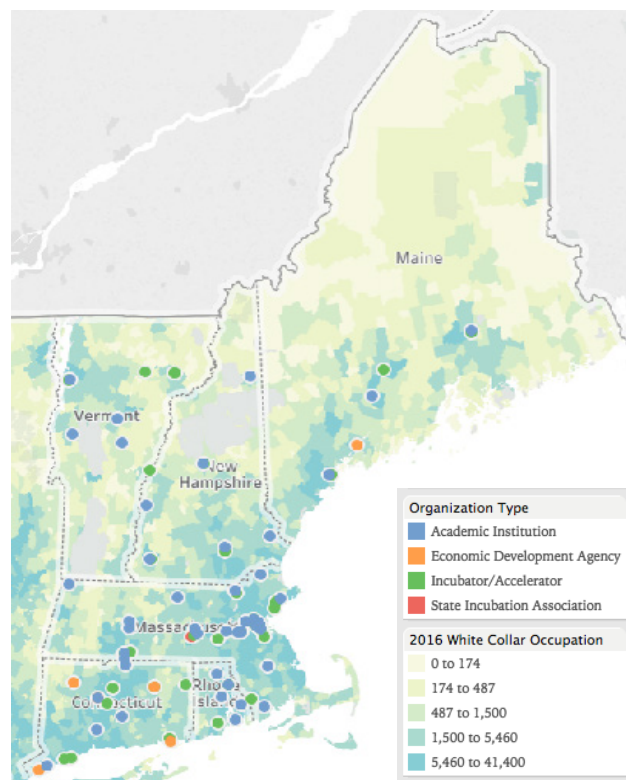
Connecting students with resources to create innovative ideas and companies.

Not only do the region's colleges supply the talent pool that attracts new employers, colleges also assist students in creating that employment. According to the International Business Innovation Association (InBIA), colleges play a major role in incubating new and small businesses, and their role is growing. Some of the services colleges provide to student and local entrepreneurs include:

1. Student entrepreneurship centers. Often hosted by a college of business or engineering, entrepreneurship centers carve out space on campus for students to come together to innovate. These centers can provide a safe place for students to vet ideas, take risks and build networks.
2. Technology transfer offices. While serving an important revenue-generating function for the university as a whole, technology transfer offices also facilitate student involvement in "spinning off" university-developed products and processes to the market. Most often, graduate and business students play major roles, sometimes continuing to advise or lead work after graduating.
3. Technology incubators and "makerspaces." Students or community members who meet certain eligibility requirements can use specialized infrastructure and space on campus to meet and build physical products. For example, some incubators include wet labs, 3D printers, or spaces for working with advanced materials.

Colleges and universities with global recognition and very high research activity often lead the way in preparing and supporting entrepreneurs. New England is home to many of these pioneering universities. Colleges across institution types and sizes provide many of the same programs and services for business incubation, too—and they span all six New England states (see Figure 4, which also demonstrates a relationship between high-skilled, white-collar occupations and institution-affiliated business incubators).

Figure 4: College-affiliated Business Incubation Programs or Agencies in New England, by Organization Type



Note: This includes only organizations that are members of the International Business Incubation Association (InBIA).
Source: NEBHE analysis of data from InBIA

Spotlight on Vermont, Rhode Island, New Hampshire & Connecticut

- Middlebury College (Vt.) offers the “Midd Entrepreneurs” winter term course for students who want to start their own businesses or nonprofit organizations. Students spend the month of January developing their ideas, building their companies and preparing for the culminating event: pitching their ideas to a panel of venture capitalists and entrepreneurs.
- Brown University (R.I.) supports student innovators with its Venture Labs incubator, within the Entrepreneurship Program. Students participating in this 10-week intensive incubation program are connected to \$4,000 of seed funding, mentorship and access to a co-working space. In addition, students meet with experts, participate in pitch sessions and engage in special events, such as startup competitions.
- The Dartmouth Regional Technology Center (DRTC) in New Hampshire is a private nonprofit organization that operates in collaboration with Dartmouth College, the Dartmouth Entrepreneurial Network (originator of a new on-campus innovation center and co-working space), regional economic development councils and area businesses. The DRTC serves as an incubator and support network for promising technology startups and contributes to larger projects focused on creating and expanding jobs in technology.
- The University of Bridgeport (CT) conducted two business development competitions earlier this year, both sponsored by the Trefz School of Business new Student Entrepreneur Center. The first was a business pitch competition open to all community college students to encourage them to develop and present business concepts. The second was a business plan competition open to all University of Bridgeport students who received guidance from professors and entrepreneurs and resulted in multiple new businesses being launched.

TO WHAT EXTENT AND IN WHAT WAYS DO NEW ENGLAND INSTITUTIONS DEVELOP LOCAL HUMAN CAPITAL RESOURCES?

By making higher education accessible, New England's postsecondary institutions help boost regional productivity.

Making it easier for residents to enroll close to home.

A critical first step to improving the skills and education of the region's residents is facilitating access to college. Nearly two-thirds of New Englanders who pursue postsecondary education start college in their home states, and more than eight in 10 New England residents start college in the six-state region (Figure 5). Even as students transfer between institutions, 30% to 75% of students who transfer do so within the same New England state, and 53% to 83% transfer within the region.^{vii}

Figure 5: New England Students who Started College in Fall 2014

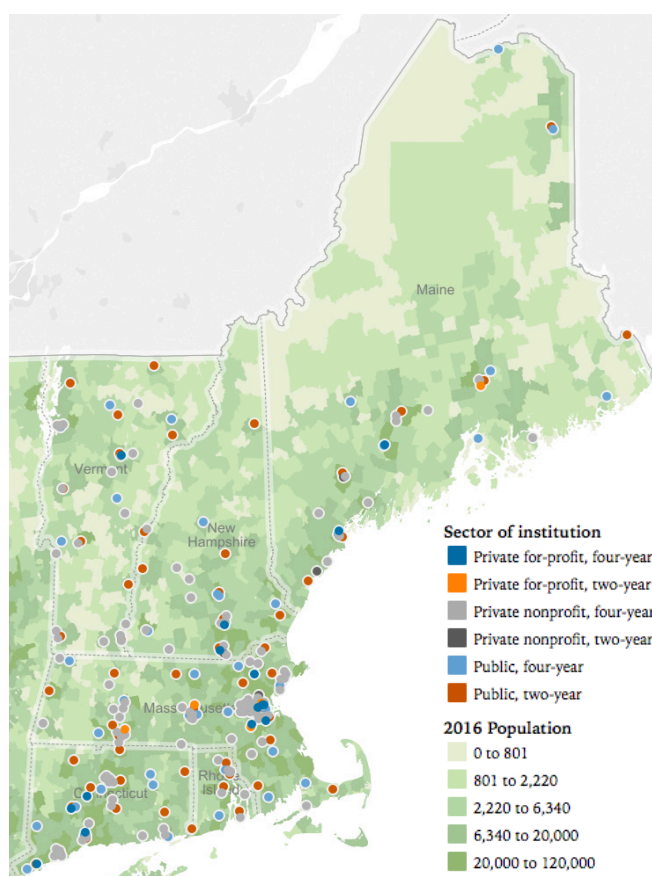
| Residents of | Began College in Home State | Began College in New England |
|--------------------|-----------------------------|------------------------------|
| Connecticut | 57% | 75% |
| Maine | 71% | 86% |
| Massachusetts | 70% | 84% |
| New Hampshire | 55% | 82% |
| Rhode Island | 67% | 86% |
| Vermont | 52% | 73% |
| New England | 64% | 82% |

Note: This includes only degree or certificate-seeking students who enrolled in college for the first time in fall 2014.
Source: NEBHE analysis of data from U.S. Department of Education

There are 265 degree-granting institutions of higher education in New England, reaching every corner of the six-state region (Figure 6). A quick look at the location of institutions and areas where most residents live in the region shows clearly that colleges are most often located within or directly adjacent to areas of high population density. As a region that attracts thousands of students, some areas have high population density partly due to students, but student population is not always a significant fraction of an area's population: Three out of four colleges in the region enroll fewer than 5,000 students.^{viii}

This is especially relevant when considering college-going and access for New Englanders who are low-income. Research shows low-income residents are more likely to attend college when they live near institutions of higher education, and low-income residents who choose to attend college are more likely than their wealthier peers to attend college closer to home.^{ix,x}

Figure 6: New England Colleges by Sector, with Population by Zip Code 2016



Source: NEBHE analysis of institutional data from U.S. Department of Education. Population by zip code data from Nielsen.

vii New England Board of Higher Education, (2015). New England Fast Facts: Student Transfer.

viii New England Board of Higher Education. (2015.) New England Fast Facts: The Region's Higher Education Landscape.

ix Rouse, C., 1994. What to do after high-school: the two-year versus four-year college enrollment decision. In: Ehrenberg, R.G. (Ed.), Choices and Consequences: Contemporary Policy Issues in Education. ILR Press, Ithaca

x Kane, T., 1995. Rising public college tuition and college entry: How well do public subsidies promote access to college? National Bureau of Economic Research Working Paper No. 5164

The region’s most populous metropolitan statistical area, Greater Boston, which includes two counties in New Hampshire and over 4.2 million people, hosts more than 85 colleges and universities. This includes seven public 4-year colleges, nine community colleges, and 60 private nonprofit 4-year institutions. In fact, more than 60 colleges are accessible by public transit (within a 20-minute walk of a Massachusetts Bay Transit Authority (MBTA) train station or bus stop).^{xi}

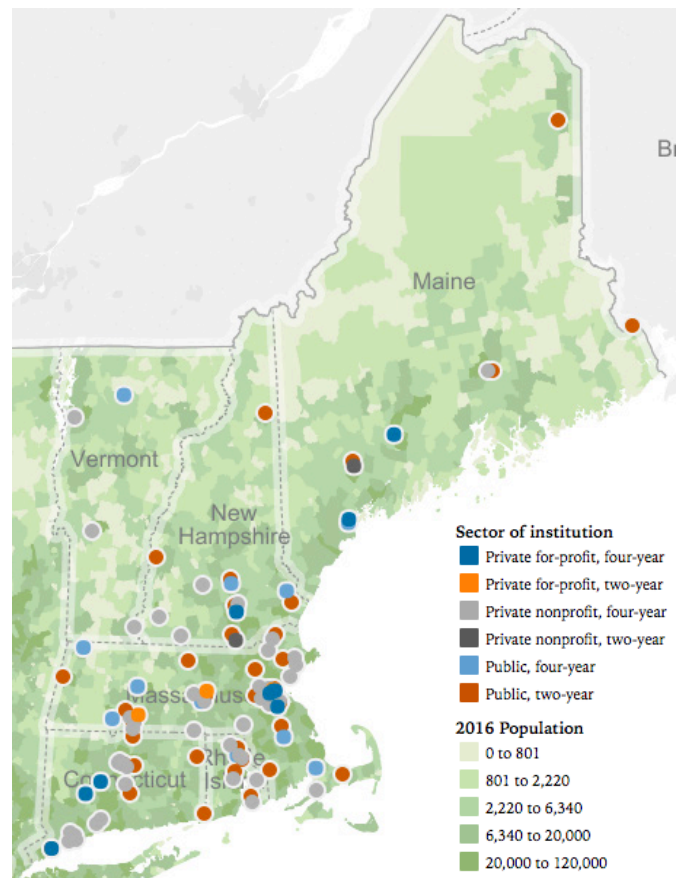
Even public institutions, sometimes thought to reach only students within state borders, extend affordable access to New England residents nearby—regardless of state residency—through proximity agreements. Typically, public institutions charge state residents an in-state tuition rate and out-of-state residents a (higher) out-of-state tuition rate. A proximity agreement offers a special tuition rate—lower than the out-of-state tuition rate—to residents of nearby geographic areas regardless of state residency. In a region of relatively small states and many thriving communities along state borders, this can dramatically expand residents’ choices of affordable colleges close to home.

One of the most prominent programs facilitating this access is NEBHE’s Regional Student Program (RSP), also called Tuition Break. Institutions participating in the RSP offer a tuition discount to New England residents attending public 2- or 4-year colleges outside their home state if the out-of-state college is nearer to a resident’s permanent residence than a home-state institution offering the same program. In academic year 2015-16, a total of 4,284 students enrolled at nearby public colleges with a tuition discount through the RSP: 3,189 undergraduate students at community colleges, 990 undergraduate students at public 4-year colleges, and 105 graduate students at public 4-year colleges. (In addition to the proximity provision, the RSP also provides tuition discounts for specialized degree programs not offered by public colleges in an eligible student’s home state.)

Allowing residents to complete coursework when it is convenient.

More than 120 institutions in the region offer evening or weekend college, through which students may take a complete course of study and attend classes only in evenings or on weekends (Figure 7). Colleges that offer these flexible programs span all six New England states and all types of institutions. Half of these colleges are private nonprofit institutions. Additionally, three-quarters of all the community colleges in the region offer evening or weekend college.

Figure 7: New England Colleges that Offer Evening or Weekend College by Sector 2016



Source: NEBHE analysis of institutional data from U.S. Department of Education. Population by zip code data from Nielsen.

^{xi} This analysis is based on NEBHE calculations using data from the U.S. Department of Education and public transit directions from GoogleMaps.

Spotlight on Connecticut, Vermont & Rhode Island

- Since 1985, Albertus Magnus College (Conn.) has offered flexible and accelerated programs designed for adults working full-time and raising families. Students take one, two or three classes at a time in 5-week, 6-week, or 8-week delivery formats. Students choose from blended courses (one night a week on-campus and one night a week online) or fully online courses. Groups of students work through academic programs together in small classes. Students receive personalized guidance from academic advisors, faculty advisors and department chairs who follow their progress to help keep them engaged and on track despite variable and difficult schedules and less time on campus.
- Collaboration between the Connecticut State Colleges and Universities and the Connecticut Technical High School System increases capacity and accessibility of college-level manufacturing education through flexible scheduling and locations. Courses are offered in the evenings and weekends through shared facilities use of technical high school shops and spaces.
- Designed for incumbent workers, Vermont Technical College’s apprenticeship programs as well as General Engineering Technology (GET) associate degree and Manufacturing Engineering Technology bachelor’s degree programs are offered in formats with greater accessibility for working adults. Apprenticeship programs are offered during evenings and weekends; the GET degree is offered onsite at the employer’s location; and the manufacturing bachelor’s degree has online lectures and bundled lab sections on weekends.
- In 2015, Rhode Island’s Council on Postsecondary Education ruled to allow College Unbound to award undergraduate degrees. College Unbound partners with Charter Oak State College in Connecticut to serve low-income students and those working full-time, with particular focus on degree completion. To support this goal, College Unbound offers a personalized, project-based curriculum and requires students to visit a classroom only once per week.

In addition to opportunities to complete degree programs exclusively through courses in evenings and on weekends, New Englanders can complete coursework asynchronously (wherein the instructor and each student can engage in instruction and coursework at different times) through distance education (i.e., online). New Englanders can access both undergraduate and graduate courses and programs partly or completely via distance education from colleges in the region (Figure 8). Further, residents have several choices from different types of colleges within the region. All of the region’s community colleges offer at least some courses or programs online, as do nearly all of the public 4-year institutions. As distance education continues to grow in scope, scale, and popularity, the number of institutions that offer online courses is likely to be higher in 2016-17 and beyond.

Figure 8: Number of New England Colleges that Offer Courses or Programs Online By Sector 2014-15

| Sector | Undergraduate | Graduate |
|---------------------------|---------------|------------|
| 2-year public | 44 | - |
| 2-year private nonprofit | 0 | - |
| 2-year private for-profit | 1 | - |
| 4-year public | 40 | 31 |
| 4-year private nonprofit | 77 | 82 |
| 4-year private for-profit | 12 | 7 |
| Total | 174 | 120 |

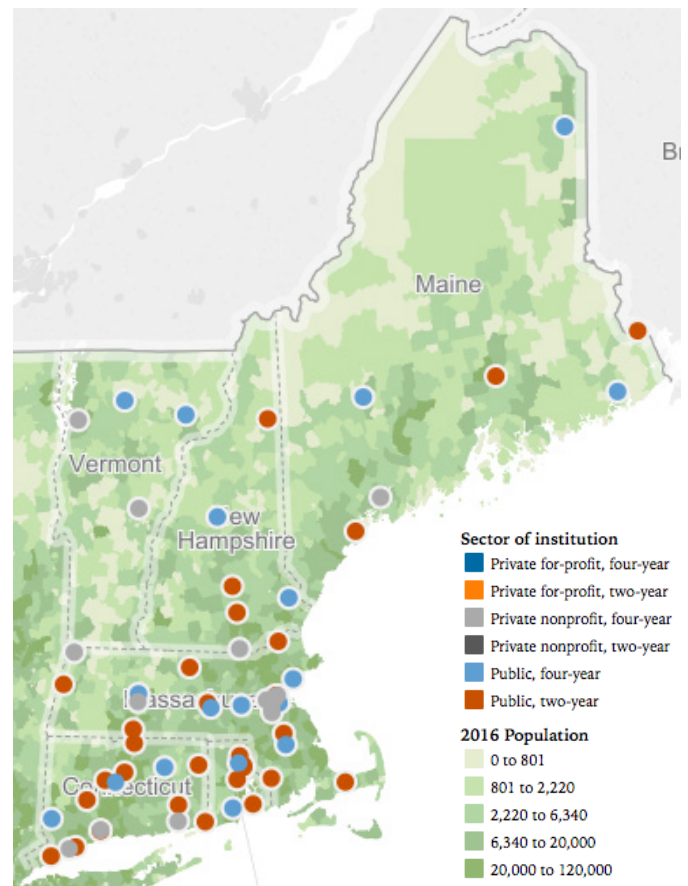
Source: NEBHE analysis of data from U.S. Department of Education

Reducing other barriers to higher education.

Many institutions offer services to make programs more accessible to students who are also parents. For example, several colleges offer on-campus child-care for students' children, both to reduce the logistical burden of juggling multiple important responsibilities in multiple places, and to reduce the cost burden for eligible parents.

Nearly 60 colleges in the region offered on-campus child-care in 2014-15, almost half of which were community colleges (Figure 9). Additionally, 18 public 4-year institutions and 15 private nonprofit 4-year institutions offered this service.

Figure 9: New England Colleges that Offer On-campus Child-care by Sector
2016



Source: NEBHE analysis of institutional data from U.S. Department of Education. Population by zip code data from Nielsen.

Spotlight on Massachusetts

- The University of Massachusetts Amherst provides support to undergraduate and graduate students who are parents through the Office of Family Resources (OFR). The OFR facilitates a free parent-to-parent part-time care service co-op in partnership with Care.com. The OFR also provides child-care tuition assistance to income-eligible students and the option for faculty and staff to pay child-care expenses with pre-tax dollars, and runs a full-day and flexible schedule early education and care service on campus.
- In Beverly, Mass., Endicott College's Keys to Degrees program offers a holistic program designed for academically qualified young students who are single parents of young children. Students live on campus with their children 12 months a year in a living-learning community of other single-parent families, sharing cooking and laundry facilities. While parents enroll full-time in an academic program, Endicott assists them in choosing full-time early education centers or local public schools for their children and applying for state and local child-care vouchers. Endicott reports that from 2004 to 2014, 68% of Keys to Degrees students have graduated with a bachelor's degree within four years, and 100% of graduates have gone on to full-time employment or graduate school.

Helping residents afford college.

Still, access to college close to home, on a flexible schedule and in a way that allows students and families to manage other important responsibilities is not truly access if New Englanders cannot afford to pay for college. College affordability depends on each student’s unique and nuanced knowledge, resources and preferences, so there is no one standard by which to measure affordability, nor is there a single solution for improving affordability for all residents. With this in mind, states and higher education institutions in the region pursue multiple strategies to help residents afford college. These include:

- Reducing the time New Englanders must spend to earn a degree or credential, through programs such as dual enrollment (i.e. offering free or subsidized college courses to high school students while in high school);
- Freezing tuition and fees; and
- Targeting financial aid (e.g. grants, scholarships) to residents who are least likely to be able to afford college.

As the lowest-price institutions, whose primary mission is to serve state residents, public colleges are a critical point of access for residents looking to improve their skills and knowledge. Systems of public colleges in several New England states have frozen tuition and required fees in recent years (Maine and Rhode Island) while some have even *reduced* rates (New Hampshire). In 2016, Massachusetts Gov. Charlie Baker and the Massachusetts Department of Higher Education proposed a new program—the first of its kind in the nation—whereby students can earn a 10% rebate for tuition and mandatory fees at the end of each successfully completed semester if they meet certain enrollment and GPA eligibility requirements.

Figure 10: Average Tuition and Fees at New England 2-year Public Colleges Remaining After Pell Grant

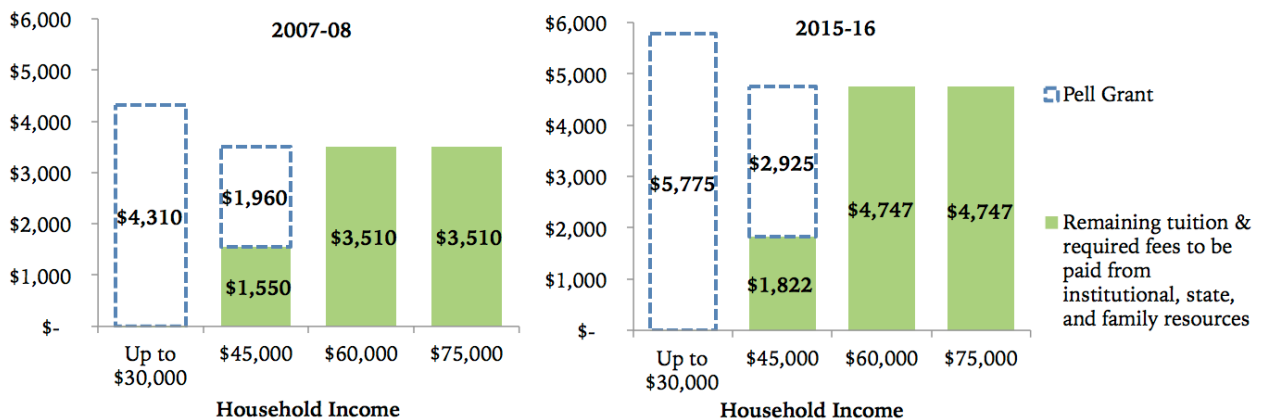
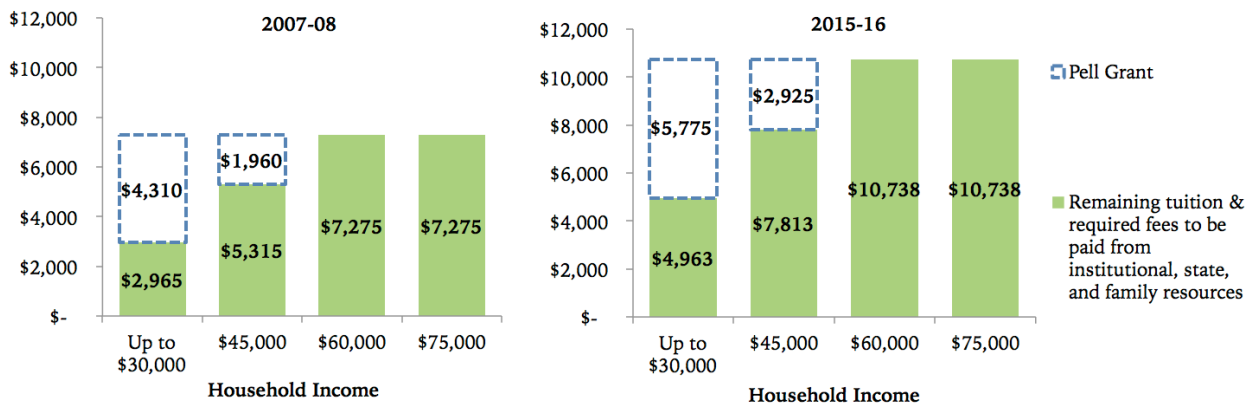


Figure 11: Average Tuition and Fees at New England 4-year Public Colleges Remaining After Pell Grant



Note: Average tuition & required fees are for two semesters of in-state full-time study. Dollar values are not adjusted for inflation and averages are not enrollment-weighted. These figures do not reflect living expenses (e.g. room, board), which vary among students. Pell Grant eligibility is estimated, based on a family of four with two dependent children and \$0 assets. Source: NEBHE analysis of data from New England institutions and state system offices, U.S. Department of Education, U.S. Census Bureau, FinAid.org, and Forbes.

When setting tuition levels, many public institutions are mindful of the maximum amount of the federal Pell Grant. The Pell Grant serves low-income students and is a significant source of financial aid: in 2016-17, the maximum amount of the Pell Grant is \$5,815. One way to illustrate and assess how this impacts access is to consider what low- and moderate-income residents must pay for the average public college in the region after accounting for the Pell Grant (Figure 10, Figure 11).

Since the Great Recession began in 2007-08, the region's community colleges have managed to limit increases in tuition and required fees (35%) to a rate that matches increases in the Pell Grant maximum award amount (34%), thereby consistently allowing the lowest-income residents to attend community college without a tuition bill (assuming residents successfully apply for federal student aid on time each year).

At 4-year public colleges, however, increases in tuition and required fees (48%) have outpaced increases in the maximum Pell Grant, leaving a widening gap for low- and moderate-income students to fill with other resources, such as institutional or state aid, or family resources. Many aid programs are designed specifically for state residents: In addition to state need-based grant programs, numerous New England colleges—both public and private—offer scholarships and other financial incentives targeted to serve in-state high school or community college students.

While New England states and colleges engage a myriad of strategies to improve affordability, the high and growing price of college—or at minimum, the *perception* of what students must pay—can still be a barrier to many low- and moderate-income residents.

Helping residents persist and complete credentials and degrees.

Often missing from the conversation about affording college is completing college—the most important factor in determining whether students find gainful employment, earn higher wages and can pay back any student debt after college. In fact, the majority of benefits both to individuals and to society are fully realized upon completion of a postsecondary degree or credential, not after finishing some college or a few semesters. Knowing this, New England states and colleges employ a variety of strategies to help residents persist through and complete a college degree.

All six New England states have signed on to Complete College America's Allegiance of States, committing to make college completion a top state priority and the following state actions:

- Setting annual state and campus-specific degree and credential completion goals through 2020;
- Using the Complete College America and National Governors Association Common College Completion Metrics to publicly and annually report data measuring student progress and success, disaggregated by age, race and income; and
- Developing and implementing aggressive state- and campus-level action plans for meeting the state's college completion goals, including use of the Complete College America Game Changers (five systemic reforms and strategies to encourage college completion).

In addition to institutional and system-level policies, programs and initiatives across the region, New England has two public "completion colleges." Completion colleges help students, especially adult students, finish their degrees by evaluating knowledge and skills learned elsewhere (at other colleges or in non-collegiate settings) for college credit ("prior learning assessment"). These credits can make up the majority or the entirety of an undergraduate degree. Of the fewer than 10 completion colleges in the nation, two are in New England: Charter Oak State College (Conn.) and Granite State College (N.H.).

Spotlight on Connecticut, New Hampshire & Vermont

- Charter Oak State College in Connecticut has an extensive credit assessment program that evaluates noncredit programs and credentials to determine college-level equivalency. This process helps adults earn college-level credit for knowledge and skills already gained. Further, Charter Oak offers scholarships specifically for prior learning assessment. (Because students cannot use financial aid to pay for assessments tools such as standardized tests, portfolio or credential assessments, they often take courses instead, which are eligible for financial aid, costing them both time and money.)
- Granite State College in New Hampshire also uses a robust system of awarding credit for prior learning and experience toward a degree. Combined with the option to enroll at many brick-and-mortar locations across the state or online, transfer and articulation agreements with the Community College System of New Hampshire, and flexible evening and weekend class schedules, Granite State has been recognized for its effectiveness in helping adults complete degrees at a high rate relative to the size of the state's population.ⁱ
- The Community College of Vermont (CCV), in many of the same ways as a completion college, also recognizes and awards credit for prior learning toward completing a postsecondary degree. For example, through its Prior Learning Assessment course, CCV has worked with Comcast Western New England to help Comcast employees document their prior learning and receive credit transferable to degree programs at other colleges. The course was held onsite at Comcast's Burlington office and provided employees a chance to begin working toward a degree without the burden of paying up front and being reimbursed. CCV has also brought the Assessment of Prior Learning course to other workplaces, including Vermont Air, Army National Guard and Global Foundries.

ⁱ Postsecondary Analytics. (2013.) What's Working #2: Separately Accredited State Completion Colleges.

Ultimately, the investment in creating, sustaining and improving college access, affordability and completion for New England residents pays off: At last count, 86% of New Englanders who earn a bachelor's degree from a New England college remain in the region at least a year after graduating.^{xiii} **NEBHE estimates that 56,000 to 76,800 New Englanders who graduated from college within the region with a bachelor's degree in 2013-14 had stayed in the region at least a year later.**^{xiii}

^{xii} Modestino, Alicia S. "Retaining Recent College Graduates in New England: An Update on Current Trends." (NEPPC Policy Brief No. 13-2, Federal Reserve Bank of Boston, 2013.)

^{xiii} This analysis is based on NEBHE calculations of the number of students who completed bachelor's degrees in 2013-14, 95% confidence intervals of the share of graduating seniors who were native to New England and 95% confidence intervals of the share of graduating seniors who were native to New England who remained one year later. As the most recent data on college graduate retention are from the Great Recession, retention rates during the economic recovery may be slightly different for two reasons: (1) in general there is less migration during periods of recession, and (2) parts of New England fared better during the Great Recession, so workers were less likely to leave for job opportunities elsewhere. Thus, recent college graduates in 2013 may be less likely to stay in New England given that the labor market has improved in other parts of the country. Data are from the U.S. Department of Education's Integrated Postsecondary Education Data System and Baccalaureate and Beyond study.

New England institutions align curricular and service offerings to local workforce needs.

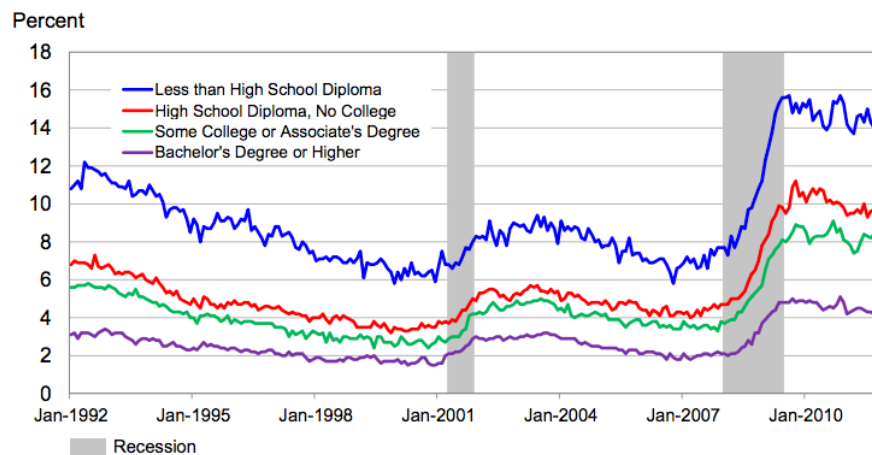
Preparing graduates to meet the region's changing and future workforce demands.

New England colleges prepare students to adapt and respond to the demands of today's economy and to the economy of the future through holistic general education requirements. While colleges have freedom to craft general education curriculum that fits with institutional mission and program needs, all the region's public and private nonprofit institutions (more than 90% of all colleges in region) must meet New England Association for Schools and Colleges (NEASC) minimum standards on general education to continue being able to grant degrees. Per NEASC, graduates of undergraduate programs must:

“demonstrate competence in written and oral communication in English; the ability for scientific and quantitative reasoning, for critical analysis and logical thinking; and the capability for continuing learning, including the skills of information literacy. They also demonstrate knowledge and understanding of scientific, historical, and social phenomena, and a knowledge and appreciation of the aesthetic and ethical dimensions of humankind.”^{xiv}

Multi-year undergraduate programs that teach effective communication, quantitative reasoning, moral reasoning and critical and logical thinking prepare students to contribute to the regional economy across all positions, all fields and, most importantly, across economic cycles. Recently, Burning Glass Technologies, a firm that develops employment insights from analyzing online job postings, found that one in three skills requested by employers is a “soft skill,” such as those included in NEASC standards.^{xv} Even in the tech sector, the ratio remains noteworthy: one in four skills requested is a soft skill.

Figure 12: U.S. Unemployment Rate for Population Age 25 and Older by Educational Attainment, January 1992 - October 2011



Across the nation and times of economic growth and recession, those with at least some college, an associate degree or a bachelor's degree are much less likely to be unemployed than those with only a high school diploma (Figure 12). This suggests that workers with postsecondary education are able to enter and persist in the workforce more successfully due to employer demand.

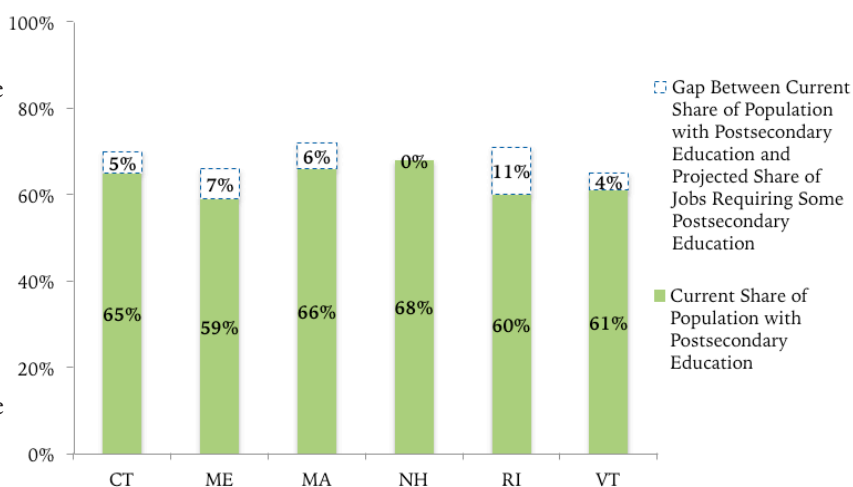
Source: Federal Reserve Bank of Boston President & CEO Rosengren's presentation at NEBHE Conference on November 7, 2011 using data from U.S. Bureau of Labor Statistics, Census Bureau, and National Bureau of Economic Research / Haver Analytics.

xiv New England Association of Schools and Colleges. (2011). *Standards for Accreditation*.

xv Burning Glass Technologies. (2015). *The Human Factor: The Hard Time Employers Have Finding Soft Skills*.

In fact, employers are seeking highly skilled workers at an increasing rate. The Georgetown University Center on Education and the Workforce estimates that 69% of jobs in New England will require at least some postsecondary education by 2020 (compared with 65% nationally).^{xvi} Only 63% of New England's workers currently meet this requirement (Figure 13). If more New Englanders do not enroll in, persist through and complete a postsecondary degree or credential, approximately 6% of jobs in the region will go unfilled or will not be filled by a worker with the appropriate background and skills.

Figure 13: New England's Projected Postsecondary Education Gap by 2020



Note: This includes both residents who have some postsecondary education but no degree and residents who completed postsecondary certificates and degrees.
 Source: NEBHE analysis of data from Georgetown Center on Education and Workforce and the U.S. Census Bureau

More specifically, the vast majority of jobs in New England's four fastest growing fields will require a postsecondary degree by 2020. On average, postsecondary degrees will be required for 60% of healthcare support jobs, 93% of healthcare professional and technical jobs, 97% of STEM jobs, and 100% of jobs in the social sciences in the region.^{xvii} All six New England states have set or are in the process of setting degree attainment goals that reflect projected workforce needs, with the knowledge that continued investment in higher education and innovative strategies supporting degree attainment will be crucial to ensure alignment between the supply and demand of workers.

Developing the technical skills and knowledge currently demanded by regional employers.

To quickly develop the technical skills many employers demand, institutions of higher education provide career and technical education in the form of non-credit courses, certificates and associate degrees (Figure 14). Career and technical education (CTE) programs are designed to provide students with entry-level skills in a specific occupational field, such as biotechnology, business computer applications, or energy utility technology. CTE includes occupational fields such as:

- Agriculture and natural resources;
- Business operations and support;
- Communications and design;
- Community and social services;
- Computer and information sciences;
- Consumer (or personal) services (e.g., cosmetology, culinary arts);
- Engineering, architecture, and science technologies, especially health;
- Manufacturing, construction, repair, and transportation; and
- Protective services (e.g., fire protection, corrections).

xvi Carnevale, A. et al. (2013). Recovery: Job growth and education requirements through 2020. Georgetown University Center on Education & the Workforce.

xvii *Ibid.*

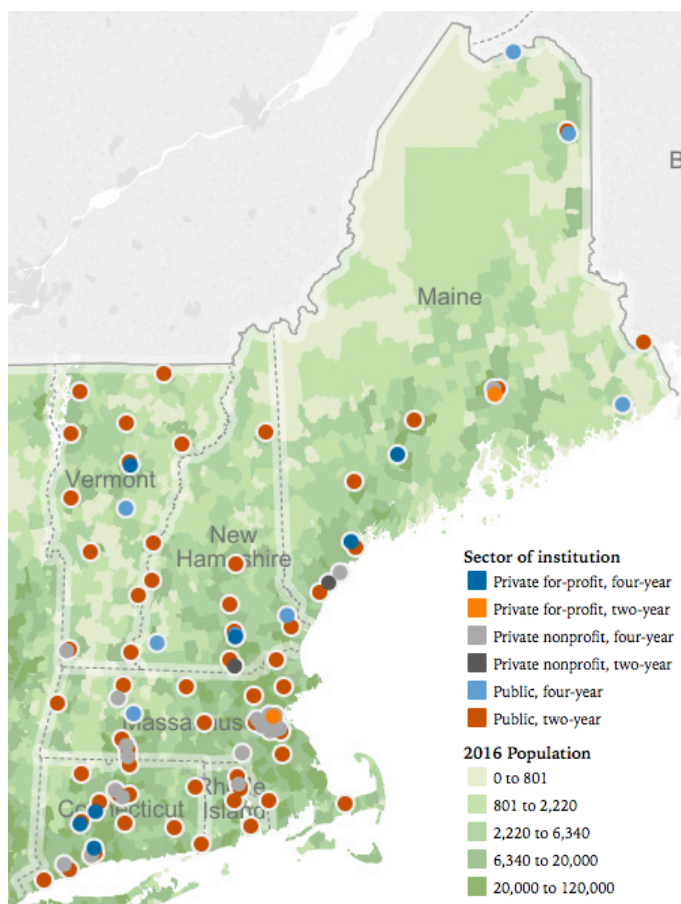
CTE programs are offered by nearly 90 institutions in the region (Figure 15). New England students can find programs in each of the six states and in each sector of institutions, though they are most commonly found at community colleges. (Every community college in the region offers a different portfolio of programs based upon the needs of local employers.)

Figure 14: Career and Technical Education (CTE) Credentials Completed 2013-14

| | Certificate | Associate | Total |
|--------------------|---------------|---------------|---------------|
| Connecticut | 10,311 | 4,390 | 14,701 |
| Massachusetts | 12,248 | 9,584 | 21,832 |
| Maine | 1,664 | 2,682 | 4,346 |
| New Hampshire | 1,713 | 2,386 | 4,099 |
| Rhode Island | 1,704 | 2,922 | 4,626 |
| Vermont | 486 | 867 | 1,353 |
| New England | 28,126 | 22,831 | 50,957 |

Note: This includes certificates below the baccalaureate level and associate degrees in 13 occupational fields classified as career and technical education by the National Center for Education Statistics
 Source: NEBHE analysis of U.S. Department of Education data

Figure 9: New England Colleges that Offer Occupational Programs by Sector 2016



Source: NEBHE analysis of institutional data from U.S. Department of Education. Population by zip code data from Nielsen.

In addition to for-credit courses and credentials, many colleges—especially community colleges—offer not-for-credit courses specifically designed for workforce development and job skills training. In Massachusetts, for example, community colleges served more than 90,000 people enrolled in more than 11,000 not-for-credit workforce development courses in fiscal year 2015.^{xviii} Further, many colleges partner with corporations to offer customized training. The value of these course and program offerings are more likely to show up immediately in a worker’s increased productivity at his or her current job or next quarter in a state’s lower unemployment rate than in year-end reports of number of completed degrees, and thus are often overlooked.

^{xviii} Massachusetts Department of Higher Education. (2016.) Data Center: Economic & Workforce Development.

Spotlight on New Hampshire, Maine & Vermont

- In New Hampshire, the automobile industry is an active partner with community colleges. The NH Automobile Dealers Association (NHADA), which employs more than 13,000 people at member facilities, has assisted in developing automotive technology programs at the state's community colleges. These programs strengthen college-to-career pathways by including paid experiential learning, where students work for a local dealer while enrolled in the program. Additionally, together with NHADA, the New Hampshire Automotive Education Foundation provides scholarships to students pursuing careers in automotive technology and enrolled in one of these programs.
- The University of New England (UNE) in Maine identified a regional need for health informatics specialists and launched a competency-based program for both bachelor's and master's degrees in the field, guided by input from local hospitals and companies in the field. The program can be completed online or in the workplace, combining workplace projects and faculty guidance. In particular, the bachelor's degree program may be completely self-paced.
- Vermont Technical College (Vermont Tech) maintains partnerships with local employers in order to further the training of current employees and develop additional workforce talent. For instance, advanced manufacturing firm GW Plastics in Bethel, Vt. offers scholarships and paid internships for Vermont students who enroll in manufacturing engineering at Vermont Tech. GE Aviation in Rutland, Vt., in partnership with Vermont Tech, provides a three-year Apprenticeship Program that results in 40 college credits toward an Associate of Applied Science in Engineering Technology. Within the built-environment industry, PC Construction offers a scholarship for students enrolled in related programs at Vermont Tech.

Connecting graduates to the labor force through career services.

The various career services that New England colleges provide are key to opportunities for students to put their skills and education to work. Virtually all 265 of the region's institutions offer activities to help students make plans and decisions related to their careers or future education. Virtually all institutions offer these services for free. Depending on the college, these services may include:

- Career counseling by appointment or "drop-in";
- Counseling through online platforms;
- Career-oriented courses through which students can earn academic credit;
- On-campus career fairs;
- On-campus interviews;
- Career workshops;
- Career assessment tools and resource libraries; or
- Alumni networking.^{xix}

In New England, as with every other region in the U.S., recent college graduates have cited "employment" as the primary reason for moving between regions since the late 1990s.^{xx} Thus, aligning students' preparation with the demands of the regional economy and connecting students with opportunities to apply their skills and knowledge makes college graduates more likely to be able to find a job in the region, and as a result, more likely to be able to stay in the region.

xix 2014-15 Career Services Benchmark Survey for Colleges and Universities. National Association of Colleges and Employers (NACE).

xx Sasser, Alicia C. "The Future of the Skilled Labor Force in New England: The Supply of Recent College Graduates." (NEPPC Research Report No. 08-1, Federal Reserve Bank of Boston, 2008.)

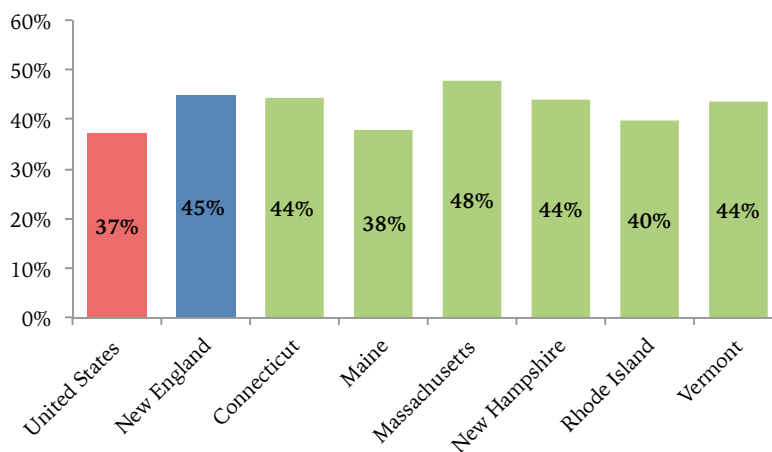
By creating a labor market with high overall levels of education, higher education institutions help to increase the wages of all workers.

An established and growing body of evidence finds that the higher the share of college graduates in an area, the higher wages for all workers in area—especially those with less than a college degree. For example, Enrico Moretti’s econometric research comparing wages for otherwise similar individuals who work in cities with different shares of college graduates in the labor force has shown that one percentage point increase in the supply of college graduates:

- Raises high school dropouts’ wages by 1.9%;
- Raises high school graduates’ wages by 1.6%; and
- Raises college graduates’ wages 0.4%.^{xxi}

It would follow that the region benefits as well. While the share of college graduates varies by city and town, each New England state has a higher share of adults with a college degree than the nation overall (Figure 16). Massachusetts, leading the nation in degree attainment, has 11 percentage points more college graduates than the nation overall. Connecticut and New Hampshire follow closely, as the third and fourth most educated states in the country. Overall, the region has 8 percentage points more adults with at least an associate degree than the nation at large.

Figure 16: Share of Population 25 Years and Older with College Degree



Note: This includes people who completed associate, baccalaureate, and graduate and professional degrees. This does not include people who have some college credits but no degree. Source: NEBHE analysis of data from U.S. Census

^{xxi} Moretti, E. (2004). Estimating the social return to higher education: evidence from longitudinal and repeated cross-sectional data. *Journal of Econometrics*, 121, 175 – 212

MAINTAINING AND STRENGTHENING HIGHER EDUCATION'S IMPACT

Investment in human capital has waned at a time when it is increasingly critical.

Unpredictable and declining state support for higher education threatens the region's ability to maintain its investments in human capital. To date, funding per student at public colleges and universities in all six states has yet to return to pre-recession levels.^{xxii} However, public colleges and universities continue to serve the majority of undergraduate students—especially residents, who are more likely to remain in the region after college—with nearly 60% of the region's students enrolled in a public 2- or 4-year institution.

To balance uncertain funding levels with more students on campus, institutions have shifted revenue streams from state support to higher tuition and fees. Since 2007-08, average tuition and required fees rates have jumped 35% at community colleges and nearly 50% at public four-year colleges in the region.^{xxiii} Often, federal and state financial aid does not keep up with these increases. The result is a lack of affordability that reduces the broad access to higher education necessary to fuel economic growth.

The consequences of New England's struggle to sustain support for higher education will only amplify in coming years, as human capital is expected to drive future economic growth. According to Georgetown's Center on Education and the Workforce, institutions in the region will have to significantly increase the rate at which workers earn postsecondary degrees and credentials to keep pace with employers' demands for a skilled workforce.

The health of the region's civic life will depend on workers with postsecondary education, too. Research from the College Board has found that, compared with those who have completed only high school, college graduates are:

- 32 percentage points more likely to be satisfied with their jobs;
- 13 percentage points more likely to be offered a pension plan and 14 percentage points more likely to be offered a health insurance plan by an employer;
- 14 percentage points more likely to have never smoked and 28 percentage points more likely to exercise vigorously at least once a week;
- 25 percentage points more likely to volunteer, and those who volunteer do so for more hours; and
- Almost twice as likely to have voted in the 2012 election.^{xxiv}

The goalposts are moving for the American workforce, including New Englanders, in terms of earning postsecondary degrees and credentials. **State support for and policy leadership on higher education must continue to drive workers' preparation for participating in a competitive economy. Increasing access to affordable postsecondary education has the benefit of improving residents' well-being beyond their occupational contributions: It also builds a stronger region.**

xxii Mitchell, M. et al. (2014). States are still funding higher education below pre-recession levels. Center on Budget and Policy Priorities.

xxiii New England Board of Higher Education, (2016). New England Fast Facts: The Price of Public Colleges in New England.

xxiv College Board. (2013.) Education Pays.

For questions or comments, please contact Gretchen Syverud at gsyverud@nebhe.org or 617-533-9522.

About the New England Board of Higher Education (NEBHE)

Established in 1955 by six visionary New England governors, NEBHE is a regional compact that works across New England to: help leaders assess, develop and implement education practices and policies of regional significance; promote regional cooperation that encourages efficient sharing of education resources; and strengthen the relationship between higher education and the regional economy.

Learn more at www.nebhe.org.



@nebhe



*Higher Education's Impact
on the New England Economy:*

Investing in People



State Appendices

Gretchen Syverud
Candace Williams

August 2016

New England
Board of Higher
Education

www.nebhe.org



A Study of Higher Education & Human Capital

State Appendix: Connecticut

Connecticut's Higher Education Landscape



44 Higher Education Institutions



202,000 Full- and Part-Time Students

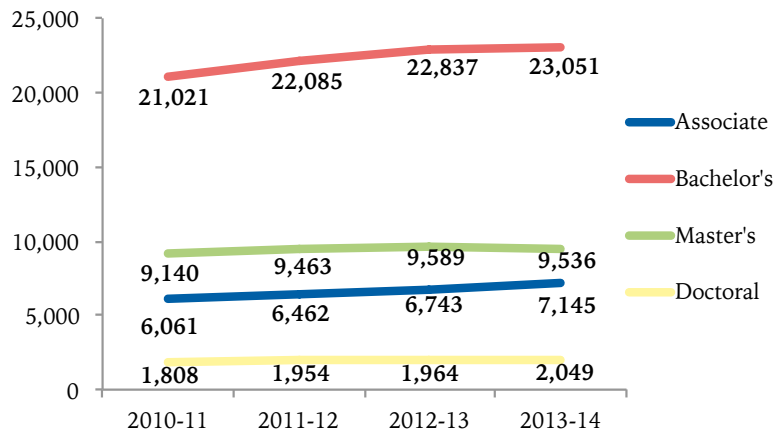


7,033 First-time Undergraduates Attracted from Outside New England & **4,161** Undergraduates from Across the Globe

Notes: First-time undergraduates attracted from outside New England include only students from the U.S. Foreign students are undergraduates of all years of study who identify as a nonresident alien. The state appendix includes only Title IV eligible, degree-granting institutions. Unless otherwise noted, statistics and tables are based on 2014 data.
Source: NEBHE analysis of Department of Education data.

Boosts Attainment at All Levels of Postsecondary Education

Degrees Awarded in Connecticut



Career & Technical Education Credentials (2013-14):
10,311 Certificates
4,390 Associate Degrees

Notes: CTE credentials includes certificates below the baccalaureate level and associate degrees in 13 occupational fields classified as CTE. The Degrees Awarded figure represents the number of degrees conferred and not the number of students receiving degrees.
Source: NEBHE analysis of Department of Education data.

By Providing Convenient Course Offerings and Reducing Barriers



50% of Institutions Offer Weekend and Night Programs



34% of Institutions Offer On-Campus Child-care



84% of Institutions Offer Distance Education Programs

Notes: The state appendix includes only Title IV eligible, degree-granting institutions. Unless otherwise noted, statistics and tables are based on 2014 data.
Source: NEBHE analysis of Department of Education data.

August 2016

New England Board of Higher Education

www.nebhe.org

Connecticut Must Meet Demands for Workers with Postsecondary Education

Fastest Growing Occupations in Connecticut

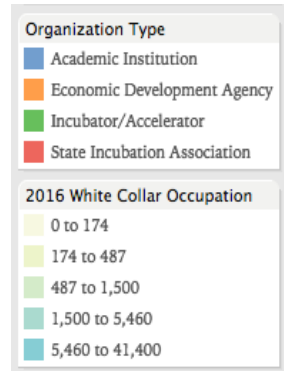
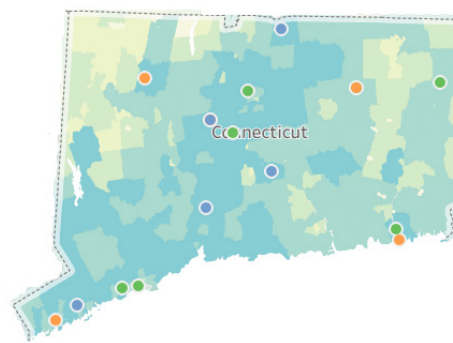
| | Expected Growth Rate (2010-2020) | Share of Jobs Requiring Postsecondary Education |
|--|----------------------------------|---|
| 1. Social Sciences | 23% | 100% |
| 1. (tie) Healthcare Support | 23% | 50% |
| 2. Managerial and Professional Office | 20% | 90% |
| 3. Healthcare Professional and Technical | 19% | 94% |

Source: Georgetown University Center for Education and the Workforce.

In Turn, Companies Will Grow from and Be Attracted to the Region

Business Incubators Across Connecticut

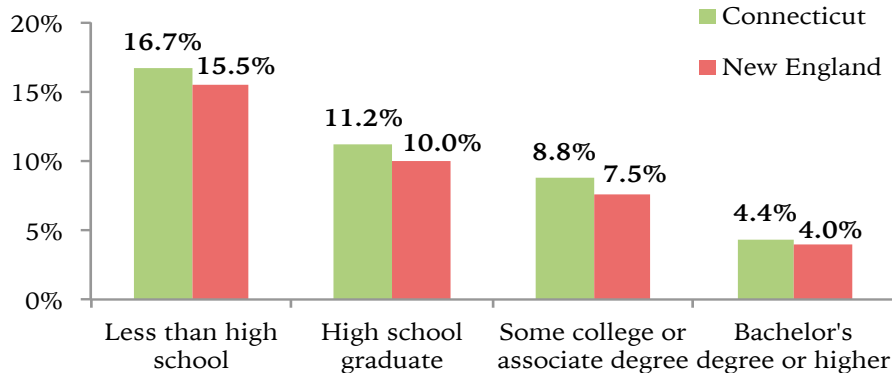
Connecticut is home to **16** business incubators and accelerators affiliated with colleges and universities.
+
Over **731** startups are located in Conn., with an average valuation of \$4.3 million, of which 39 companies have raised over \$1 million.



Notes: Business incubator data includes incubators and accelerators that are members of the International Business Incubation Association.
Sources: International Business Incubation Association and Angel.co.

As a State, Connecticut Benefits Economically as Its Residents Pursue Higher Education

Unemployment in Connecticut by Educational Attainment (2014)



In Connecticut, those with some college earn **23%** more than those with only a high school diploma.

Those with bachelor's degrees make **86%** more than those with only a high school diploma.

Notes: Earnings by educational attainment are based on median income per year.
Source: NEBHE analysis of U.S. Census Bureau data.

About the New England Board of Higher Education (NEBHE)

Established in 1955 by six visionary New England governors, NEBHE is a regional compact that works across New England to: help leaders assess, develop and implement education practices and policies of regional significance; promote regional cooperation that encourages efficient sharing of education resources; and strengthen the relationship between higher education and the regional economy.
Learn more at www.nebhe.org.



@nebhe



A Study of Higher Education & Human Capital

State Appendix: Maine

Maine's Higher Education Landscape



33 Higher Education Institutions



72,000 Full- and Part-Time Students

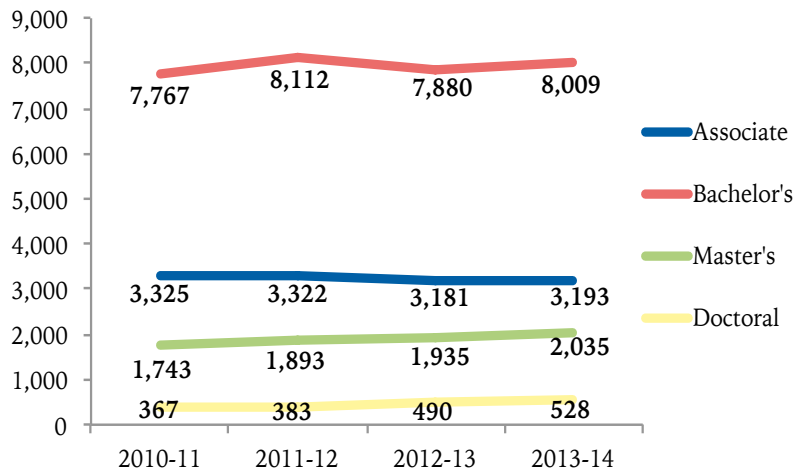


1,310 First-time Undergraduates Attracted from Outside New England & **1,348** Undergraduates from Across the Globe

Notes: First-time undergraduates attracted from outside New England include only students from the U.S. Foreign students are undergraduates of all years of study who identify as a nonresident alien. The state appendix includes only Title IV eligible, degree-granting institutions. Unless otherwise noted, statistics and tables are based on 2014 data.
Source: NEBHE analysis of Department of Education data.

Boosts Attainment at All Levels of Postsecondary Education

Degrees Awarded in Maine



Career & Technical Education Credentials (2013-14):
1,664 Certificates
2,682 Associate Degrees

Notes: CTE credentials includes certificates below the baccalaureate level and associate degrees in 13 occupational fields classified as CTE. The Degrees Awarded figure represents the number of degrees conferred and not the number of students receiving degrees.
Source: NEBHE analysis of Department of Education data.

By Providing Convenient Course Offerings and Reducing Barriers



27% of Institutions Offer Weekend and Night Programs



21% of Institutions Offer On-Campus Child-care



61% of Institutions Offer Distance Education Programs

Notes: The state appendix includes only Title IV eligible, degree-granting institutions. Unless otherwise noted, statistics and tables are based on 2014 data.
Source: NEBHE analysis of Department of Education data.

August 2016

New England Board of Higher Education

www.nebhe.org

Maine Must Meet Demands for Workers with Postsecondary Education

Fastest Growing Occupations in Maine

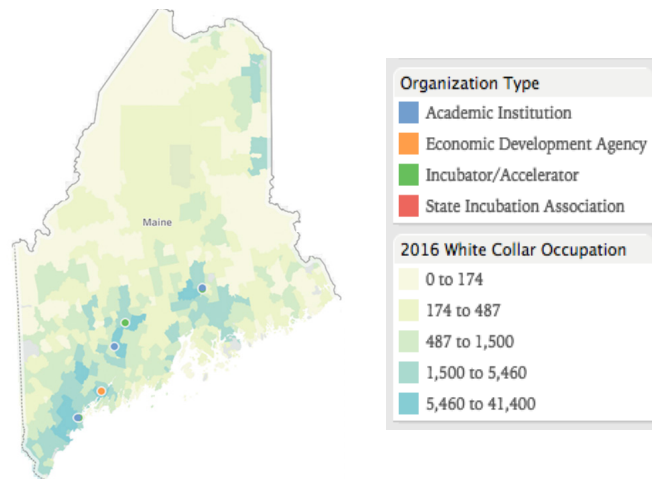
| | Expected Growth Rate (2010-2020) | Share of Jobs Requiring Postsecondary Education |
|--|----------------------------------|---|
| 1. Healthcare Support | 16% | 57% |
| 2. Healthcare Professional and Technical | 15% | 92% |
| 3. Managerial and Professional Office | 13% | 81% |
| 3. (tie) Community Services and Arts | 13% | 80% |

Source: Georgetown University Center for Education and the Workforce.

In Turn, Companies Will Grow from and Be Attracted to the Region

Maine is home to 7 business incubators and accelerators affiliated with colleges and universities.
+
Over 139 startups are located in Maine, of which 13 companies have raised over \$1 million.

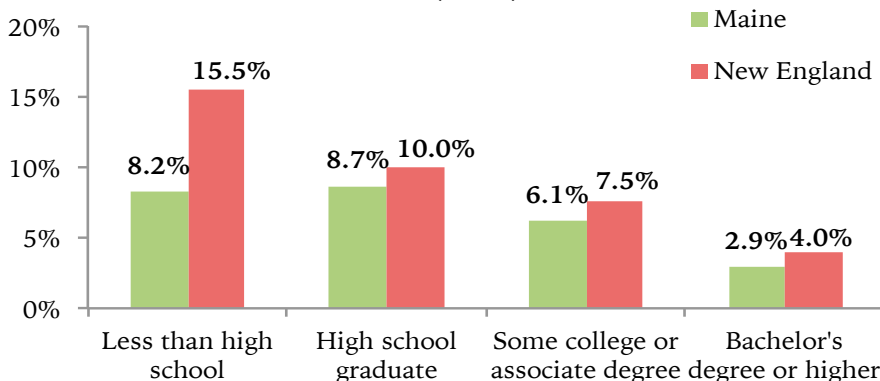
Business Incubators Across Maine



Notes: Business incubator data includes incubators and accelerators that are members of the International Business Incubation Association.
Sources: International Business Incubation Association and Angel.co.

As a State, Maine Benefits Economically as Its Residents Pursue Higher Education

Unemployment in Maine by Educational Attainment (2014)



In Maine, those with some college earn **19%** more than those with only a high school diploma.

Those with bachelor's degrees make **55%** more than those with only a high school diploma.

Notes: Earnings by educational attainment are based on median income per year.
Source: NEBHE analysis of U.S. Census Bureau data.

About the New England Board of Higher Education (NEBHE)

Established in 1955 by six visionary New England governors, NEBHE is a regional compact that works across New England to: help leaders assess, develop and implement education practices and policies of regional significance; promote regional cooperation that encourages efficient sharing of education resources; and strengthen the relationship between higher education and the regional economy.
Learn more at www.nebhe.org.



@nebhe



A Study of Higher Education & Human Capital

State Appendix: Massachusetts

Massachusetts' Higher Education Landscape



126 Higher Education Institutions



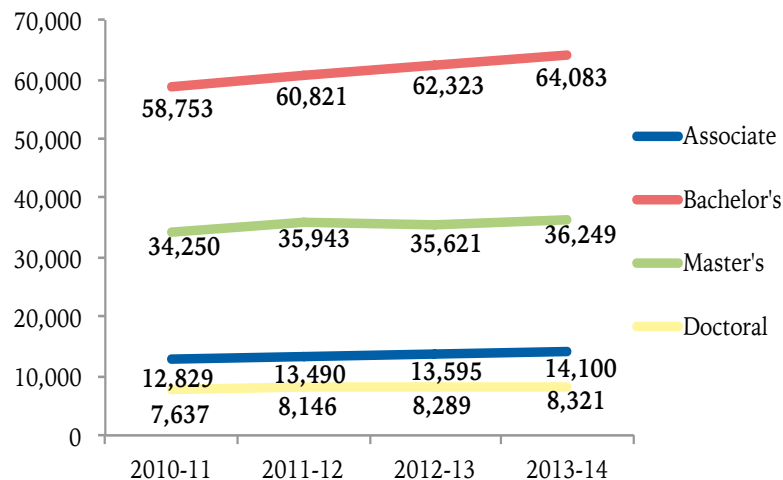
511,160 Full- and Part-Time Students



16,585 First-time Undergraduates Attracted from Outside New England & **24,316** Undergraduates from Across the Globe

Notes: First-time undergraduates attracted from outside New England include only students from the U.S. Foreign students are undergraduates of all years of study who identify as a nonresident alien. The state appendix includes only Title IV eligible, degree-granting institutions. Unless otherwise noted, statistics and tables are based on 2014 data.
Source: NEBHE analysis of Department of Education data.

Boosts Attainment at All Levels of Postsecondary Education Degrees Awarded in Massachusetts



Career & Technical Education Credentials (2013-14):
12,248 Certificates
9,584 Associate Degrees

Notes: CTE credentials includes certificates below the baccalaureate level and associate degrees in 13 occupational fields classified as CTE. The Degrees Awarded figure represents the number of degrees conferred and not the number of students receiving degrees.
Source: NEBHE analysis of Department of Education data.

By Providing Convenient Course Offerings and Reducing Barriers



50% of Institutions Offer Weekend and Night Programs



19% of Institutions Offer On-Campus Child-care



60% of Institutions Offer Distance Education Programs

Notes: The state appendix includes only Title IV eligible, degree-granting institutions. Unless otherwise noted, statistics and tables are based on 2014 data.
Source: NEBHE analysis of Department of Education data.

August 2016

New England Board of Higher Education

www.nebhe.org

Massachusetts Must Meet Demands for Workers with Postsecondary Education

Fastest Growing Occupations in Massachusetts

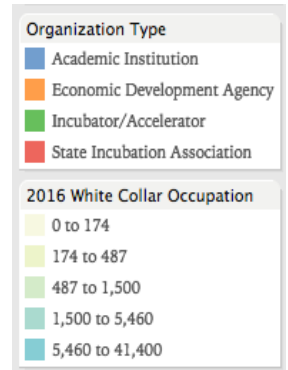
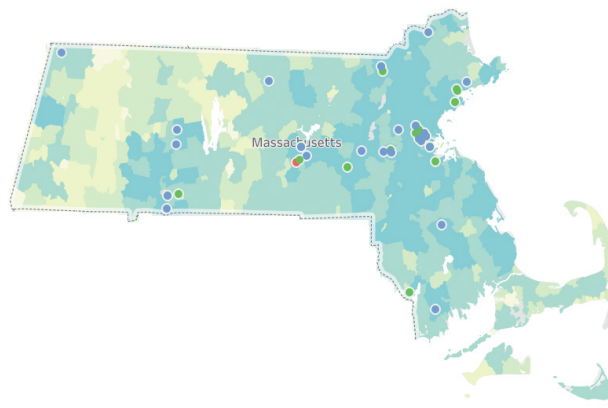
| | Expected Growth Rate (2010-2020) | Share of Jobs Requiring Postsecondary Education |
|---------------------------------------|-------------------------------------|--|
| 1. Healthcare Support | 26% | 51% |
| 2. STEM | 23% | 94% |
| 2. (tie) Social Sciences | 23% | 100% |
| 3. Managerial and Professional Office | 20% | 91% |
| 3. (tie) Community Services and Arts | 20% | 92% |

Source: Georgetown University Center for Education and the Workforce.

In Turn, Companies Will Grow from and Be Attracted to the Region

Business Incubators Across Massachusetts

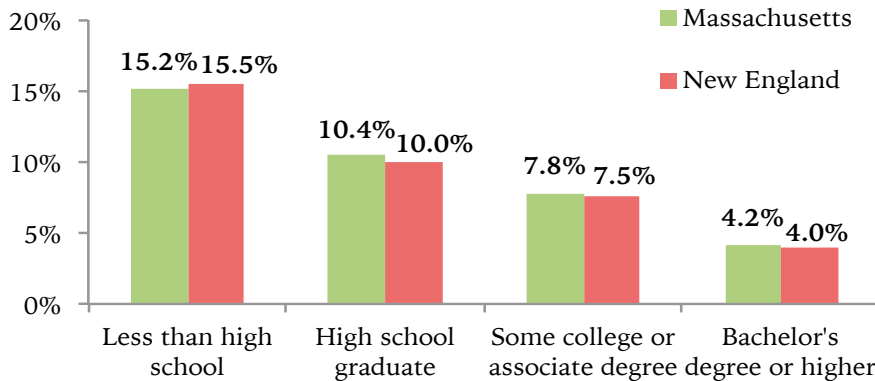
Massachusetts is home to **50** business incubators and accelerators affiliated with colleges and universities.
+
Over **5,240** startups are located in Massachusetts with an average valuation of \$4.4 million, of which 1,071 companies have raised over \$1 million.



Notes: Business incubator data includes incubators and accelerators that are members of the International Business Incubation Association.
Sources: International Business Incubation Association and Angel.co.

As a State, Massachusetts Benefits Economically as Its Residents Pursue Higher Education

Unemployment in Massachusetts by Educational Attainment (2014)



Notes: Earnings by educational attainment are based on median income per year.
Source: NEBHE analysis of U.S. Census Bureau data.

In Massachusetts, those with some college earn **19%** more than those with only a high school diploma.
Those with bachelor's degrees make **79%** more than those with only a high school diploma.

About the New England Board of Higher Education (NEBHE)

Established in 1955 by six visionary New England governors, NEBHE is a regional compact that works across New England to: help leaders assess, develop and implement education practices and policies of regional significance; promote regional cooperation that encourages efficient sharing of education resources; and strengthen the relationship between higher education and the regional economy.
Learn more at www.nebhe.org.



@nebhe



A Study of Higher Education & Human Capital

State Appendix: New Hampshire

New Hampshire's Higher Education Landscape



28 Higher Education Institutions



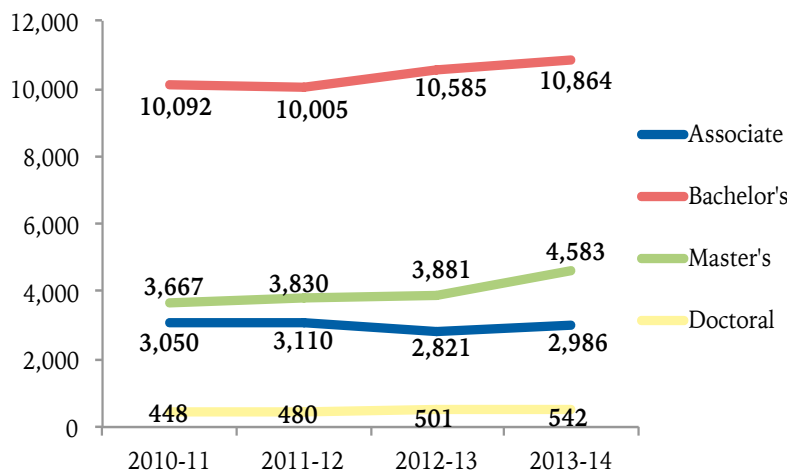
107,000 Full- and Part-Time Students



3,847 First-time Undergraduates Attracted from Outside New England & **1,618** Undergraduates from Across the Globe

Notes: First-time undergraduates attracted from outside New England include only students from the U.S. Foreign students are undergraduates of all years of study who identify as a nonresident alien. The state appendix includes only Title IV eligible, degree-granting institutions. Unless otherwise noted, statistics and tables are based on 2014 data.
Source: NEBHE analysis of Department of Education data.

Boosts Attainment at All Levels of Postsecondary Education Degrees Awarded in New Hampshire



Career & Technical Education Credentials (2013-14):
1,713 Certificates
2,386 Associate Degrees

Notes: CTE credentials includes certificates below the baccalaureate level and associate degrees in 13 occupational fields classified as CTE. The Degrees Awarded figure represents the number of degrees conferred and not the number of students receiving degrees.
Source: NEBHE analysis of Department of Education data.

By Providing Convenient Course Offerings and Reducing Barriers



54% of Institutions Offer Weekend and Night Programs



21% of Institutions Offer On-Campus Child-care



68% of Institutions Offer Distance Education Programs

Notes: The state appendix includes only Title IV eligible, degree-granting institutions. Unless otherwise noted, statistics and tables are based on 2014 data.
Source: NEBHE analysis of Department of Education data.

August 2016

New England Board of Higher Education

www.nebhe.org

New Hampshire Must Meet Demands for Workers with Postsecondary Education

Fastest Growing Occupations in New Hampshire

| | Expected Growth Rate (2010-2020) | Share of Jobs Requiring Postsecondary Education |
|--|-------------------------------------|--|
| 1. Healthcare Support | 34% | 60% |
| 2. Healthcare Professional and Technical | 29% | 93% |
| 3. Social Sciences | 25% | 100% |
| 4. Community Services and Arts | 22% | 82% |

Source: Georgetown University Center for Education and the Workforce.

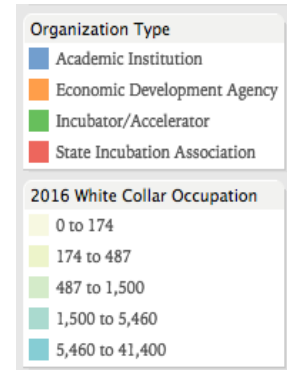
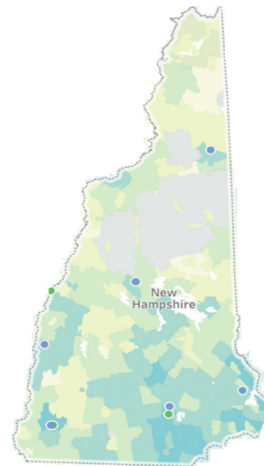
In Turn, Companies Will Grow from and Be Attracted to the Region

Business Incubators Across New Hampshire

New Hampshire is home to **11** business incubators and accelerators affiliated with colleges and universities.

+

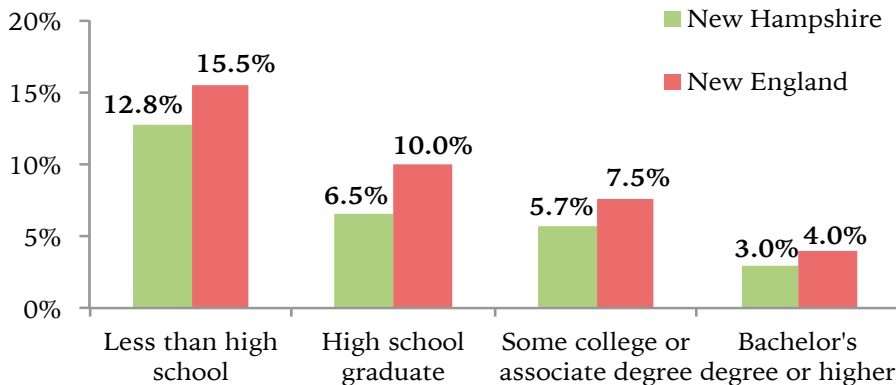
Over **249** startups are located in New Hampshire with an average valuation of \$2.6 million, of which **42** companies have raised over \$1 million.



Notes: Business incubator data includes incubators and accelerators that are members of the International Business Incubation Association.
Sources: International Business Incubation Association and Angel.co.

As a State, New Hampshire Benefits Economically as Its Residents Pursue Higher Education

Unemployment in New Hampshire by Educational Attainment (2014)



In New Hampshire, those with some college earn **20%** more than those with only a high school diploma.

Those with bachelor's degrees make **63%** more than those with only a high school diploma.

Notes: Earnings by educational attainment are based on median income per year.
Source: NEBHE analysis of U.S. Census Bureau data.

About the New England Board of Higher Education (NEBHE)

Established in 1955 by six visionary New England governors, NEBHE is a regional compact that works across New England to: help leaders assess, develop and implement education practices and policies of regional significance; promote regional cooperation that encourages efficient sharing of education resources; and strengthen the relationship between higher education and the regional economy.
Learn more at www.nebhe.org.




@nebhe




A Study of Higher Education & Human Capital

State Appendix: Rhode Island


Rhode Island's Higher Education Landscape



15 Higher Education
Institutions



83,500 Full- and Part-Time
Students

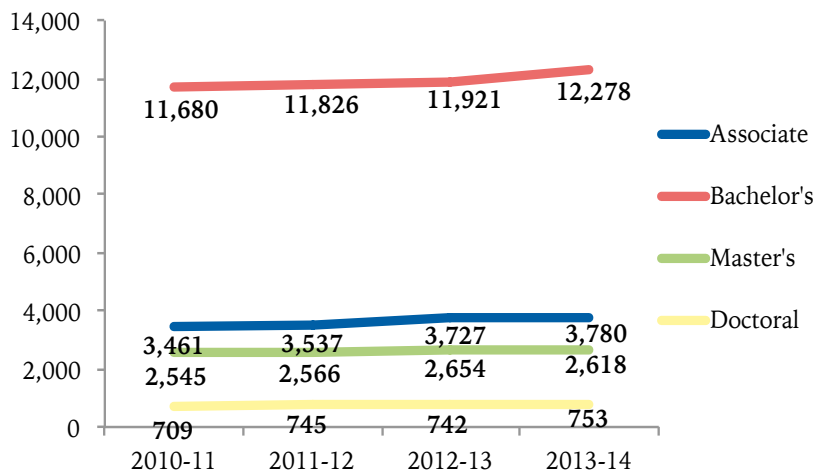


3,856 First-time Undergraduates
Attracted from Outside New
England & **3,229** Undergraduates
from Across the Globe

Notes: First-time undergraduates attracted from outside New England include only students from the U.S. Foreign students are undergraduates of all years of study who identify as a nonresident alien. The state appendix includes only Title IV eligible, degree-granting institutions. Unless otherwise noted, statistics and tables are based on 2014 data.
Source: NEBHE analysis of Department of Education data.

Boosts Attainment at All Levels of Postsecondary Education

Degrees Awarded in Rhode Island



Career &
Technical Education
Credentials (2013-14):
1,704 Certificates
2,922 Associate
Degrees

Notes: CTE credentials includes certificates below the baccalaureate level and associate degrees in 13 occupational fields classified as CTE. The Degrees Awarded figure represents the number of degrees conferred and not the number of students receiving degrees.
Source: NEBHE analysis of Department of Education data.

By Providing Convenient Course Offerings and Reducing Barriers



72% of Institutions Offer Week-
end and Night Programs



22% of Institutions Offer
On-Campus Child-care



83% of Institutions Offer
Distance Education Programs

Notes: The state appendix includes only Title IV eligible, degree-granting institutions. Unless otherwise noted, statistics and tables are based on 2014 data.
Source: NEBHE analysis of Department of Education data.

August 2016

New England
Board of Higher
Education

www.nebhe.org

Rhode Island Must Meet Demands for Workers with Postsecondary Education

Fastest Growing Occupations in Rhode Island

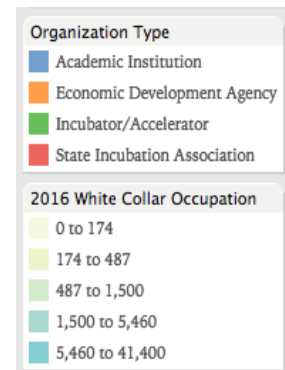
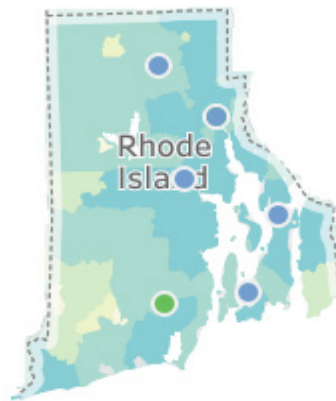
| | Expected Growth Rate (2010-2020) | Share of Jobs Requiring Postsecondary Education |
|---------------------------------------|-------------------------------------|--|
| 1. Social Sciences | 24% | 100% |
| 1. (tie) Healthcare Support | 24% | 67% |
| 1. (tie) STEM | 24% | 100% |
| 2. Managerial and Professional Office | 21% | 91% |

Source: Georgetown University Center for Education and the Workforce.

In Turn, Companies Will Grow from and Be Attracted to the Region

Business Incubators Across Rhode Island

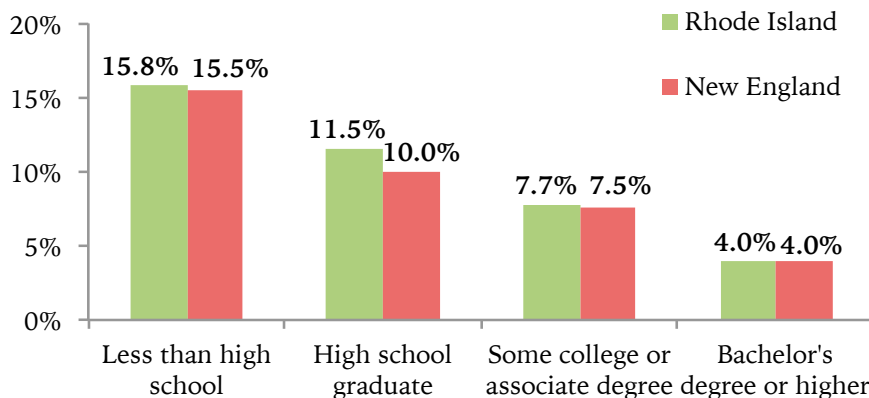
Rhode Island is home to 7 business incubators and accelerators affiliated with colleges and universities.
+
Over 199 startups are located in Rhode Island with an average valuation of \$4.9 million, of which 26 companies have raised over \$1 million.



Notes: Business incubator data includes incubators and accelerators that are members of the International Business Incubation Association.
Sources: International Business Incubation Association and Angel.co.

As a State, Rhode Island Benefits Economically as Its Residents Pursue Higher Education

Unemployment in Rhode Island by Educational Attainment (2014)



In Rhode Island, those with some college earn 17% more than those with only a high school diploma.
Those with bachelor's degrees make 61% more than those with only a high school diploma.

Notes: Earnings by educational attainment are based on median income per year.
Source: NEBHE analysis of U.S. Census Bureau data.

About the New England Board of Higher Education (NEBHE)

Established in 1955 by six visionary New England governors, NEBHE is a regional compact that works across New England to: help leaders assess, develop and implement education practices and policies of regional significance; promote regional cooperation that encourages efficient sharing of education resources; and strengthen the relationship between higher education and the regional economy.
Learn more at www.nebhe.org.



@nebhe



A Study of Higher Education & Human Capital

State Appendix: Vermont

Vermont's Higher Education Landscape



36 Higher Education Institutions



44,000 Full- and Part-Time Students



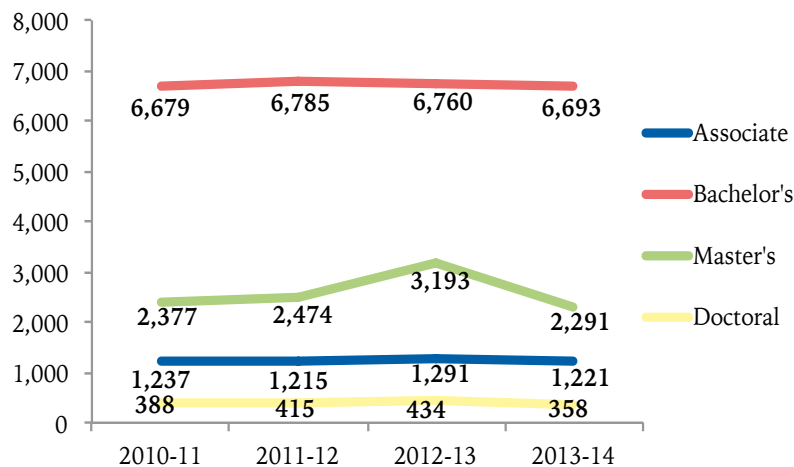
2,458 First-time Undergraduates Attracted from Outside New England & **1,223** Undergraduates from Across the Globe

Notes: First-time undergraduates attracted from outside New England include only students from the U.S. Foreign students are undergraduates of all years of study who identify as a nonresident alien. The state appendix includes only Title IV eligible, degree-granting institutions. Unless otherwise noted, statistics and tables are based on 2014 data.

Source: NEBHE analysis of Department of Education data.

Boosts Attainment at All Levels of Postsecondary Education

Degrees Awarded in Vermont



Career & Technical Education Credentials (2013-14):
486 Certificates
867 Associate Degrees

Notes: CTE credentials includes certificates below the baccalaureate level and associate degrees in 13 occupational fields classified as CTE. The Degrees Awarded figure represents the number of degrees conferred and not the number of students receiving degrees.

Source: NEBHE analysis of Department of Education data.

By Providing Convenient Course Offerings and Reducing Barriers



11% of Institutions Offer Weekend and Night Programs



11% of Institutions Offer On-Campus Child-care



81% of Institutions Offer Distance Education Programs

Notes: The state appendix includes only Title IV eligible, degree-granting institutions. Unless otherwise noted, statistics and tables are based on 2014 data.

Source: NEBHE analysis of Department of Education data.

August 2016

New England Board of Higher Education

www.nebhe.org

Vermont Must Meet Demands for Workers with Postsecondary Education

Fastest Growing Occupations in Vermont

| | Expected Growth Rate (2010-2020) | Share of Jobs Requiring Postsecondary Education |
|--|-------------------------------------|--|
| 1. Healthcare Support | 27% | 67% |
| 2. STEM | 25% | 100% |
| 3. Social Sciences | 24% | 100% |
| 3. (tie) Healthcare Professional and Technical | 24% | 100% |

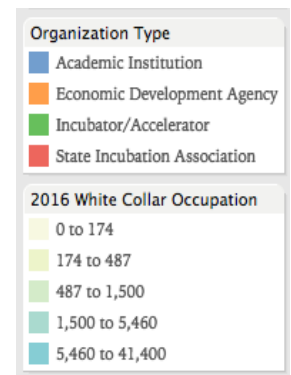
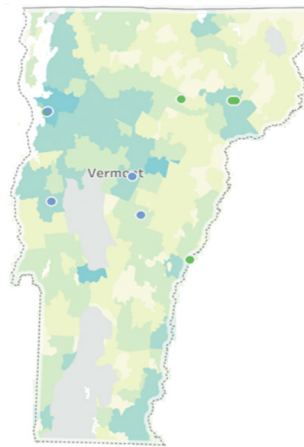
Source: Georgetown University Center for Education and the Workforce.

In Turn, Companies Will Grow from and Be Attracted to the Region

Business Incubators Across Vermont

Vermont is home to **9** business incubators and accelerators affiliated with colleges and universities.

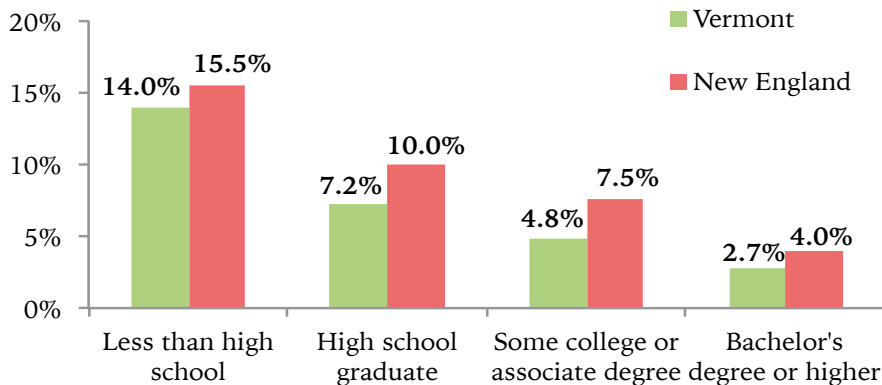
+
Over **96** startups are located in Vermont, of which 10 companies have raised over \$1 million.



Notes: Business incubator data includes incubators and accelerators that are members of the International Business Incubation Association.
Sources: International Business Incubation Association and Angel.co.

As a State, Vermont Benefits Economically as Its Residents Pursue Higher Education

Unemployment in Vermont by Educational Attainment (2014)



In Vermont, those with some college earn **5%** more than those with only a high school diploma.

Those with bachelor's degrees make **42%** more than those with only a high school diploma.

Notes: Earnings by educational attainment are based on median income per year.
Source: NEBHE analysis of U.S. Census Bureau data.

About the New England Board of Higher Education (NEBHE)

Established in 1955 by six visionary New England governors, NEBHE is a regional compact that works across New England to: help leaders assess, develop and implement education practices and policies of regional significance; promote regional cooperation that encourages efficient sharing of education resources; and strengthen the relationship between higher education and the regional economy.
Learn more at www.nebhe.org.



@nebhe