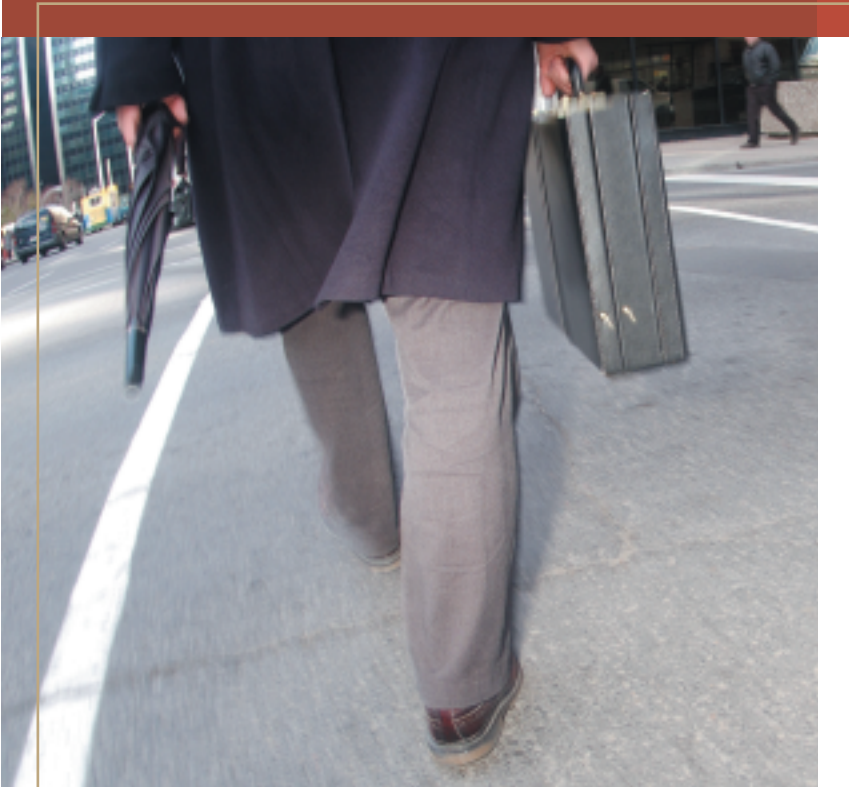


NEW ENGLAND 2020

A FORECAST OF EDUCATIONAL ATTAINMENT AND ITS IMPLICATIONS FOR THE WORKFORCE OF NEW ENGLAND STATES

JUNE 2006



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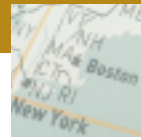
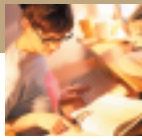
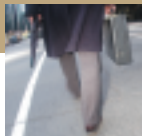


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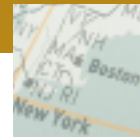
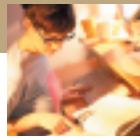
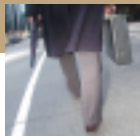
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Foreword by Blenda Wilson

I am pleased to announce the release of **New England 2020: A Forecast of Educational Attainment and its Implications for the Workforce of New England States**.

Prepared for the Nellie Mae Education Foundation by a team of researchers led by Stephen Coelen of the University of Connecticut and Joseph Berger of the University of Massachusetts Amherst, the study is a much anticipated sequel to their 1993 report entitled **Beyond 2000: Demographic Change, Education and the Work Force**.

Beyond 2000 used 1990 Census data to measure the increasing labor market premiums placed on educational attainment. It predicted stagnation in the educational level of the region's labor force and highlighted barriers to higher education access.

Both **Beyond 2000** and **New England 2020** focus on two crucial questions:

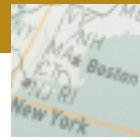
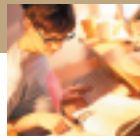
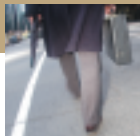
- What will be the likely educational attainment of the New England states in the future?
- If overall educational outcomes do not improve significantly, what are the implications for our workforce, our economy, and our future prosperity?

New England 2020, however, goes much further than the 1993 report, examining further the trends previously identified and reaching new conclusions about the threats to New England's future.

Drawing on new data collected from each of the six New England states, the study documents and explains the complex relationships among demographic trends, educational attainment, and workforce requirements. At this time of great economic uncertainty for many New Englanders, the report's analysis of likely long-term outcomes and the inadequacies of existing policy responses is of enormous value.

Perhaps the boldest prediction made in **Beyond 2000** was that, by 2012, young minority workers in the southern New England states (Massachusetts, Rhode Island, and Connecticut) would account for nearly 40% of the total number of young workers. **New England 2020** updates this figure to nearly 50% by 2020.

The forecast is both encouraging and troubling. The increases in educational participation rates among the region's minority populations confirm that ongoing efforts to expand educational opportunities can positively



affect educational outcomes. However, the report's findings concerning disparities in educational attainment, and its prediction of future shortages of educated workers, are cause for genuine alarm.

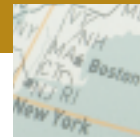
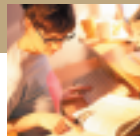
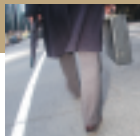
New England 2020 predicts that by 2020 all New England states (with the possible exception of New Hampshire) will have experienced a decreasing percentage of their young population holding the bachelor's degree or higher. This new finding should heighten everyone's concerns about the region's long-term economic vitality.

New England 2020 is optimistic, however, about the region's ability to best navigate what lies ahead. It argues that the region's higher education institutions can, as they have in the past, positively influence migration patterns, population growth, and broad measures of educational attainment.

Therefore, the report concludes that the policy initiatives with the greatest potential to foster new migration to the region, boost educational attainment of the region's native populations (especially minorities), and prevent future shortages of educated workers, are policies aimed at improving the quality, access, and affordability of our higher education institutions. If readers take one message from this study, it is this: Anything we do to achieve high college participation, retention, and completion rates will have a positive, lasting effect on the region.

We call upon leaders in business, government, education and non-profit organizations in each New England state to work together to craft a policy agenda that strengthens higher education and includes quality education and higher education as essential elements of economic policy. We hope **New England 2020** will promote keen interest, dialogue and a sense of urgency to take up this vital charge.

Blenda J. Wilson
President and CEO
Nellie Mae Education Foundation



Authors Introduction

The body of research and analysis found in the following pages logically divides itself into three distinct parts.

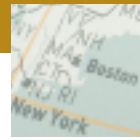
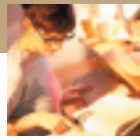
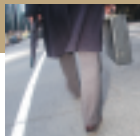
- An attempt to describe the major features of demographic change in New England and forecast the region's future under an assumption that several current features will persist. (**Part One**)
- An attempt to draw on our knowledge of past experience to formulate “lessons” that could permit us to mitigate the negative features and accentuate the positive features of demographic change in the region. (**Part Two**)
- An attempt to craft a policy agenda for the six New England states that is grounded in “lessons learned” about how and why demographic change happens in New England. (**Part Three**)

Per the first item above, we necessarily begin with an examination of the role that race and ethnicity plays in shaping New England's population growth—as the racial and ethnic features of demographic change represent the most salient elements of New England's demographic evolution.

Part One argues that the present composition of a New England state's population is principally explained by the migration decisions made by its population. The surprisingly large minority component of migration patterns among the New England states remains perhaps the region's most underappreciated yet important long-term demographic trend. Looking more closely at why exactly minority populations are growing so quickly, we evaluate the combined effects of fertility, migration, and youthfulness. This exercise allows us to issue new forecasts for the minority population of the region.

We next examine the history of educational attainment in New England states with a focus on the differences in attainment by race and ethnicity, noting that several encouraging trends exist alongside serious and persistent inequities in achievement. Drawing on this assessment, we then forecast the future levels of educational attainment, finding that New England states will see declining proportions of their young populations holding four-year college degrees—an outcome with obvious repercussions for our labor force¹ quality and regional economic competitiveness.

¹ For purposes of this report, the terms “labor force” and “workforce” are used interchangeably to refer to all adults of working-age, irrespective of their actual employment status.



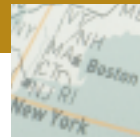
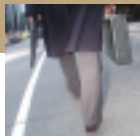
Per the second bullet above, **Part Two** pursues a parallel, complementary argument about the lessons we can learn from our most recent era of demographic change in New England and how these lessons might help us address the emerging workforce and economic threats we identify in **Part One**.

The crucial lesson to take from the past experience of New England is that the region has grown much more slowly than the nation as a whole due to low levels of net-in-migration. However, on the positive side, the in-flows that New England states have enjoyed are found to be considerably influenced by the migration behavior of college students. We now know that this particular type of migration has the capacity to bring people into the region for more prolonged periods of time than experienced typically by states. We believe herein lies the seeds of a solution to the workforce dilemmas we will face in years ahead.

By leveraging the powerful role that the region's system of colleges and universities has in shaping a state's demographic composition over time, New England states are in a strong position to boost their overall education attainment levels. We argue that a renewed policy focus on higher education quality and accessibility will both improve our capacity to attract migrants from elsewhere while also boosting the educational success of native New Englanders, especially the region's burgeoning minority population.

Finally, **Part Three** presents the policy implications of our findings and suggests policy initiatives states can pursue to meet the challenges we have identified. We include these policy proposals not as a definitive set of solutions but as a starting point for the public discussions we hope will ensue.

...a renewed policy focus on higher education quality and accessibility will both improve our capacity to attract migrants from elsewhere while also boosting the educational success of native New Englanders...



Executive Summary

The chief prediction of **New England 2020** is that, by the year 2020, all six New England states (with the possible exception of New Hampshire) will have witnessed a measurable drop in the percentage of their young population holding a bachelor's degree or higher.

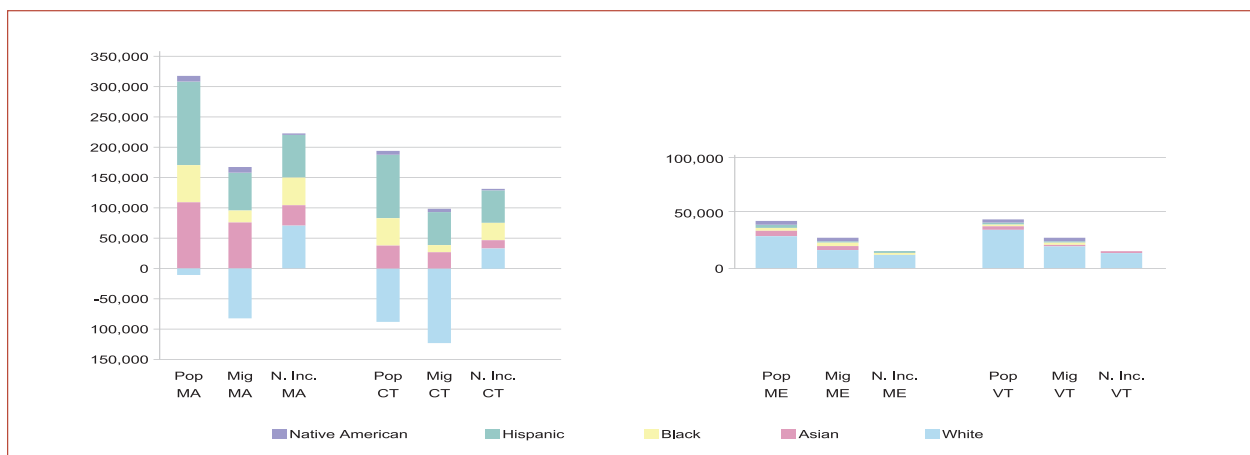
If the six New England states prove unable to significantly increase their current levels of educational access and attainment, the region may find itself in serious economic jeopardy. This assessment flies in the face of today's comfortable assumptions about New England's educational strengths and competitive advantages, but the blow to our collective self-esteem will be the least of our concerns when and if this forecast comes to pass. Understanding why the outcomes described in **New England 2020** are likely to be accurate, requires an appreciation for the demographic, education, and workforce trends that are at this moment helping to shape New England's future.

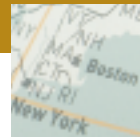
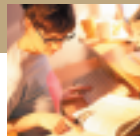
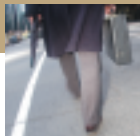
Part One—Forecasting Educational Attainment For The Workforce of New England States

Demographic Trends

The starting point for our forecast of future educational attainment is demographic, and without question the most salient feature of demographic change is the influence of minority populations, especially their effect on net migration into and out of New England states.

Growth in the Population For Select New England States, By Race and Ethnicity, 1990-2000





The out-migration of the region's white population in the 1990s and the in-migration of minority populations have played out differently in each state. For example, the white exodus from Massachusetts in the 1990s was more than matched by a minority influx. In fact, the state's minority population, comprising just 16.4% of the Commonwealth's total population, is responsible for an inflow of residents that was almost twice (193%) the size of the state's outflow of residents.

On the other hand, Connecticut's white exodus was so large that even a substantial minority influx was not enough to make migration a net positive force for population growth.

In Vermont, where the minority population is just 3% of the state's population, the in-migration by minorities represented 26% of the state's total in-migration. In Maine, 3% of the population (namely, minorities) accounted for 35% of the state's in-migration.

The future growth of the region's minority population depends much on its fertility, age-related migration pattern and the degree to which it is youthful. For example, Connecticut's Asian and Hispanic in-migration rates are strongly positive almost regardless of the age of migrants, yet the state's white migration rate is never positive (i.e. net inflow) even among the 15-24 year-olds that typically contribute a "bump" as they arrive for college.

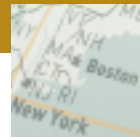
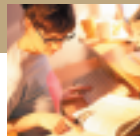
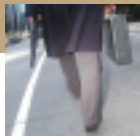
Massachusetts enjoys the most prominent "bump" in migration rates in younger age categories, and that "bump" is prominent among minorities. This implies that the dynamic of students in-migrating for college strongly helps minority growth in Massachusetts.

In sum, while states are found to range widely in the age and race characteristics of their migrating populations, the long-term outcome is shared by all: The region's minority population is much younger and exhibits higher fertility and in-migration rates than the majority population, and is therefore likely to grow much faster in the future than the majority (white) population.

Workforce Trends

Rapid minority population growth will then necessarily have large effects on the future size and composition of the working-age populations in New England states—though not always in the manner commonly anticipated. For example, our research into the future size of the working-age population suggests that, even with burgeoning minority components in several states, and even though all of the New England states grew their working-age

By 2020 nearly half of the 25-29 year-olds will be minorities in the three southern New England states.



populations in the 1990s, the picture will be very different in years ahead. In fact, only Vermont and New Hampshire now appear likely to continue to grow their working-age population (25-64 year-olds) if the demographic trends of the 1990s are perpetuated.

Massachusetts, Rhode Island, Connecticut and Maine are all predicted to have notable declines in their working-age populations. Moreover, there are not likely to be significant gains in the working-age populations of New Hampshire and Vermont.

At the same time, the minority component of the working-age population will continue to increase. For example, by 2020 more than a quarter of Massachusetts (28%) and Connecticut's (28%) working-age population will be composed of minority populations. Rhode Island will follow closely behind (25%). In the northern tier states, the share of minority working-age population will also increase, but minority share of their working-age populations (between 4-8%) will lag well behind the levels of their southern New England neighbors.

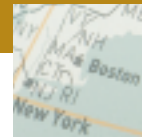
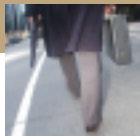
Minority Percentage of New England's Working-Age Population, 1990-2020

	1990	2000	2010	2020
Connecticut	17.0	19.9	24.1	27.7
Maine	2.2	2.6	3.2	4.0
Massachusetts	12.5	15.2	19.1	27.7
New Hampshire	2.9	4.0	5.9	7.9
Rhode Island	10.8	14.2	19.8	25.1
Vermont	2.0	2.8	4.5	7.5

The *youngest* workers in Massachusetts, Connecticut, and Rhode Island are even more likely to be minorities than the general working-age population. By 2020 nearly half of the 25-29 year-olds will be minorities in the three southern New England states.

At the same time, the forecast for the youngest component of the working-age population (25-29 year-olds) is not encouraging for Vermont and Maine. Between 2000 and 2020 there are likely to be declines of roughly 5% and 15% in the total numbers of 25-29 year-olds entering the workforces of Vermont and Maine, respectively.

The forecast for white 25-29 year-olds is for a decline in all New England states, most significantly in Rhode Island, Maine and Connecticut, with declines of roughly 25%, 21% and 20%, respectively. Clearly, if it were not for the predicted growth in their minority populations, these states will be even more hard pressed to find young workers to fill jobs and fuel their economies.



Historical and Likely Future Changes in New England's Young Workforce

Changes in Population 25-29										
	<i>Change in Total Population</i>			<i>Change in White Population</i>			<i>Percentage Minority</i>			
	1990-20	1990-00	2000-20	1990-20	1990-00	2000-20	1990	2000	2010	2020
Connecticut	14.0%	3.7%	10.0%	-32.5%	-15.7%	-20.0%	22.1%	31.0%	43.1%	47.8%
Maine	-14.3%	1.1%	-15.2%	-36.0%	-19.2%	-20.7%	2.6%	3.9%	6.7%	8.1%
Massachusetts	41.0%	10.0%	28.2%	-10.6%	-2.7%	-8.1%	15.9%	22.8%	31.9%	47.8%
New Hampshire	15.0%	7.5%	6.9%	-12.6%	-10.2%	-2.7%	3.4%	7.0%	14.0%	17.1%
Rhode Island	61.7%	18.5%	36.6%	-38.1%	-17.8%	-24.7%	13.9%	22.5%	37.5%	46.1%
Vermont	4.3%	9.6%	-4.8%	-33.5%	-19.4%	-17.5%	3.0%	4.6%	8.7%	13.4%

Education Trends

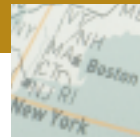
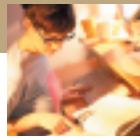
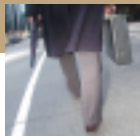
An understanding of past and present educational attainment patterns is another prerequisite for generating our forecast. In this regard, the region's track record in raising overall levels of educational attainment over the past several decades has been respectable.

Since 1970 the number of persons in the labor force without a high school degree has fallen in every New England state. However, the causes of the increases in educational attainment are many. The largest factor behind the growth in New Englanders earning bachelor's degrees in the 1990s has been an increase in college level participation. In fact, the more widespread pursuit of college level studies accounted for a quarter to one-third of the total growth in actual completions of four-year degrees.

In broad educational terms, the adult minority populations in New England gained ground in the 1990s. However, both absolute and relative differences in outcomes persisted among minority groups and the region's adult white population.

For example, the region's African-American adults have seen positive increases in achievement from 1990 to 2000. But the numbers of African-American adults that participated in college (up 5.6%) and the number of college degree holders (up 1.2%), have increased more slowly than the numbers for whites (up 7.3% and 4.7%,) respectively. The result was a widened achievement gap.

The threat of a widened achievement gap was especially serious for the region's Hispanic population in the 1990s. For example, 58% of Hispanic adults were found to have completed high school in comparison to 86% of the white population. Among those who completed high school, 55% of the Hispanic population continued on to college compared to 66% of the white population. Similarly, only 40% of the Hispanic population that began college completed it with a four-year degree as compared to 56% of the white population.



Level of Educational Attainment Among Young Entrants To The Labor Force in Five New England States

Moreover, for Hispanics, growth in the number of four-year degree holders (up 63%) did not keep pace with the growth in their population (up 66%). For other minority groups, the picture was not as disappointing, but far from cause for celebration: The increase in those completing college did exceed each minority group's population growth, but the growth difference was much smaller than for the white population. For example, the numbers of whites with four-year degrees grew more than six times faster than total population growth (26% growth in white baccalaureate holders compared to 4% growth in the white population). In contrast, not a single minority population saw its growth in baccalaureate holders even double its growth in population.

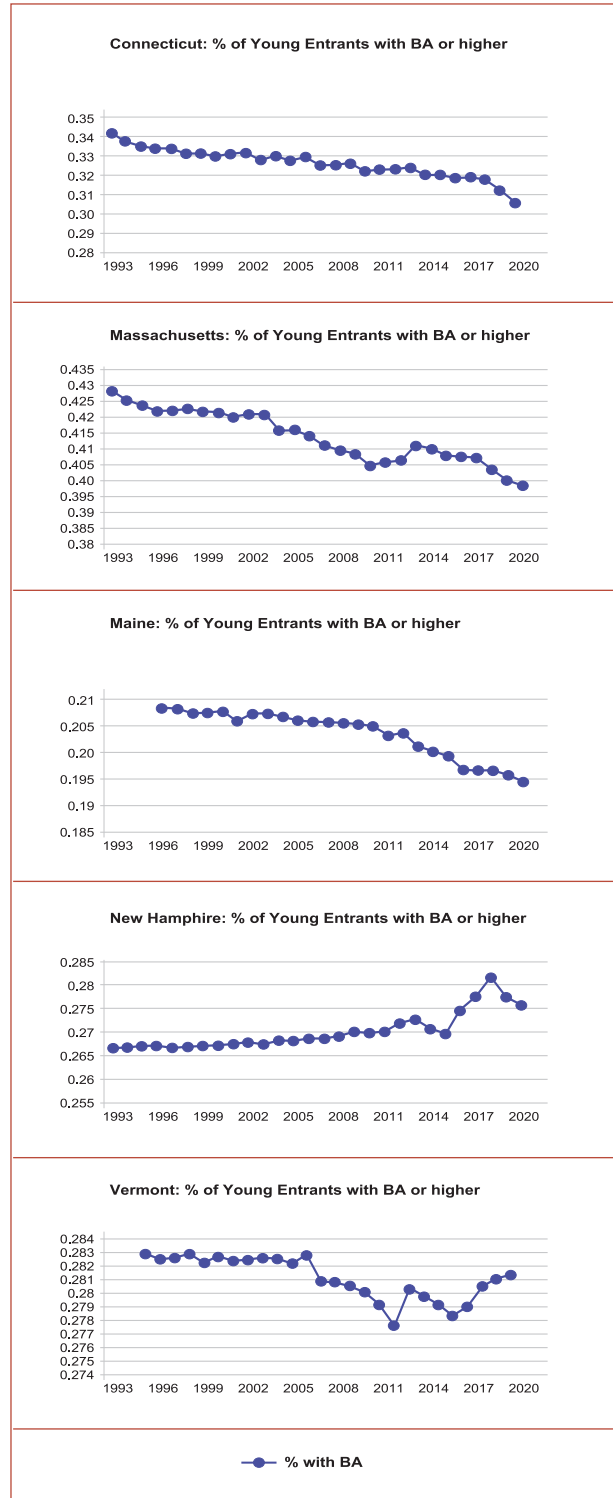
The Workforce Forecast

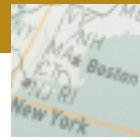
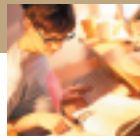
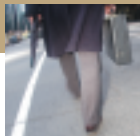
Based on current trends in population growth and educational attainment, we predicted that between 1990 and 2020, the numbers of young people entering the New England workforce will grow only modestly or not at all depending on the state.

With the possible exception of New Hampshire, all New England states will find a decreasing percentage of their young population will hold a bachelor's or higher-level degree in years to come.

New Hampshire's percentage of young people with four-year degrees (as a portion of all young residents) is projected to increase only slightly from about 26.5% to 27.5%.

However, Connecticut and Massachusetts, the most





developed states in the region, will suffer the largest losses in the percentage of their young workforce with four-year degrees. Among the young, the number of those that will hold a baccalaureate or higher degree will shrink by 3%. Connecticut's forecast call for a decline from 34% in 1993 to 30.5% in 2020; the Massachusetts forecast calls for a decline from nearly 43% to less than 40%.

Smaller states are poised to suffer declines as well. The percentage of young people with baccalaureates (as a portion of all young residents) in Maine falls from 20.8% in 1990 to 19.5% in 2020. The comparable figures are 28.3% to 28.1% for Vermont.

Needless to say, should these losses materialize the vaunted educational advantages of New England will have evaporated in the space of three decades. In the absence of some new spur to growth in the size of this population, the region's long-term labor force prospects are troubling.

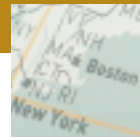
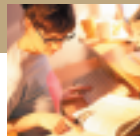
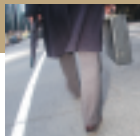
...should these losses materialize the vaunted educational advantages of both the largest states and smallest states in New England will have evaporated...

Part Two—Why The Forecast Is Not Fate: A New Role For Colleges and Universities To Help Meet Our Attainment Challenges

The shortfalls in educational attainment and the resulting shortage of educated workers predicted above naturally raises the question of what can be done. Finding effective solutions requires us to immerse ourselves in the demographic past. If there are lessons to learn about how to solve our future woes, it is in the past that we will find them. We therefore take the central feature of our recent past as our starting point: namely, the region's feeble track record of population gains.

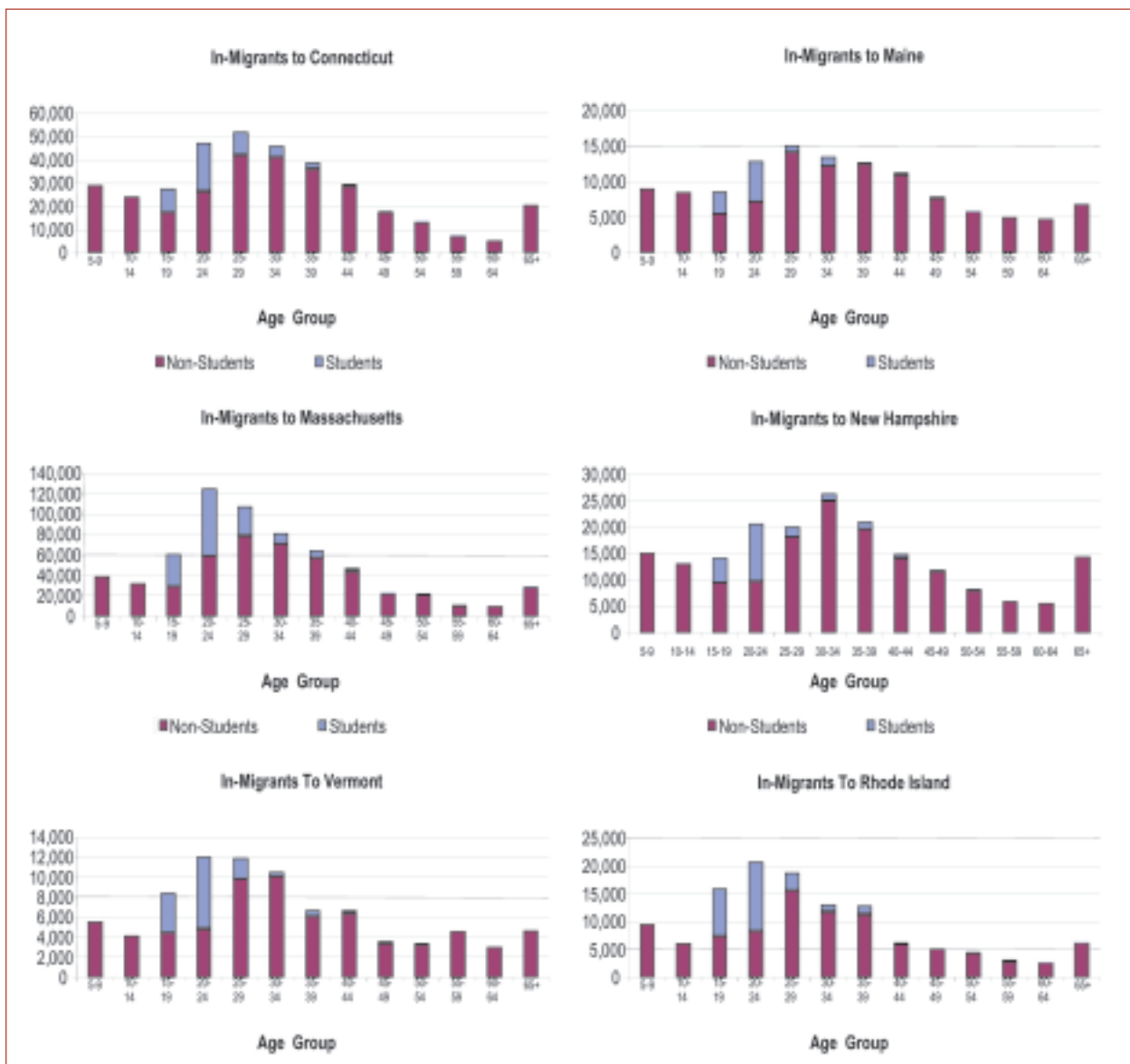
Our conclusion is that the six New England states simply cannot continue to post meager population gains—or in some cases shed residents—at past rates and still enjoy the economic prosperity and quality of life they have come to expect. We suggest that, by coming to grips with the region's specific population-related challenges, we can make major inroads into the educational attainment and workforce quality challenges identified in our forecast.

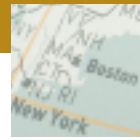
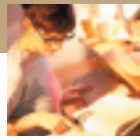
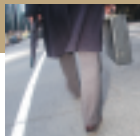
Connecticut's loss of mid-life and older workers in the 1990s is instructive. The state lost 85,000 40-64 year-olds between 1990 and 2000—a staggering figure nearly equivalent to the population of Waterbury, the state's fifth largest city. Massachusetts fared little better: Its 96,000-person loss in this same group represented 2.5% of the working-age population—the equivalent of losing a city the size of New Bedford.



Fortunately, population declines such as these are only half of New England's demographic story. Despite a staggering exodus, the six New England states have historically been able to increase their populations by attracting newcomers from elsewhere. Over the past fifty years, 86% of the differences in population growth among New England states can be traced to their varying successes in attracting in-migrants. But understanding this aspect of New England's demography in turn prompts these questions: In the future, who will be New England's in-migrants and why will they come here?

In-migration and Participation in College at the Time of In-migration For Each of the New England States (1995-2000)





We suggest that the college-age population is the answer to these questions. We argue that a greater appreciation for the value of college students, and the value of higher education institutions more generally, can put us on a path to solving both the broad population challenges and ultimately the possible shortages of educated workers predicted earlier.

By drawing young people into the region, our higher education institutions are, in effect, creating a steady, reliable supply of “replacement residents” who are proving crucial in sustaining the regional economy. The age profile of those who migrated into one of the six New England states between 1995 and 2000 is extremely telling: In all states but New Hampshire and Maine, the in-migration rate for the college-aged was *more than twice as high* as the rate of migration for the general population.

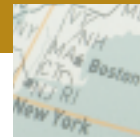
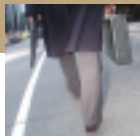
In Massachusetts the in-migration rate for those aged 18-29 (a category that captures both undergraduate and graduate students) was 27% while the rate for all ages was just 10%. The difference in Vermont was 32% versus 15%. In sum, we can say with confidence that, to the extent New England states did attract new residents from outside their borders, those individuals were much more likely to be college students than commonly recognized.

Census data specifically distinguishing students from non-students in various age categories of in-migrants paints a similar picture. Attending an educational institution was the motive for *more than half of all in-migrants aged 20-24* in every New England state except Connecticut and Maine. Even these two states were close with, respectively, 43% and 44% of their age 20-24 entering populations arriving for education purposes.

Moreover, one in three in-migrants aged 15-19 came to Maine, New Hampshire, and Connecticut for school purposes. And, more than half of 15-19 year-old in-migrants to Rhode Island, Massachusetts, and Vermont, came to study. (The fact that some captured in this age group are too young to be arriving for college makes the high percentage even more compelling.)

At the same time, all states did not appear to perform equally well in their ability to attract students from outside their borders—whether from outside the region or from other New England states. For example, Rhode Island and Vermont did well in attracting close to half (47% and 45%) of their total students from outside their states, while the other four New England states succeeded in attracting only about one-third of

...to the extent New England states did attract new residents from outside their borders, those individuals were much more likely to be college students than commonly recognized.



their total students from elsewhere. Overall, the states drawing students most heavily from outside the New England region were, in rank order: Massachusetts, Connecticut, Rhode Island, and Vermont. For their part, Maine and New Hampshire actually drew relatively better from within the region.

Part Three—Conclusions and Policy Implications

This study has detailed an interesting aspect of the recent era of demographic change in New England: The often unheralded but central role that local colleges and universities play in bringing young people to the region to provide a steady supply of young workers—workers who are crucial in sustaining the regional economy.

*...young people
arriving in pursuit
of college degrees
have become
arguably the
single remaining
bright spot...*

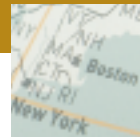
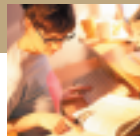
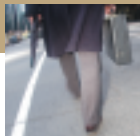
We believe that a renewed appreciation and investment in our higher education infrastructure can go a long way to stemming or reversing both the predicted shortages of educated workers entering the workforce, as well as help address the broader (and related) challenge of regional population decline.

To be sure, the argument that the health of New England's higher education infrastructure matters a great deal for the region's future prosperity is far from novel. However, our research suggests this is true not simply for the often cited reasons of innovation, new technologies, and sizable research funding that higher education institutions contribute: It is true because young people arriving in pursuit of college degrees have become arguably the single remaining bright spot in an otherwise bleak outlook for attracting fresh entrants into our local labor markets from elsewhere.

It is not an understatement then to suggest that our future hinges on whether thousands of young people will launch their educations, their graduate studies and their careers here in New England. Understanding the importance of college students as a wellspring of our population growth compels us to expand our conception of higher education institutions, recognizing them not only as sources of innovation, but as the remedy for our workforce woes, and ultimately, as the region's best insurance policy against economic stasis and decline.

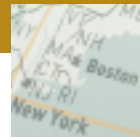
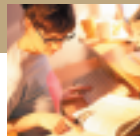
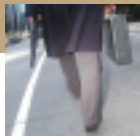
We need then to take up the task of crafting new state policy agendas. Every New England state needs an economic/education strategy, embraced by its business, government, education, and non-profit leadership, to bring college students here and keep them here. And for those young people native to the region, our policies must help persuade them to enroll and stay here in far greater **numbers** than at present.

*...in an otherwise
bleak outlook for
attracting fresh
entrants into our
local labor markets*



Because much of the long-term demographic changes in the New England states seems to be associated with college attendance and student decisions about educational programs, the public policy initiatives with the most potential to foster future in-migration and prevent possible future shortages of educated workers, are those policies aimed at improving the quality, access, and affordability of our higher education institutions. Anything we can do to raise college participation, retention, and completion rates beyond their current levels will have lasting demographic and economic consequences.

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Part One

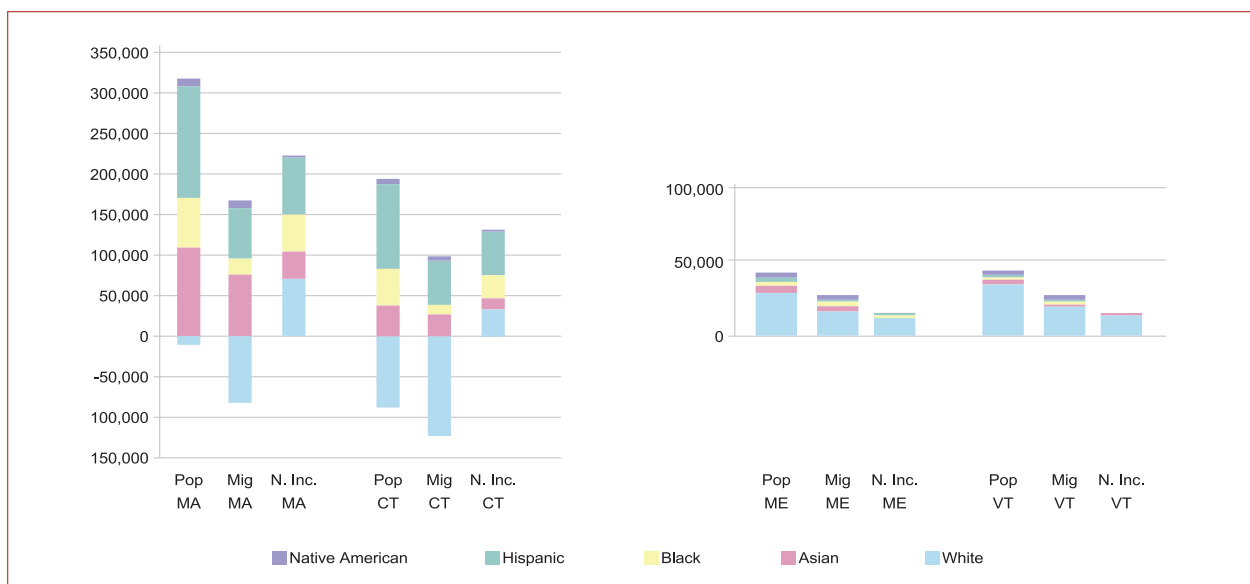
Forecasting Educational Attainment For The Workforces of New England States

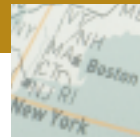
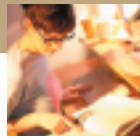
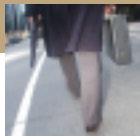
1 Demographics As Destiny—How The Composition of New England States Is Changing

Without question the most salient feature of New England’s most recent period of demographic change is the influence of minority populations. But how great a role have minority populations played in shaping New England’s demographic profile, and how has that role differed among the states?

Demographers typically approach these questions by evaluating the two components of demographic change: migration-related change (net inflows and outflows) and the so-called “natural increase” (births exceeding deaths). Applying this method to the six New England states is not as straightforward as one might expect, as not all states collect the necessary data in comparable form. Nevertheless, our focus on four of the six states (those that do permit consistent comparison of data for race and ethnicity) yields interesting results.²

Figure 1: Growth in the Population For Select New England States, By Race and Ethnicity, 1990-2000





We can immediately recognize the larger states of Massachusetts and Connecticut have been subject to greater population changes in the 1990s than their smaller neighbors. We also see that for Massachusetts, the overall stream of migration would have been outbound had the white out-migration not been exceeded by minority in-migration. In fact, the state's minority population, comprising just 16.4% of the Commonwealth's total population, is responsible for an inflow of residents that was almost twice (193%) the size of the state's outflow of residents.

In Connecticut, on the other hand, the flows of migrants follow the general pattern of Massachusetts. However, unlike Massachusetts, the total migration stream is negative because white out-migration exceeded minority in-migration. Connecticut, like Massachusetts, had positive population growth in the 1990s only because of the strong growth of its minority population.

A final facet of **Figure 1** is that in the two smaller northern states of Maine and Vermont, minority groups contribute minimally to the states' population gain due to "natural increase." Given the present small relative size of minority groups within these states, this outcome is logical. "Natural increase" similarly plays a minor role in the growth of Maine and Vermont's minority populations when compared to the much greater role that in-migration plays. Most striking is the affect of minority groups on Maine and Vermont's in-migration levels. For example, in Vermont where the minority population³ is only 3% of the population, the in-migration of minorities represented 26% of the state's total in-migration. Additionally, in Maine, where the minority population is only 3% of the total state population, minorities accounted for 35% of total in-migration. Our analysis has established just how strongly a state's migration record has been influenced by decisions of its minority populations. It should also be apparent how this becomes of great significance over time for the future population of states in the region.

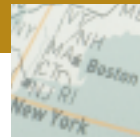
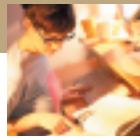
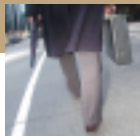
Connecticut, like Massachusetts, had positive population growth in the 1990s only because of the strong growth of its minority population.

1-1 Minority Populations And Birth Rates

We now take a closer look at how minority populations are influencing total population growth (as was

² The inability to represent some states in **Figure 1** is due primarily to variations across the states in their individual handling of vital statistics on births and deaths by race and ethnicity uniformly through the span of the 1990s. At particular issue was data separating the Hispanic ethnicity from the various race groups. For Rhode Island and New Hampshire, we were unable to obtain birth and death records in a format comparable to other states. Excellent and consistent data on population by race and ethnicity, of course, was available for all of the states from the decennial Federal Census. As **Figure 1** shows, we were able to calculate natural increases (births over deaths) and hence, migration (as the residual between population and natural increase) for Massachusetts, Connecticut, Maine and Vermont.

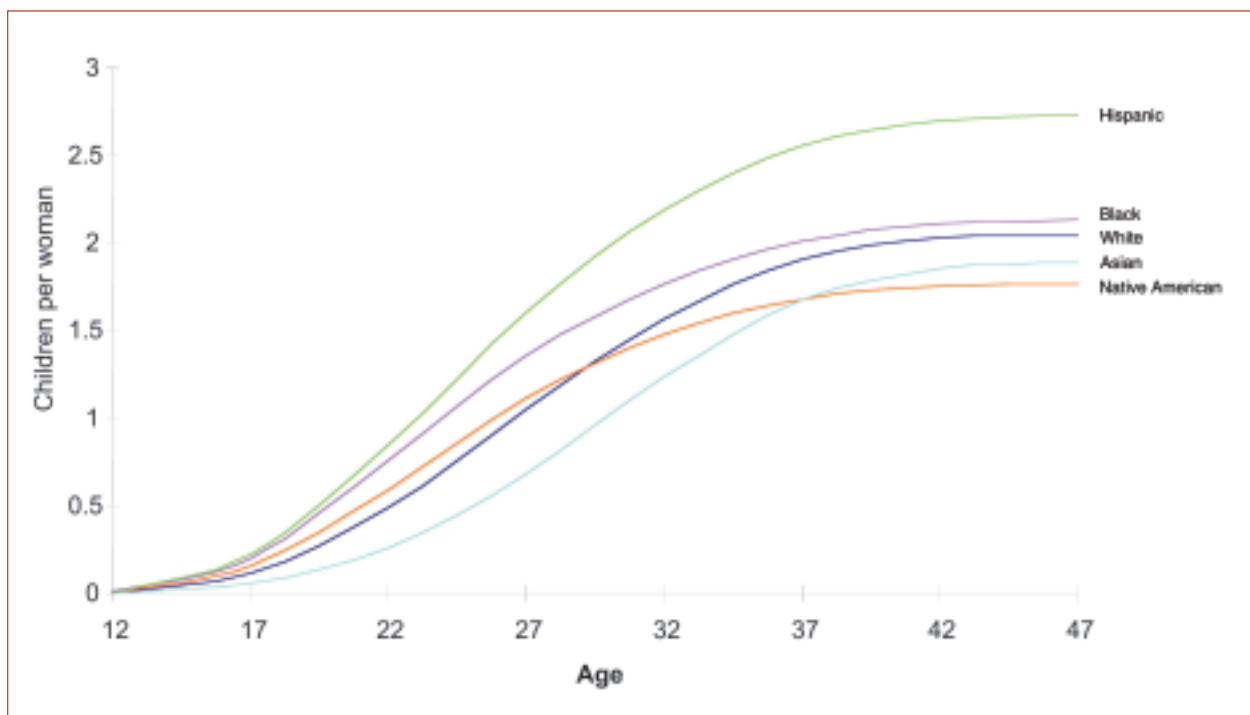
³ All percentages in this section refer to those aged 0-80 in 2000.



represented in the first column for each state in **Figure 1**). The minority population in New England, as in the rest of the country, is growing quite fast—faster than the non-minority (majority) population. This growth depends primarily on three factors: fertility rates, migration patterns, and youthfulness.

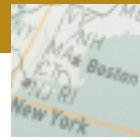
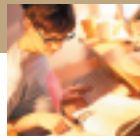
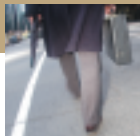
What the national and regional experience in the 1990s has made clear is that the minority population's growth is influenced positively by all of these factors and there is no reason now to believe that these factors will cease to play a powerful role over the next several decades. **Figure 2** shows year 2000 national data on fertility patterns by race and ethnicity for the U.S. It shows the traditional “birth rate” estimate for the number of children born in a given year (per thousand women) broken down by age and race-ethnicity grouping.⁴

Figure 2: U.S. Fertility Rate by Age, Race, and Ethnicity



For the Hispanic population, we see the greatest fertility, with larger numbers of children at earlier ages, the greatest growth (slope) between ages 20-24, and yet a steeper growth even at older ages than all other groups (except the Asian population which starts its child rearing later than others). The Hispanic population is followed by the African-American, white, Asian, and Native American populations. The African-American and Native American populations have the same general shape as the Hispanic population in terms of the age intensity of fertility but at all ages having less growth (fewer additions to completed fertility) than the Hispanic

⁴ Graphs showing the number of children ever born by women through a fixed age are the most unambiguous way to show the aspects of greater fertility among minority populations.

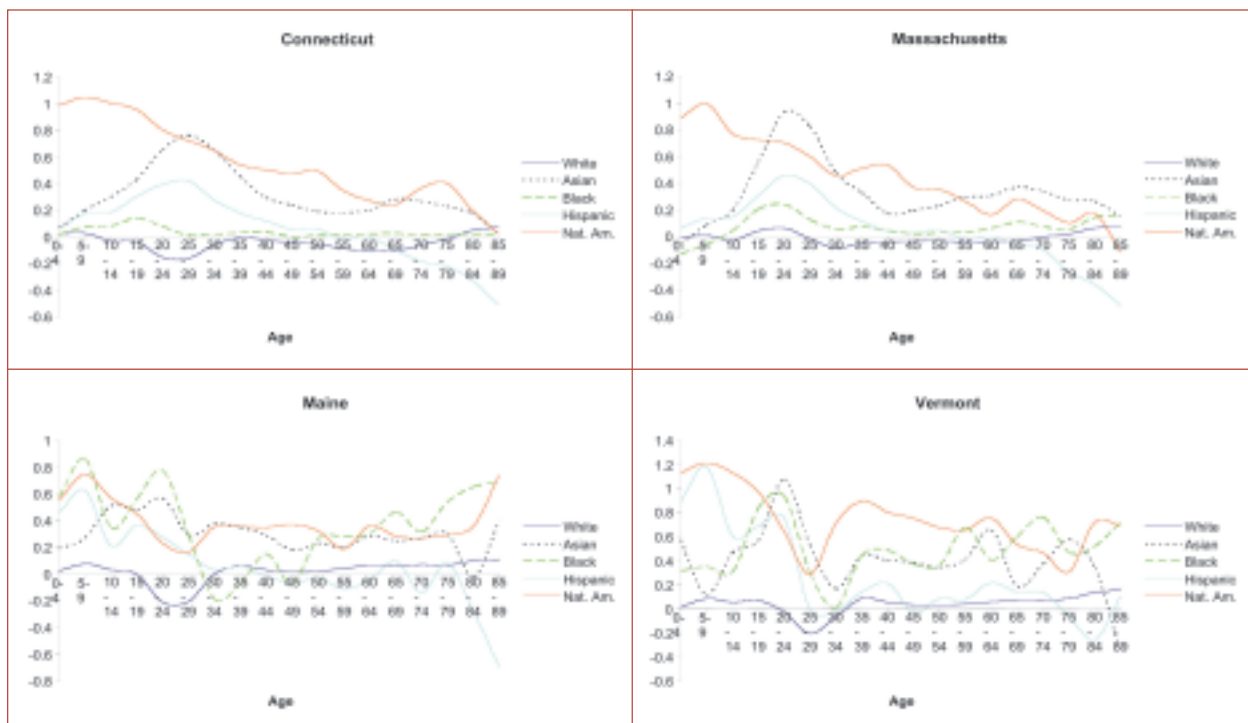


population. The white and Asian populations are the two subject to delayed child rearing, Asians more so than white. Overall, lower fertility rates imply slower long-term growth for the associated populations.⁵

1-2 Minority Populations And Migration

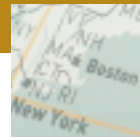
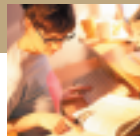
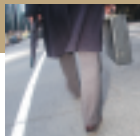
We now turn our attention back to the issue of migration—this time with a special focus on the age characteristics of minority migrants. **Figure 3** shows the migration of persons by race and ethnicity and by age into four New England states. In comparison to fertility, this data is expected to differ significantly among the states because migration is influenced by the labor market conditions and these differ among the states.⁶ The picture presented in **Figure 3** is essential to our narrative.

Figure 3: Net Migration Rates For Select New England States, By Age, Race, and Ethnicity (per unit of state population)



⁵ **Figure 2** shows the 2000 data on “completed fertility” for the population of the entire U.S. for two reasons. The first is that while there are some differences in fertility among individual states, the U.S. pattern representing long-term, more settled minority populations, presents the likely future pattern for the Northeast as it matures and stabilizes with regard to its minority populations. Secondly, it is easier and more constructive to describe a single set of distributions for the nation as a whole than for the four states we have examined thus far.

⁶ In presenting migration, we have presented the data as a rate per unit of the population of the relevant state because it shows the exposure per person of that race or ethnicity to the in- or out-migration of the population. This also translates directly into rates of growth or decline in the population.



For Connecticut, we see that the white population's migration pattern is consistently outbound from the very earliest ages until the very oldest ages when, presumably, elderly parents move into the state to be with children and grandchildren. The Connecticut migration rate never turns positive even across the 15-19 and 20-24 age categories when other states are typically drawing students into the state for college.

...the dynamic of students in-migrating for college strongly helps minority growth in Massachusetts.

Connecticut's African-American population's migration rate bumps along positively, just above zero except for modest gain in the age categories when individuals typically enroll in college. Connecticut's Asian and Hispanic rates are much strongly more positive⁷; while the Native American rate is positive but declines monotonically across the ages.⁸

For its part, Massachusetts enjoys a significant bump in migration rates in the college-aged categories, and the bump is prominent among minorities. This implies that the dynamic of students in-migrating for college strongly helps minority growth in Massachusetts.⁹

Finally, we should note that Maine and Vermont both seem to enjoy modestly positive rates of net migration among whites in their early thirties and older. Even with this side note however, we can again see the centrality of the minority population to the picture of migration in New England.

1-3 Minority Populations and The Youth Factor

Across New England, minority populations show a uniformly younger face than the white population of the region. **Figure 4** shows the cumulative population distribution by age and by race/ethnicity.¹⁰ Again, our focus is on the four New England states that permit a consistent comparison of data for race and ethnicity.

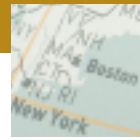
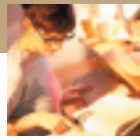
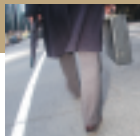
Several facets of a population's age distribution become visible when the population data is arrayed as in **Figure 4**. The heavy dashed line represents the age distribution of a hypothetical population that has an equal percentage of individuals at every age between 0 and 90.

⁷ The Hispanic rate does turn negative at retirement age suggesting perhaps a return to warmer climates consistent with this group's historic ties to the South, the Caribbean, and South America.

⁸ This may be a result of shifts in definitions and data collections methods, in which some of the population which may have reclassified itself over time will appear to be caused by in-migration, not reclassification. There are similar elements of this secular decline in the other states, certainly in Massachusetts.

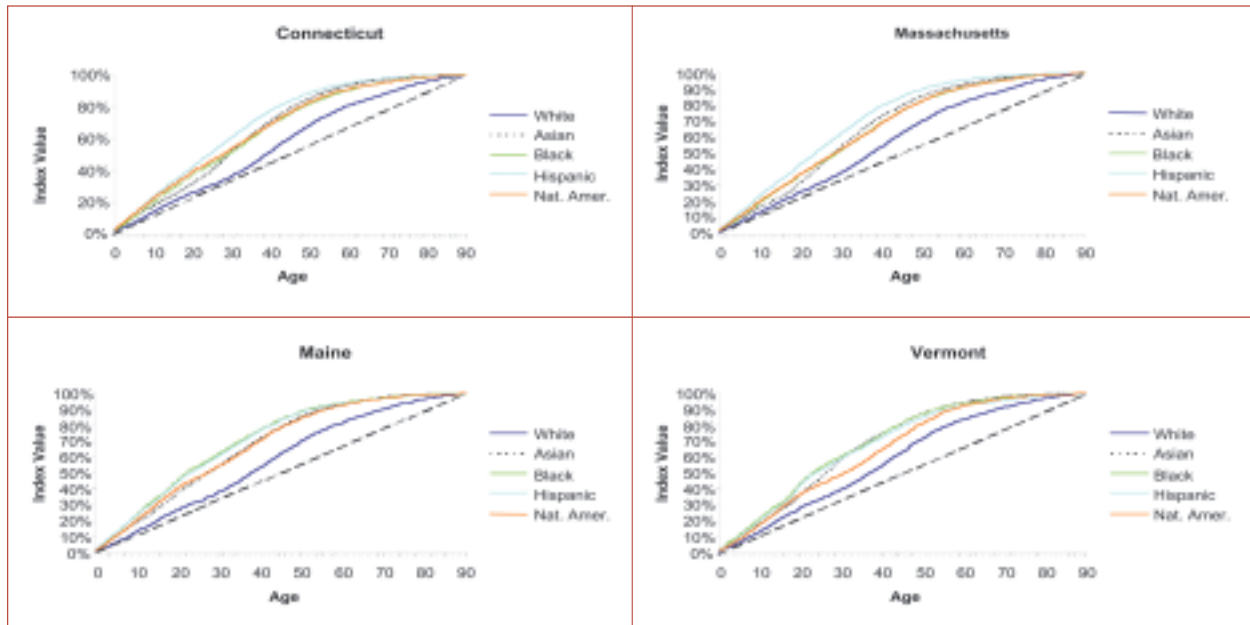
⁹ This pattern is also evident in the other New England states for which we can produce detailed data.

¹⁰ The figure deploys population over ages from 0, new-borns between April 1, 1999 and March 30, 2000, and 90 year olds. While the population in each of these states certainly extends beyond 90 years of age, we truncated it at that age because of our interest in migration.



Several factors make a uniform distribution of the population by race unlikely to be the case in reality.¹¹ Instead, the dashed line is typically bowed for real populations. We see in **Figure 4** that the populations of all four New England states indeed “bow” in varying degrees “north” of the diagonal dashed line.

Figure 4: Cumulative Age Distribution of Population For Select New England States, By Race and Ethnicity

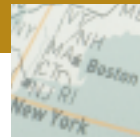
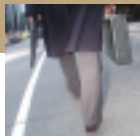


However, there is considerable variation for race and ethnic groups within states. For example, out-migration, aging, and other factors could cause a group’s distribution line to slope downward—back toward the dashed diagonal line. There is evidence of this in the pattern of distribution lines for whites in each of the four states. The white population lies closest to the diagonal line, implying that it is unambiguously older than other race/ethnicity groups.¹²

By contrast, the “bowing” of the lines for minority groups reveal their youth as well as their in-migration propensity. The relative youth of minority populations in New England is clearly central to the fast growth of the population of minorities in the region. First, since mortality is a phenomenon of aging, a relatively youthful

¹¹ The first factor is the impact of mortality at older ages. High mortality among those in older age categories shrinks this group’s numbers and they becomes smaller than they would be in our hypothetical “equal proportion” population. The shrinkage in older categories, in turn, implies that younger population categories will be of “more than equal” proportion. Second, a “greater-than-replacement” level of fertility leads to a greater than proportional number at younger ages than at older ages. Still another reason is that in-migration of the young also causes younger age groups to become greater than proportional.

¹² In all of the states, because of the heavy out-migration of young population specific to the age of entering college, the actual white cumulative population distribution shows signs of movement toward the dashed diagonal.



minority population will experience less mortality than a relatively older majority population. Second, a relatively youthful minority population would produce more births because fertility is a phenomenon of the young.¹³

So we have seen how the minority population grows faster in New England because of its higher fertility rate, its greater in-migration, and its youth. These factors may ebb at some time in the future with the result that the minority population growth rate moderates. However, a reasonable analysis is one based on the assumption that fertility rates will not decline and migration remains strong. We now proceed to an analysis of how the population will evolve under such assumptions.

1-4 Current Trends and Their Implications For Future State Populations

The previous sections provided a careful look at the four New England states for which detailed vital statistics by age, race, and ethnic characteristics of the resident populations were available. The experience of those four states suggest that growth among the minority population is likely to be much faster than for the majority (white) population. We also learned that the minority population in Connecticut, Maine, Massachusetts and Vermont is much younger and exhibits higher fertility and in-migration rates than the majority population.

In this section we report the findings generated by a model that uses what we have learned in earlier sections. The underlying model uses the data on migration, mortality, and fertility in New England between 1990 and 2000 to estimate future growth rates by age, race, and ethnicity from 1990 through 2020.¹⁴

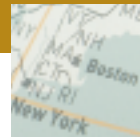
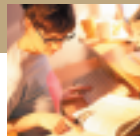
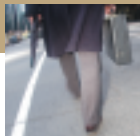
The results of our modeling exercise are presented in **Figure 5**. Significantly, we see individual states continuing along already established trends, but with some interesting twists.¹⁵ For example,

- Even though all of the New England states grew in the 1990s, only Vermont and New Hampshire appear likely to continue to grow their working-age population if the demographic trends of the 1990s are perpetuated.

¹³ Moreover, population groups with high fertility rates (like the young) have a double effect by inducing more growth through births.

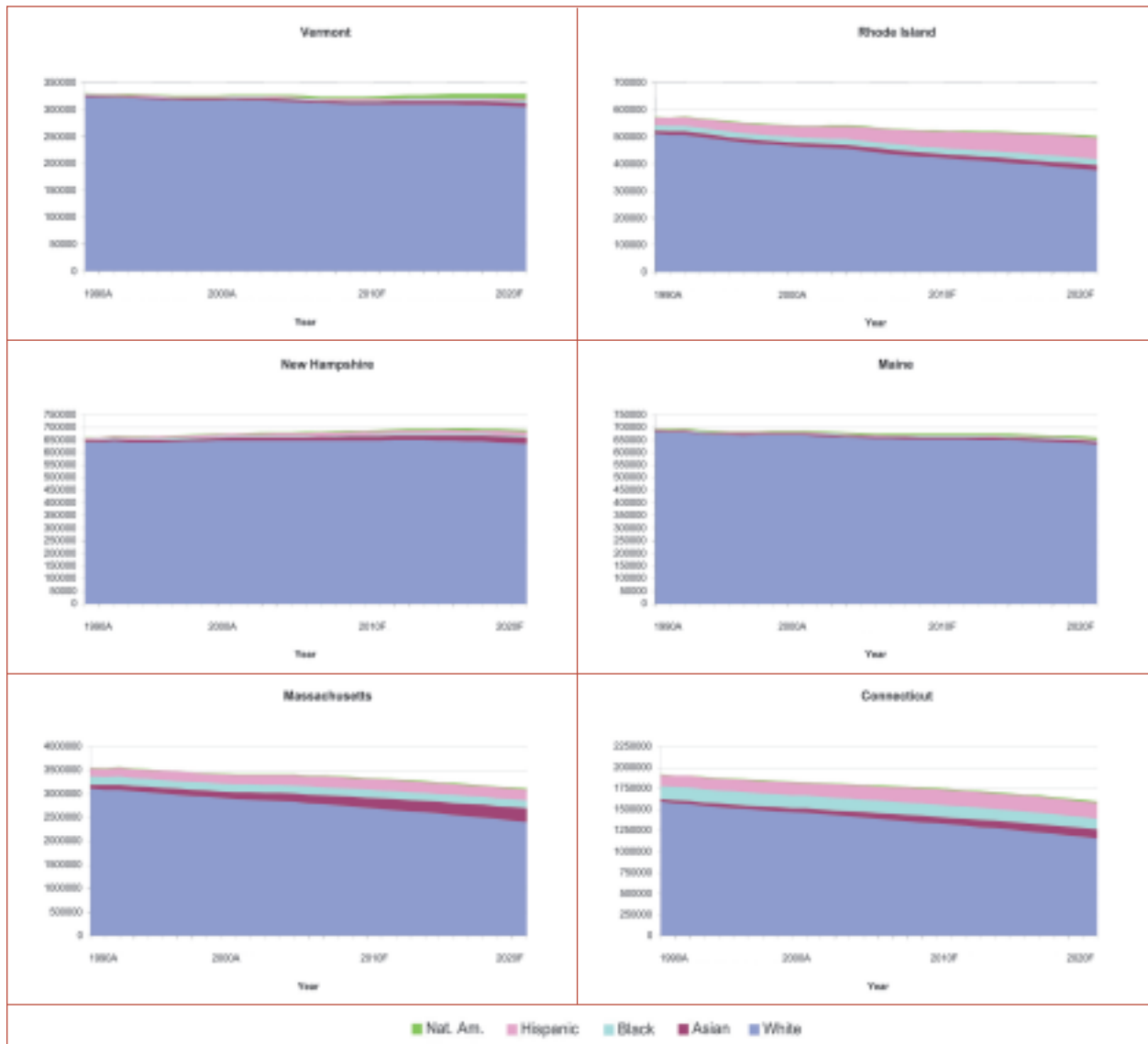
¹⁴ Data for 2000 is used to anchor both the estimates and projections, requiring that the estimates tie smoothly into the year 2000 data and allowing projections through 2020 to jump off of the Census 2000 population as the last available historical period.

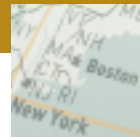
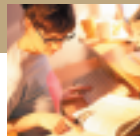
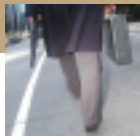
¹⁵ The reader should keep in mind that **Figure 5** might look different if it were to reflect the entire population of a state or region, rather than the working-age population or some other narrower age category. In graphs of the total population, we worry primarily about whether fertility is high enough to offset mortality total migration. These, for all of the New England states except Connecticut, are positive from 1990 to 2000. The net natural increases in the region were positive with births outnumbering deaths across the decade for all of the states. Increases were sufficiently positive to overcome the slight level of out-migration in Connecticut between 1990 and 2000. If we were to restrict our analysis to a narrow age category, for example 25-29 year-olds, or as in **Figure 5**, 25-64 year-olds, we must worry not only about migration (of an age specific variety) but also about whether there are significant differences in the sizes of the population between the younger, "entering" age group and the older, "leaving" age group. The size of a limited age slice of the population reflects whether the size of the group aging out of the ages of interest is smaller or larger than the size of the group aging into the group.



- The three southern tier states and Maine are likely to have notable declines in populations aged 25-64, a population of special economic interest, of course, because it represents the primary working-age population.
- And while the working-age populations of Connecticut, Massachusetts, Rhode Island and Maine will almost certainly drop between 2000 and 2020, there will not likely be significant gains either in the working-age population in the remaining New England states of New Hampshire and Vermont.

Figure 5: Forecast of Working-Age Population (25-64 Year-olds) in New England States, By Race and Ethnicity, 1990-2020





As expected, **Figure 5** shows a continuing trend of growth in the working-age minority population, accelerating across the New England states. **Table 1** is instructive; it shows that Connecticut and Massachusetts, by 2020, are expected to lead all other states in the region in terms of minority population size.

By 2020, roughly 28% of Massachusetts and Connecticut’s working-age population will be composed of minority populations. Rhode Island will follow closely behind, with just over one quarter of its working-age population being minority. In the northern tier states, the share of minority population will also increase, but their share will lag well behind their southern New England neighbors.

At the same time, it is significant that the minority percentage of the working age population in the Northern tier states will nearly double in Maine, nearly triple in New Hampshire, and more than triple in Vermont.¹⁶

Table 1: Minority Percentage of New England’s Working-Age Population, 1990-2020

	1990	2000	2010	2020
Connecticut	17.0	19.9	24.1	27.7
Maine	2.2	2.6	3.2	4.0
Massachusetts	12.5	15.2	19.1	27.7
New Hampshire	2.9	4.0	5.9	7.9
Rhode Island	10.8	14.2	19.8	25.1
Vermont	2.0	2.8	4.5	7.5

Figure 5 also leaves little doubt that the minority population is growing across all of New England; but the dimensions of this growth are difficult to discern until we look at the younger population (aged 25-29), as we do next.¹⁷

Figure 6 shows the results of plotting this younger group as it evolves over time. **Figure 6** dramatically changes the picture presented earlier in **Figure 5**.¹⁸ Now we have our clearest picture yet of how minority population growth will change the profile of the workforce.¹⁹

¹⁶ Variations in the presence and growth of minority groups are also worth noting: **Figure 5** shows that Hispanic population growth dominates in Rhode Island and is also significant in New Hampshire. Of course, the size of the Hispanic population remains an important (and growing) component in both Connecticut and Massachusetts as well. In Connecticut, Massachusetts, and Vermont, the Asian population will become a larger component of future work forces.

¹⁷ From an economic perspective, this group warrants special attention as it represents individuals who are a key component of the workforce—or who are on the verge of entering the work force following completion of college or graduate educations.

¹⁸ Again, we stress that the future presented in **Figure 6** depends on the assumption that the demographic rates observed in the 1990s will continue to hold over the coming decades.

¹⁹ A graphical comparison of projections for the entire working-age minority population aged 25-64 with the younger minority population aged 25-29 can be found in **Appendix 3**.

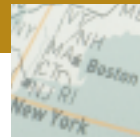
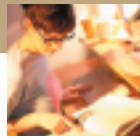
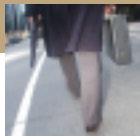


Figure 6: Forecast of “Young Workers” (25-29 Year-olds) in New England States, By Race and Ethnicity, 1990–2020

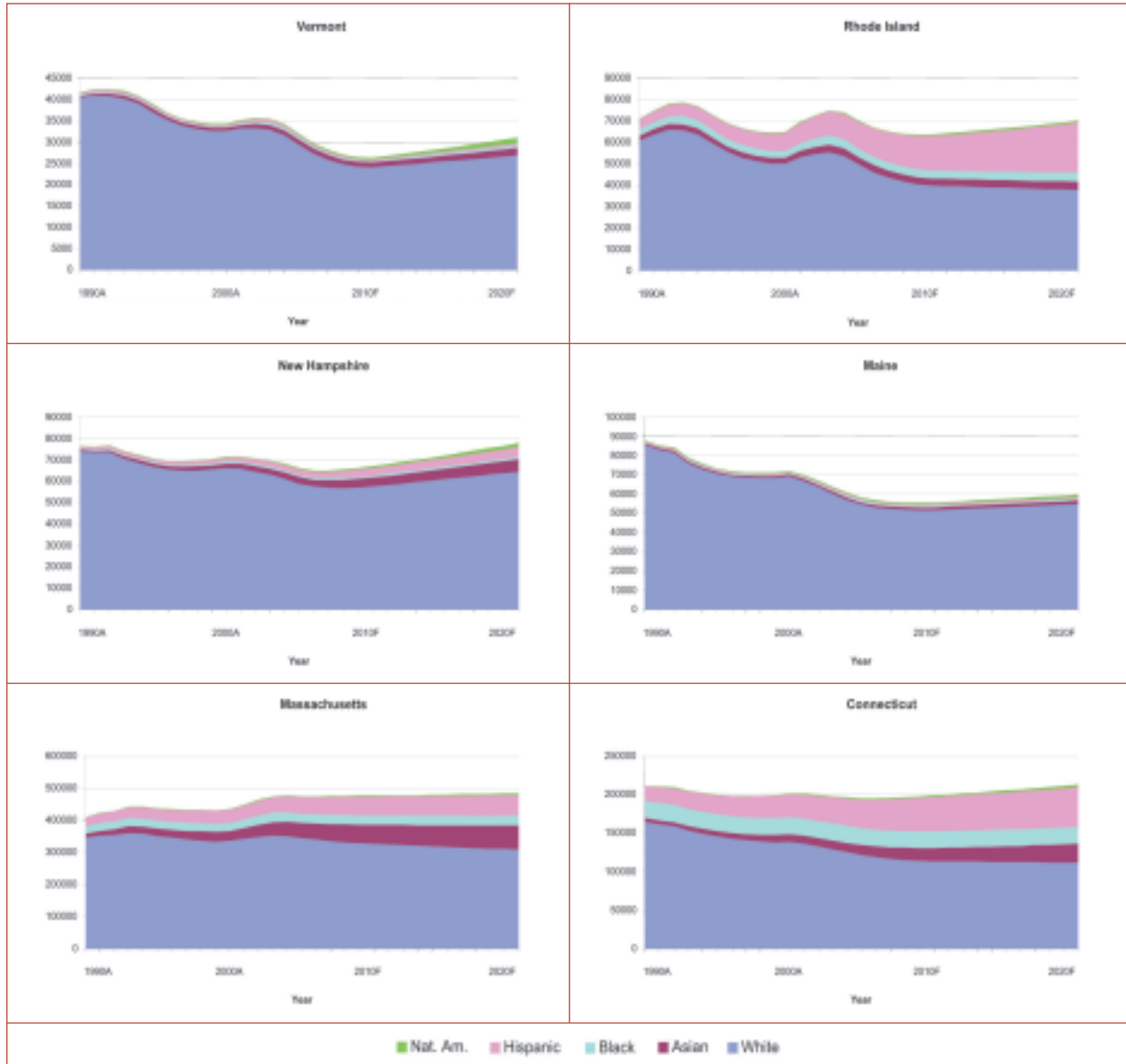


Table 2 aggregates the minority categories used in **Figure 6** to allow simple comparisons of the percent changes in total age 25-29 population, in a state’s majority age 25-29 population, and in the 25-29 population that is minority. Of note, it shows that between 2000 and 2020 there are likely to be declines of roughly 5% and 15% in the total numbers of 25-29 year-olds entering the workforces of Vermont and Maine, respectively. This situation can be attributed to precipitous declines in the white population in this age category coupled with insufficient growth in minority populations (that serve to mitigate losses in other states).

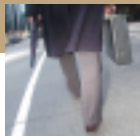


Table 2: Historical and Likely Future Changes in New England’s Young Workforce

Changes in Population 25-29										
	Change in Total Population			Change in White Population			Percentage Minority			
	1990-20	1990-00	2000-20	1990-20	1990-00	2000-20	1990	2000	2010	2020
Connecticut	14.0%	3.7%	10.0%	-32.5%	-15.7%	-20.0%	22.1%	31.0%	43.1%	47.8%
Maine	-14.3%	1.1%	-15.2%	-36.0%	-19.2%	-20.7%	2.6%	3.9%	6.7%	8.1%
Massachusetts	41.0%	10.0%	28.2%	-10.6%	-2.7%	-8.1%	15.9%	22.8%	31.9%	47.8%
New Hampshire	15.0%	7.5%	6.9%	-12.6%	-10.2%	-2.7%	3.4%	7.0%	14.0%	17.1%
Rhode Island	61.7%	18.5%	36.6%	-38.1%	-17.8%	-24.7%	13.9%	22.5%	37.5%	46.1%
Vermont	4.3%	9.6%	-4.8%	-33.5%	-19.4%	-17.5%	3.0%	4.6%	8.7%	13.4%

Other New England states are likely to be spared Maine and Vermont’s predicament only because their minority populations are growing fast enough to make up for lackluster white population growth rates. Even so, the projections suggest that the young working-age white population will decline in all of the New England states, most significantly in Rhode Island, Maine and Connecticut, at rates of roughly 25%, 21% and 20%, respectively. Again, if it were not for the growth of their minority populations, these states would be hard pressed to find enough young qualified labor to continue to fill new job positions and fuel their economies.

1-5 Current Trends and Their Implications For Educational Attainment and the Workforce

Our 1993 study, **Beyond 2000**, cataloged the educational attainment of the New England population, noting that there is a significant payoff to higher levels of educational attainment. Since 1993, the stakes have increased dramatically as those with lower levels of attainment have fallen further and further behind in terms of income and the capacity to weather an increasing cost of living.

Table 3 illustrates what typically happens when the benefits of education attainment increase: The economic imperative of college attendance leads increasing percentages of the population to attend college.²⁰ Between 1970 and 2000, the number of persons in the labor force (those aged 25 and over) without a high school degree has fallen in all New England states.²¹

²⁰ Source for 2000 data in **Table 3** is the 2000 Census; source for 1970 data is the **Beyond 2000** report.

²¹ The “no high school” percentages range in 1970 from 42% (MA) to 54% (RI). However by 2000, the percentages across the states were uniformly reduced to a range of 13% (NH) to 22% (RI). Interestingly, in 1970 Massachusetts boasted the lowest proportion of residents without a completed high school degree, but the pendulum swung to the northern tier states over the next twenty years so that New Hampshire, Vermont and Maine ranked better in 2000 with just 13%, 14%, and 15% of their populations lacking high school degrees, respectively.

²² Source is 2000 Census.

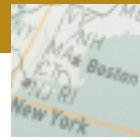
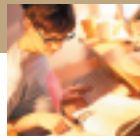
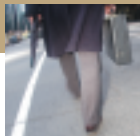
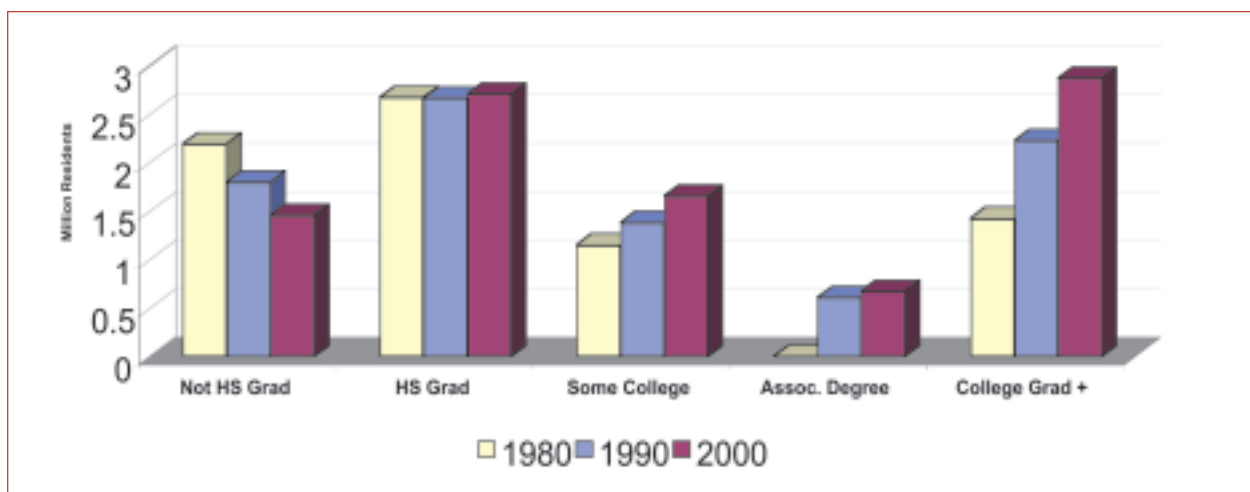


Table 3: Educational Attainment of the Population 25 and Over

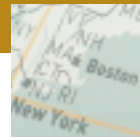
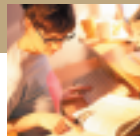
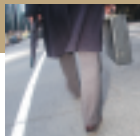
	1970	1980	1990	2000	90-2000 Percent Change	1970	1980	1990	2000	90-2000 Percent Change
	Connecticut					Maine				
No HS	740,830	563,760	457,208	367,658	-19.6	288,513	207,366	168,460	127,288	-24.4
HS	534,830	653,884	648,366	653,300	0.8	188,886	259,964	295,074	314,600	6.6
Some Coll.	179,635	289,956	350,418	402,741	14.9	60,424	99,226	127,799	165,111	29.2
Assoc.			145,278	150,926	3.9			54,928	63,934	16.4
College	230,303	392,564	597,693	720,994	20.6	44,981	95,284	149,352	198,960	33.2
	Massachusetts					New Hampshire				
No HS	1,305,345	963,289	792,657	651,093	-17.9	168,709	150,385	127,423	103,754	-18.6
HS	1,096,249	1,260,868	1,178,509	1,165,489	-1.1	136,982	201,416	226,267	247,723	9.5
Some Coll.	346,399	545,469	624,944	730,135	16.8	48,837	91,468	128,695	164,634	27.9
Assoc.			287,114	308,263	7.4			57,569	71,772	24.7
College	394,470	693,630	1,079,999	1,418,295	31.4	43,153	98,684	173,941	236,104	35.7
	Rhode Island					Vermont				
No HS	281,089	223,949	184,344	153,086	-17.0	99,897	85,509	68,637	54,896	-20.0
HS	151,919	188,488	194,064	192,914	-0.6	76,675	107,297	123,430	130,804	6.0
Some Coll.	41,875	74,038	99,092	122,261	23.4	29,346	46,061	52,594	68,440	30.1
Assoc.			41,296	48,495	17.4			25,730	31,058	20.7
College	49,199	88,768	140,160	177,817	26.9	26,725	56,184	85,854	119,075	37.0

Figure 7 graphically illustrates the region-wide (rather than state-by-state) increases at various levels of educational attainment.²² Again, the data show substantial gains have been made.²³

Figure 7: Educational Attainment in New England, 1980-2000 (for age 25+)



²³ Notice, however, that those who earned a high school degree remained remarkably constant over the three decades.

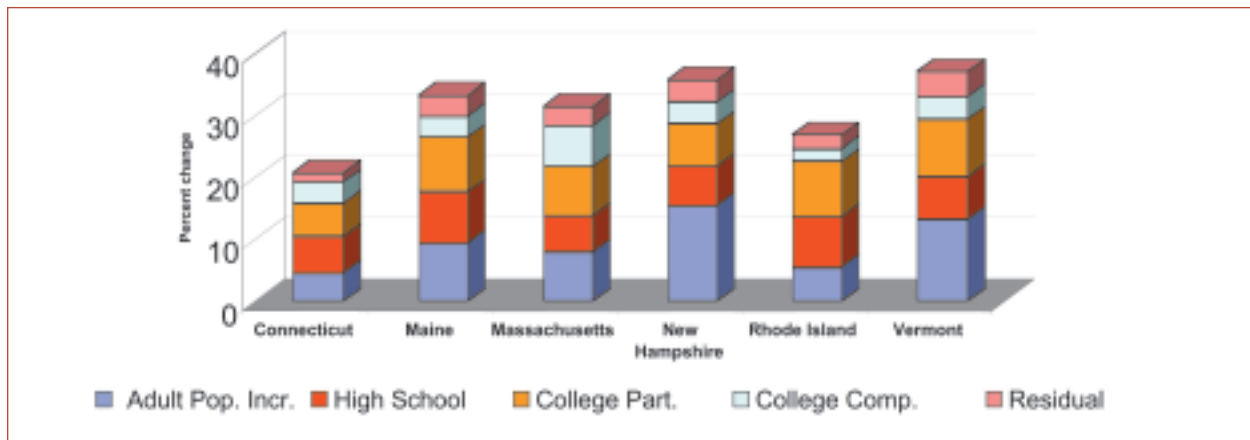


It is important to recognize that the positive gains in educational attainment described in **Figure 7** tell only part of the story. **Figure 7** tells us nothing about why these gains have been made. It is possible that positive outcomes are the result of fleeting or fortuitous circumstances that will not repeat themselves in years ahead. It may be possible that the gains come from sources unrelated to policies intended to improve educational attainment.

Figure 8 shows the results of our systematic assessment of the sources of improvements in attainment that have been observed across the New England states. It attributes the growth in the numbers of New Englanders earning baccalaureate degrees to five discrete factors:

- the increase in a state’s adult population,
- rate of high school completion,
- rate of college attendance/participation²⁴,
- rate of college completion²⁵ and,
- a fifth factor that represents the percentage of the growth in college completion that cannot be separated into any single component.²⁶

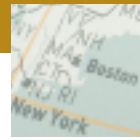
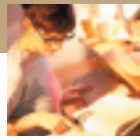
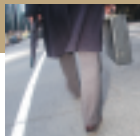
Figure 8: Factors Contributing To Growth in Four-Year College Completion in New England States, 1990-2000 (for age 25+)



²⁴ This term refers to the percentage of individuals with a high school degree that begin college (whether or not they actually finish college).

²⁵ This term refers to the percentage of those who begin college at any level, and who finish their studies with a four-year degree.

²⁶ This factor is necessary because the preceding factors often change simultaneously, preventing us from assigning growth to only one factor.



These five component factors are easily explained by the following exercise: Assume the population in a state increases at a given rate, say $x\%$. If the percentages of individuals earning various levels of attainment remain the same, then the percentage earning each level of attainment would change by exactly the same percentage x .

With this in mind, let us consider the “Adult Population Increase” component appearing in **Figure 8**. It represents the boost in the completion of four-year degrees that would result from an increase in a state’s adult population in the absence of increases in any of the other attainment rates. **Figure 8** shows that this is a greater factor in New Hampshire and Vermont (because they gained more adults in the 1990s) than in Maine, Massachusetts, Rhode Island, and Connecticut. In New Hampshire, 15% of the gains are due to an increase in adults. The figure for Vermont is 13%. At the other extreme, Connecticut’s increase in its population holding college degrees (4%) was not helped nearly as much by the state’s overall population growth; nor was Rhode Island’s increase (5%).

A state’s rate of high school degree completion is another important factor. **Figure 8** shows the increase in college completion that would have occurred in the 1990s because of the sizable improvements of high school completion rates. While the high ranges from 8% in Rhode Island and Maine to a low of 6% in Massachusetts and Connecticut, all these gains are sizable.

A third factor is the improvement in the rate of college attendance/participation. Again, these amounts represent the increase in college completions that would occur if the population and all of the other attainment rates (except the college completion rate) were to have remained constant. Across all the states except Connecticut, this factor contributed more to college completion than did high school completion. Clearly, the rate of college participation has become a large and powerful contributor to four-year college completion.

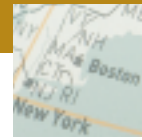
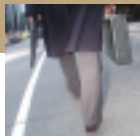
For example, Vermont’s rate of increase in the percentage of those continuing on to college once completing high school is 9%. Rhode Island’s is also roughly 9%. Connecticut’s 5.3% is the smallest among the states. Even so, all are significant, contributing somewhere between a quarter and a third of the total growth of the college completions that occurred in the 1990s in the various New England states.

In contrast, we find the least influential factor in four-year degree attainment is the increase in the rate of college completion. In all states this factor is positive but small.²⁷ Massachusetts places at the high end (6.5%) compared with a low of 3.5% for Connecticut.²⁸

The rate of college participation has become a large and powerful contributor to four-year college completion.

²⁷ Obviously if all else were held constant, but the rate at which persons who began college and completed it rose, the number of persons who completed college would rise in proportion to the increase in the college completion rate.

²⁸ It is worth noting that this is the component factor most directly under the control of individual higher education institutions. If institutions were to improve retention and completion rates, then the states would be able to increase their proportion of the population with college degrees.



Finally we turn to the component factor perched on the top of the blocks in **Figure 8**. This too is a component of the total change in college completions among the states. Again, this is the part that gets larger when all the factors change together. In other words, if we cannot separate out the components into the various pieces that separately identify the change in one of the individual attainment rate changes, then the residual would represent the composite of multiple changes in the various pieces simultaneously. For the 1990s it appears reasonably easy to break down the change in four-year completions into separate parts with little left over for this “simultaneous” component.

In the 1970s and 1980s, there were distinctly different explanations to the growth in college completions.²⁹ Between 1980 and 1990 college completion rates went down because the proportion of the population that attempted college study but was unable to successfully complete degree programs fell throughout the period. Between 1990 and 2000 however, the completion rates rose and were no longer a negative factor in the attainment of four-year degrees.

The size of the population and the high school completion, college attendance, and college completion rates for all of New England are presented in **Table 4**, expanding on the information presented in **Figure 8**.³⁰

Table 4: Educational Achievement Rates in New England, 1980-2000

	1980	1990	2000	Percent change 1980-1990	Percent change 1990-2000
Total Population	7,437,507	8,686,894	9,361,568	16.80	7.77
HS Completion Rate	70.5	79.3	84.4	12.47	6.48
College Attendance Rate	49.0	61.3	65.8	25.10	7.30
College Completion Rate	55.4	52.7	55.2	-4.80	4.71
Residual (interactions)				6.69	2.67
Four-year Degree Holders	1,425,114	2,226,999	2,871,195	56.27	28.93

We have already described how the size of the minority population in New England states is growing larger over time. This leads us then to pay particular attention to the educational attainment of specific minority populations. **Table 5** shows data on educational attainment for racial and ethnic groups across the region as a whole.³¹ On an encouraging note, **Table 5** confirms that, on balance, all race and ethnic groups have made improvements in their educational attainment rates—particularly as measured by the number of individuals holding college degrees, but by other measures as well.

²⁹ The interested reader might look back at **Beyond 2000** for details. In short, the 1970s appeared to be the decade when college completion growth was most associated with increases in high school completion. By the 1980s, college participation had become the dominant contributor to four-year degree completion. This was because the large proportion of the population starting degrees led to higher numbers of completions.

³⁰ Sources are 2000 Census and **Beyond 2000** report.

³¹ As with other materials in this section, **Table 5** is directly comparable with its predecessor table (see Table 3 on page 10 of **Beyond 2000**).

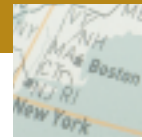
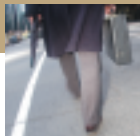


Table 5: Educational Achievement by Race and Ethnicity in New England, 1990-2000

	Population Over Age 22	HS Completion Rate	College Participation Rate	College Completion Rate	College Completions
All Persons	9,361,568	0.84	0.66	0.55	2,871,193
Growth in %, 1990-2000	7.8%	6.5%	7.3%	4.7%	28.9%
All white	8,391,097	0.86	0.66	0.56	2,644,788
Growth in %, 1990-2000	4.0%	7.1%	7.6%	4.8%	25.5%
Black	429,080	0.75	0.59	0.39	74,090
Growth in %, 1990-2000	24.4%	8.9%	5.6%	1.2%	44.8%
A. Ind. Esk. Aleu	39,017	0.72	0.61	0.40	6,844
Growth in %, 1990-2000	93.2%	4.9%	13.0%	20.5%	176.2%
Asian & Pac. Isl	248,516	0.78	0.80	0.77	119,203
Growth in %, 1990-2000	99.2%	3.1%	-0.1%	3.7%	112.8%
Other Race	253,856	0.56	0.52	0.35	26,270
Growth in %, 1990-2000	100%	19.0%	5.0%	11.0%	174.0%
Hispanic Ethnicity	433,933	0.58	0.55	0.40	56,014
Growth in %, 1990-2000	66.0%	9.1%	-3.2%	-5.9%	63.1%

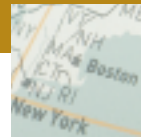
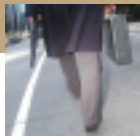
However, **Table 5** also makes clear remarkable differences in achievement between the white and the minority populations. Contrary to hopes, there has not been a narrowing of comparative attainment with the white population. For example, the region’s African-American population has seen positive increases in achievement, but both its college participation and college completion rates have increased more slowly than white rates—creating a widening gap.

Equally troubling, New England’s age 25+ Hispanic population has experienced outright declines in the rates of college participation and college completion compared to the earlier decade. The Hispanic performance compares particularly unfavorably with the white population in the same age category. For example, 58% of Hispanic population completes high school in comparison to 86% of the white population. Among those who completed high school, 55% of the Hispanic population continues on to college compared to 66% of the white population. Similarly, only 40% of the Hispanic population that began college completed it with a four-year degree as compared to 56% of the white population.

...the region’s African-American population has seen positive increases in achievement...

Lower levels of educational achievement for the region’s minority population, coupled with a widening of the gulf between white and minority rates of success, implies that we are wasting some of the region’s most valuable demographic resources and undermining the quality of our workforce. This is evident in the mismatch between sources of demographic growth and sources of educational achievement within the region.

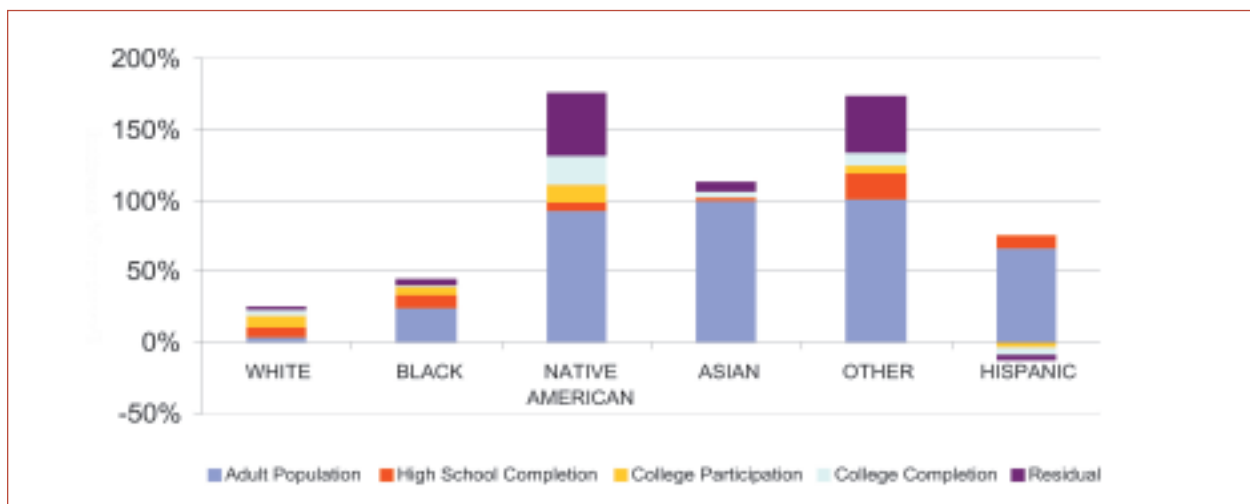
Consider that, for Hispanics, growth in the number of four-year degree holders has not kept pace with the growth in the population, 63% to 66%. For other minority groups, while the increase in those completing college exceeds the group’s population growth, the growth differential is much smaller than for the white population. For example, the numbers of whites with four-year degrees grew more than six times faster



than total population growth (26% growth in baccalaureate holders compared to 4% growth in the population). In contrast, not a single minority population saw its growth in baccalaureate holders even double its growth in population.

Figure 9 displays the above trends in the same graphical form used in **Figure 8**. We see the greatest increases in four-year degree holding for the Native American, “other,” Asian, and Hispanic populations. However, in every case, the bulk of the reason for such growth was the size of the increase in the regional population for the group. The growth of baccalaureate holders among the African-American population was fifth in the region, yet a significant portion of its growth too was associated with the growth in the size of the underlying population.

Figure 9: Factors Contributing To Growth in Four-Year College Completion By Race and Ethnicity (for age 25+)



We are now ready to explore the consequences of minority population growth and educational attainment for the future workforce of New England states. Let us begin by posing the following “what if” question: What happens if the basic demographic rates for the New England states stay at the levels they were in the 1990s?³²

Our premise of status quo demographic rates might seem like a very strong, perhaps too strong, assumption. But if the most recent data constitute our best information about these rates, we ask—Why not see what happens if rates remain constant? Our premise is also consistent with what demographers commonly discover—namely that, over long periods, demographic rates often prove to be constant.³³

³² An alternative way of stating the question might be: What will the population come to look like by age and race/ethnicity, given the population currently residing in each of the New England states if migration, birth, and mortality rates all remain at the levels which we have most recently experienced?

³³ **Appendix 4** will show that when we conducted similar modeling a decade ago, holding demographic rates as they had been in the 1980s and projecting forward the implications of this set of assumptions, we produced a forecast of population that was very close to what actually occurred. In sum, the historical record suggests that our “what if” scenario is, at a minimum, a reasonably reliable one for producing accurate forecasts.

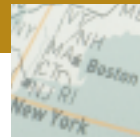
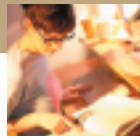
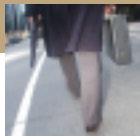
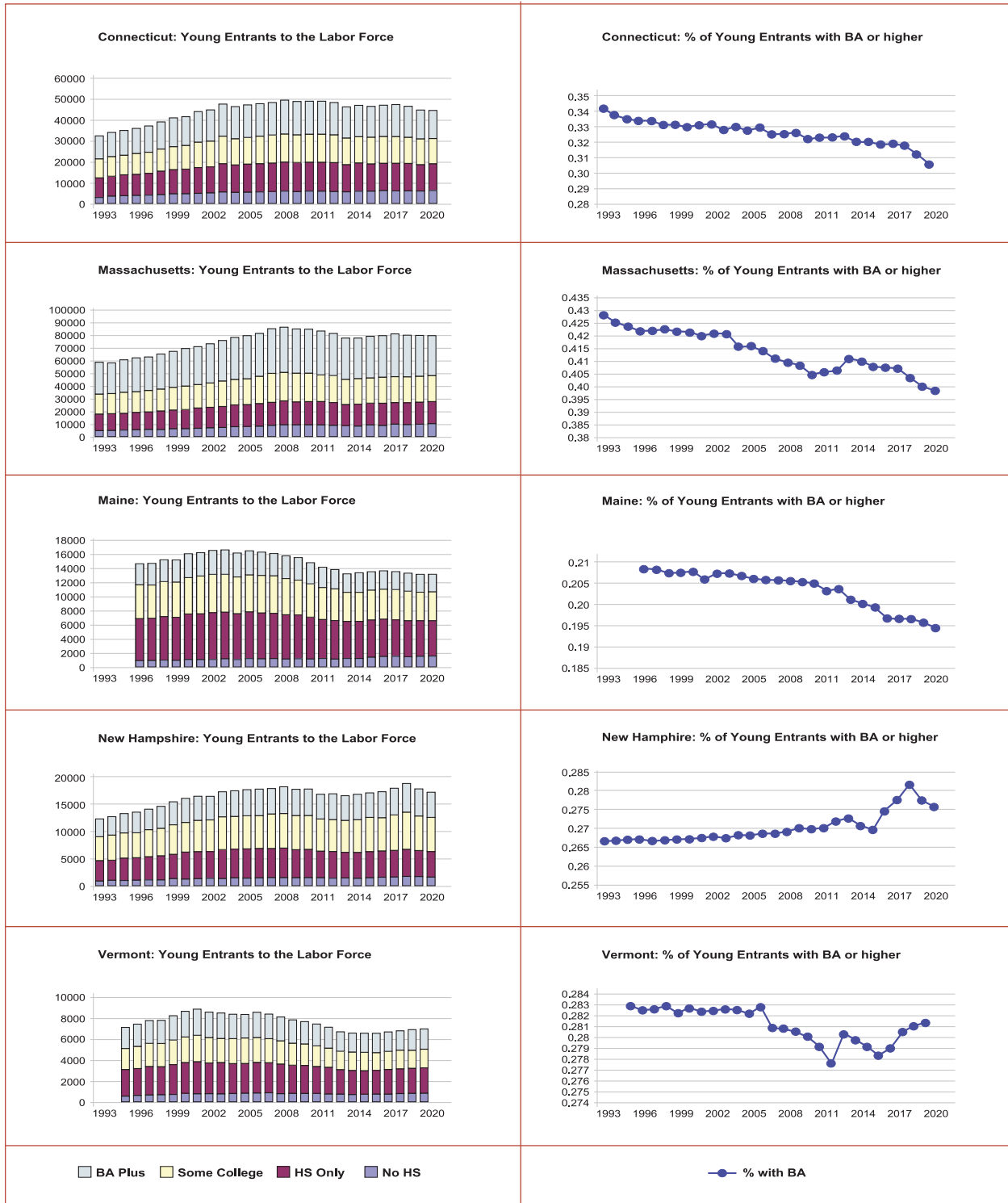
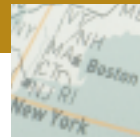
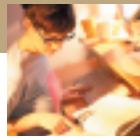
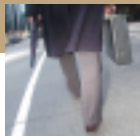


Figure 10: Level of Educational Attainment Among Young Entrants To The Labor Force in Five New England States





Once we accept the assumption of the resiliency of long term demographic trends, we can turn to the specific question of educational attainment. Here the question we pose is: What if the future population does not make progress toward improved educational attainment, but instead, the rates of attainment (completing high school, entering college, and completing college) by age, race, and ethnicity remain static? For our analysis, we adopt the premise that this will be the case.

...New England states are clearly not growing so robustly that they can afford to be inattentive to the needs of any segment of their workforces.

Adopting the premises suggested above is important because it allows us to track two elements simultaneously: The change in the size of the overall population and the changes in race and ethnic composition.³⁴

Figure 10 shows the results of our modeling. The following graphs forecast educational outcomes for the population of 30 year-olds in each of the New England states through the year 2020. Similar to our earlier approach that focused on 25-29 year-olds, we have chosen to focus on this particular age because it best characterizes that critical group of relatively young workers that are just establishing roots and entering a state's labor force.³⁵

Figure 10 contains two series of graphs for each state to illustrate different points. As noted above, the first graph shows the number of young people expected to reside in each state by level of their educational attainment.³⁶

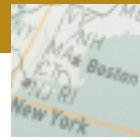
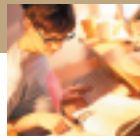
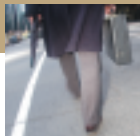
However, the second graph speaks to the central message of this report. It shows an essential detail that is not adequately highlighted in the left panels—namely, the percentage of those young people who are likely to possess a baccalaureate degree.

We can draw two important conclusions from **Figure 10**. The first is that New England states are clearly not growing

³⁴ On the one hand, we can say that, if we are holding the educational attainment rates constant, there will be no effect on changes in the numbers of persons of various levels of attainment entering the workforce if there are no shifts in the volume and race/ethnic proportions of those entering the workforce. On the other hand, we should wish to know just what the change is because the proportions and volume do change, holding demographic rates constant. **Appendix 5** shows the analytical plan used here in forecasting enrollment attainment. It provides results consistent with those reported earlier for the whole population, but the techniques use different data and methods since they are designed to produce educational attainment rather than population. The data used in making the earlier forecasts of the population focused on the population by age, race and ethnicity. The data used here to forecast educational attainment focuses students enrolled in school and on the educational processes of going through school. By using data on numbers of persons of various grade levels through high school in the various states, we get an excellent handle on numbers moving through the system toward graduation. This was the technique that we had used in our earlier work of **Beyond 2000**.

³⁵ Rhode Island is not shown because the underlying data on school enrollment by race and ethnicity was incompatible with the data by race and ethnicity from the educational attainment tables of the 2000 Census.

³⁶ All students with Associate degrees, if they had no more advanced degree, are subsumed in the broad category of "some college." Also note that **Figure 10** shows data on a population that reflects a range in age of only one year. This is not easily comparable to the data shown in **Figures 5** and **6** because these use population categories with age ranges of 25-29 and 25-64, respectively. One reason is that, as age categories expand, larger categories typically show smaller fluctuations in their size over time. For example, in this study variations appear largest in **Figure 10** and in **Figure 6**, and smallest in **Figure 5**. In addition, the analyses that produced **Figure 10** are based on different data and techniques than those used in **Figures 5** and **6**. This is because the two analyses serve different purposes. The earlier analysis was designed to give the best estimates of shifts in race and ethnicity of the New England populations. The objective of the latter analysis was to produce the best estimate of the educational attainment of the New England population. We ask readers to let stand the differences in age categories and fluctuations and focus on the shifts in race and ethnicity in previous graphs and shifts in educational attainment in the present one.



so robustly that they can afford to be inattentive to the needs of any segment of their workforces. The educational attainment of every resident has significance. The series of panels on the left in **Figure 10** indicates that the numbers of young people entering the workforce will grow only modestly or not at all depending on the state. In the absence of some new spur to growth in the size of this population, the region's long-term labor force prospects are troubling.

Most importantly, we can state conclusively that all New England states, with the possible exception of New Hampshire, will find that a decreasing percentage of their young population will hold BAs or higher-level degrees in years to come. Consider the following:

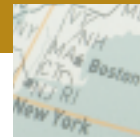
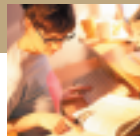
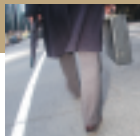
- New Hampshire's percentage of young people with Bachelor's degrees (as a portion of all young residents) is projected to increase only slightly from about 26.5% to 27.5%;
- Connecticut and Massachusetts, the most developed states in the region, will suffer the largest declines of young four-year degree holders. Among the young, the number of those that will hold a baccalaureate or higher degree will shrink by 3% or more. Connecticut's percentage will fall from 34% in 1993 to 30.5% in 2020; Massachusetts will fall from nearly 43% to less than 40%;
- Smaller states are poised to suffer declines as well. The percentage of young people with Bachelor's degrees (as a portion of all young residents) in Maine will fall from 20.8% in 1990 to 19.5% in 2020. The comparable figures are 28.3% to 28.1% for Vermont.

Should these losses materialize, the vaunted educational advantages of New England will have evaporated in the space of three decades.

1-6 Review of Key Findings

Demographic Trends

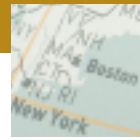
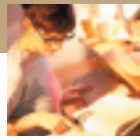
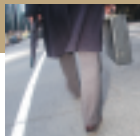
- The demographic composition of New England states is changing rapidly and without question the most salient feature of that change is the influence of minority populations, especially their effect on net migration into and out of New England states.
- The out-migration of the region's white population in the 1990s and the in-migration of minority populations have played out differently in each state. For example, the white exodus from Massachusetts in the 1990s was more than matched by a minority influx. In fact, the state's minority population, comprising just 16.4% of the Commonwealth's total population, is responsible for an inflow of residents that was almost twice (193%) the size of the state's outflow of residents.



- On the other hand, Connecticut's white exodus was so large that even a substantial minority influx was not enough to make migration a net positive force for population growth.
- In Vermont, where the minority population is just 3% of the state's population, the in-migration by minorities represented 26% of the state's total in-migration. In Maine, 3% of the population (namely, minorities) accounted for 35% of the state's in-migration.
- The future growth of the region's minority population depends much its fertility, age-related migration pattern and the degree to which it is youthful.
- For example, Connecticut's Asian and Hispanic in migration rates are strongly positive almost regardless of the age of migrants, yet the state's white migration rate is never positive (i.e. net inflow) even among the 15-24 year-olds that typically contribute a "bump" as they arrive for college.
- Massachusetts enjoys the most prominent "bump" in migration rates in younger age categories, and that "bump" is prominent among minorities. This implies that the dynamic of students in-migrating for college strongly helps minority growth in Massachusetts.
- In sum, while states are found to range widely in the size, age, and race characteristics of their populations, the long-term outcome is shared by all: The region's minority population is much younger and exhibits higher fertility and in-migration rates than the majority population, and is therefore likely to grow much faster in the future than the majority (white) population.

Workforce Trends

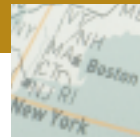
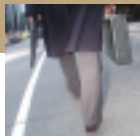
- Rapid minority population growth will have large effects on the future size and composition of the working-age populations in New England states.
- Even though all of the New England states grew in the 1990s, only Vermont's and New Hampshire's working-age populations appear likely to continue to grow if the demographic trends of the 1990s are perpetuated.
- Massachusetts, Rhode Island, Connecticut and Maine are all predicted to have notable declines in their populations aged 25-64. Moreover, there are not likely to be significant gains in the working-age population in the remaining New England states, New Hampshire and Vermont.
- By 2020 more than a quarter of Massachusetts (28%) and Connecticut's (28%) working-age population will be composed of minority populations. Rhode Island will follow closely behind (25%).



- The youngest workers in these three states are even more likely to be minorities. By 2020 nearly half of the 25-29 year-olds will be minorities in Massachusetts, Connecticut, and Rhode Island.
- In the northern tier states, the share of the young minority population (25-29 year-olds) will also increase (4-8%), but their share will lag well behind their southern New England neighbors.
- The forecast for the young component of the working-age population (25-29 year-olds) is not encouraging for Vermont and Maine. Between 2000 and 2020 there are likely to be declines of roughly 5% and 15% in the total numbers of 25-29 year-olds entering the workforces of Vermont and Maine, respectively.
- The forecast for white 25-29 year-olds is for a decline in all New England states, most significantly in Rhode Island, Maine and Connecticut, at rates of roughly 25%, 21% and 20%, respectively. If it were not for the predicted growth in their minority populations, these states will be even more hard pressed to find young workers to fill jobs and fuel their economies.

Education Trends

- The region's track record in raising overall levels of educational attainment over the past several decades has been good. Since 1970 the number of persons in the labor force without a high school degree has fallen in every New England state.
- However, the causes of the increases in educational attainment are many. The largest factor behind the growth in New Englanders earning bachelor's degrees in the 1990s has been an increase in the level of "college participation." More widespread pursuit of college level studies accounted for a quarter to one-third of the total growth in completions of four-year degrees.
- In broad educational terms, the adult minority populations in New England gained ground in the 1990s. However, both absolute and relative differences in outcomes persisted among minority groups and the region's adult white population.
- For example, the region's African-American adults have seen positive increases in achievement from 1990 to 2000. But the numbers of African-American adults that participated in college (up 5.6%) and the number of college degree holders (up 1.2%), have increased more slowly than the numbers for whites (up 7.3% and 4.7%, respectively). The result is a widened achievement gap.
- 58% of Hispanic adults were found to have completed high school in comparison to 86% of the white population. Among those who completed high school, 55% of the Hispanic population continued on to

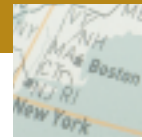
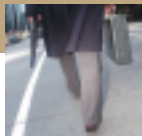


college compared to 66% of the white population. Similarly, only 40% of the Hispanic population that began college completed it with a four-year degree as compared to 56% of the white population.

- For Hispanics, growth in the number of four-year degree holders (up 63%) has not kept pace with the growth in the population (up 66%).
- For other minority groups, while the increase in those completing college exceeds the group's population growth, the growth difference is much smaller than for the white population. For example, the numbers of whites with four-year degrees grew more than six times faster than total population growth (26% growth in baccalaureate holders compared to 4% growth in the population). In contrast, not a single minority population saw its growth in baccalaureate holders even double its growth in population.

The Workforce Forecast

- Based on current trends in population growth and educational attainment, we predicted that between 1990 and 2020, the numbers of young people entering the New England workforce will grow only modestly or not at all, depending on the state.
- With the possible exception of New Hampshire, all New England states will find that a decreasing percentage of their young population will hold a four-year or higher-level degree in years to come.
- New Hampshire's percentage of young people with four-year degrees (as a portion of all young residents) is projected to increase slightly from about 26.5% to 27.5%.
- Connecticut and Massachusetts, the most developed states in the region, will suffer the largest losses of four-year degree holders. Among the young, the number of those that will hold a baccalaureate or higher degree will shrink by 3%. Connecticut's forecast call for a decline from 34% in 1993 to 30.5% in 2020; the Massachusetts forecast calls for a decline from nearly 43% to less than 40%.
- Smaller states are poised to suffer declines as well. The percentage of young people with baccalaureates (as a portion of all young residents) in Maine falls from 20.8% in 1990 to 19.5% in 2020. The comparable figures are 28.3% to 28.1% for Vermont.
- Needless to say, should these losses materialize, the vaunted educational advantages of New England will have evaporated in the space of three decades. In the absence of some new spur to growth in the size of this population, the region's long-term labor force prospects are troubling.



Part Two

Why The Forecast Is Not Fate: Towards A New Role For Colleges and Universities

2 Overview of the Argument

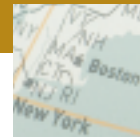
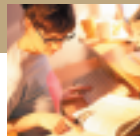
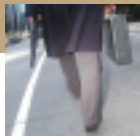
The shortfalls in educational attainment and the resulting shortage of educated workers predicted in Part One naturally raises the question of what can be done. Finding solutions requires us to again immerse ourselves in the demographic past. If there are lessons to learn about how to solve our future woes, it is in the past that we will find them.

This section argues that the central feature of our recent past should be our starting point: The region's record of feeble population gains.

The conclusion of our analysis is that the six New England states cannot continue to post meager population gains—or in some cases shed residents—at past rates and still enjoy the economic prosperity and quality of life we have come to expect. We suggest that, in coming to grips with our region's population growth challenges, we can simultaneously make inroads into the educational attainment and workforce quality challenges that loom ahead.

For example, Part Two details Connecticut's loss of mid-life and older workers in the 1990s. The state lost 85,000 40-64 year-olds between 1990 and 2000—a staggering figure nearly equivalent to the population of Waterbury, the state's fifth largest city. Massachusetts fared little better. Its 96,000-person loss in this same group represented 2.5% of the working-age population—the equivalent of losing a city the size of New Bedford.

Fortunately, population declines such as these are only half of New England's demographic story. Despite a staggering exodus, the six New England states have historically been able to increase their populations by attracting newcomers from elsewhere. We find that over the past fifty years, 86% of the differences in population growth among New England states can be traced to their varying successes in attracting in-migrants. But understanding this aspect of New England's demography in turn prompts these questions: *In the future, who will be New England's in-migrants and why will they come here?*



We suggest that the college-age population is the answer to these questions. We argue that that a greater appreciation for the value of college students, and the value of higher education institutions more generally, can put us on a path to solving both the broad population challenges and ultimately the possible shortages of educated workers predicted in Part One.

The research we present in this section shows that, by drawing young people into the region, our higher education institutions are, in effect, creating a steady, reliable supply of “replacement residents” who are proving crucial in sustaining the regional economy. Using 2000 Census data, we looked closely at those who indicated

they had migrated into the six New England states between 1995 and 2000. We discovered that, in all states but New Hampshire and Maine, the in-migration rate for the college-aged was *more than twice as high* as the rate of migration for the general population.

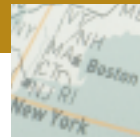
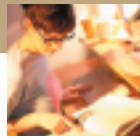
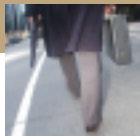
...by drawing young people into the region, our higher education institutions are creating a steady, reliable supply of “replacement residents” who are proving crucial in sustaining the regional economy.

In Massachusetts, for example, the in-migration rate for those aged 18-29 (a category that captures both undergraduate and graduate students) was 27% while the rate for all ages was just 10%. The difference in Vermont was 32% versus 15%. In sum, we can say with confidence that, to the extent states did attract new residents from outside their borders, those individuals were much more likely to be college students than commonly recognized.

And when we turned to other Census data specifically distinguishing students from non-students in various age categories of in-migrants, the data revealed that education was the motive for *more than half of all in-migrants aged 20-24* in every New England state except Connecticut and Maine. Even these two states were close with, respectively, 43% and 44% of their age 20-24 entering populations arriving for education purposes.

Moreover, one in three in-migrants aged 15-19 came to Maine, New Hampshire, and Connecticut for school purposes. And, more than half of 15-19 year-old in-migrants to Rhode Island, Massachusetts, and Vermont, came to study. The fact that some captured in this age group are too young to be arriving for college makes the high percentage even more compelling.

We conclude by noting that all states do not performed equally well in their ability to attract students from outside their borders—whether from outside the region or from other New England states. For example, Rhode Island and Vermont did quite well in attracting close to half (47% and 45%) of their total students from outside their states, while the other four New England states succeeded in attracting only about one-third of



their total students from elsewhere. Overall, the states drawing students most heavily from outside the New England region were, in rank order: Massachusetts, Connecticut, Rhode Island, and Vermont. Though for their part, Maine and New Hampshire actually drew relatively better from within the region.

2-1 The Past As Prelude—A Second Look At Demographic Change in New England

The story we present in the following pages is nuanced, but its essential parts are straightforward:

- First, we show that the region has grown much more slowly than the nation as a whole, and that the slow growth is the result of low levels of net in-migration.
- Second, we show that much of the existing migration into the New England region can be traced to a sizable influx of young people and that this type of migration has the capacity to bring students into the region for varying periods of time depending on the state.

Consistent with Part One, our research is again focused mainly on the period 1990-2000, the last complete decade bracketed at both ends—as it happens—by Censuses and economic downturns. We rely heavily on data from the respective Censuses because they remain the single best available source of information for the populations being studied. Second, we rely on them because the 1990s can be considered a distinct economic period. The side effects of business cycle-related perturbations on population at the beginning and the end of the period tend to cancel each other out (because conditions in 1990 and 2000 were so similar), permitting a more reliable interpretation of long-term trends.

New England, like the rustbelt region, has grown in population much more slowly than the rest of the nation. Growth in the region over the last half of the 20th century was largely associated with internal regional redistribution, with some states exceeding the nation over the period—but only primarily as a result of their draw from other states in the region. Overall growth in New England has persistently lagged behind the rest of the country, growing from 1970 to 2000 at less than half the U.S. rate.

Figure 12 shows that in the 1950s—despite the end of the nation’s wartime footing, the development of “commuterization,” and the dramatic takeoff of the national economy— Connecticut alone among the region’s states outgrew the nation.³⁷ This may have been the only *real* regional growth in the last half of the 20th century, and may have been simply the result of residential choices made by workers in the greater New York metropolis looking for more land and larger homes even at a cost of long daily commutes.

³⁷ **Figure 12** shows, in a dashed line for each decade, the national growth rate. Bars represent State population growth during each decade; those bars that pass through the dashed lines indicate State growth that exceeds U.S. growth.

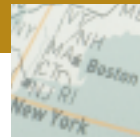
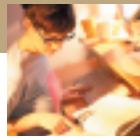
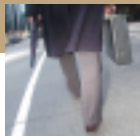
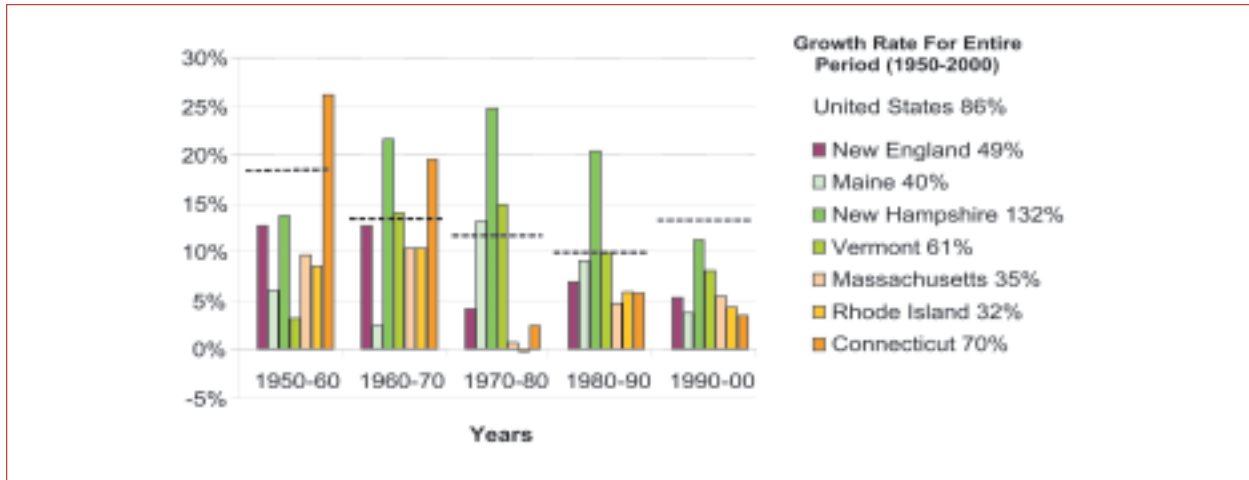


Figure 12: Growth in the Population of the New England States



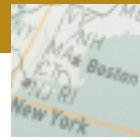
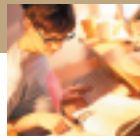
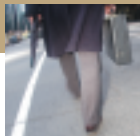
The strong growth in Connecticut lasted only into the 1960s. Besides Connecticut, the only states in the region to outgrow the nation in the last half of the 20th century were the increasingly appealing, predominately rural, northern tier states of New Hampshire and Vermont. These two New England states grew faster than the nation in the 1960s and 1970s, although they were joined briefly during the 1970s by Maine.

By the 1980s, New Hampshire, with its low taxes, continued alone to grow faster than the U.S. However, growth in the northern tier New England states did little more than absorb those relocating from southern New England; the migratory flows represented little net influx from elsewhere in the U.S. Further, losses of southern tier population to their northern regional cousins were not enough to explain all of the losses in population in the southern tier.

The net result of these regional population declines was a dual loss of both “person power” throughout all New England labor markets, as well as political power in Congress. Reports like **Blueprint 2000** in Massachusetts during the 1980s, came surprisingly late in recognition of the demographic dilemma faced by the region. Neither was this type of analysis widely pursued. Reports documenting the population declines were issued only in southern tier states that could not help but recognize their loss of labor force during the 1980s.

With the loss of Massachusetts’ first seat in the House of Representatives in the 1970s, the region’s political power began to decline. In all, three congressional seats across the region were lost in three decades, representing 12% of New England’s prior regional representation. Increasingly, the region began to ask itself: What happened? Why can’t we seem to hold onto our population? What does this bode for the future viability and health of New England states? These questions linger today.

This Brief is then a response to the above question that grounds itself in a search for simple facts about the New

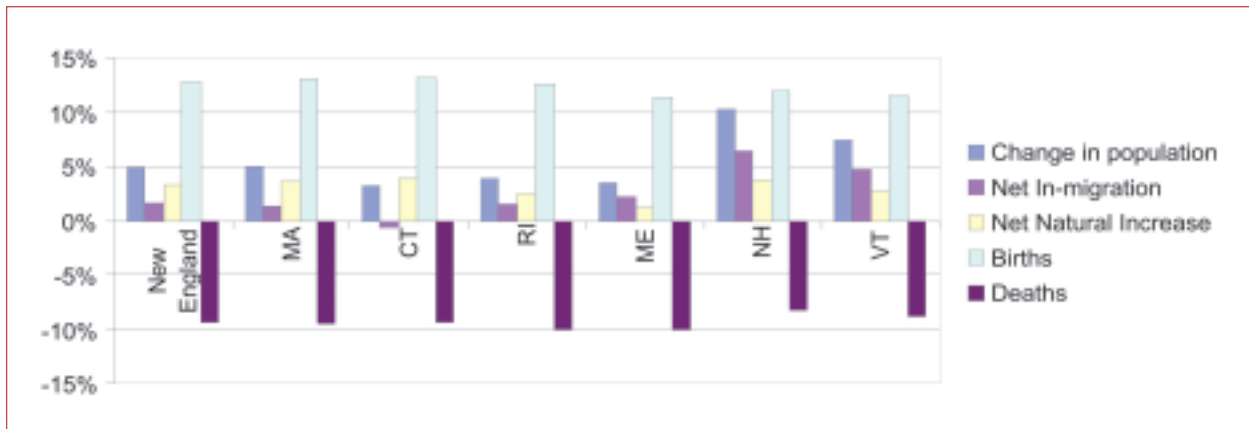


England region's growth. We begin not with any particular theoretical framework that would direct us to any one set of explanations, but with a search for facts—just how has the population changed in the region when compared to the nation and among the six states themselves? We believe the underlying causes of change in the region will—in the course of our documenting some basic facts—reveal themselves readily.

2-2 The Most Important Source of Population Growth For New England States

Identifying the prime engine of population growth in New England states is not a challenging task, as **Figure 13** indicates. While the graph shows slow growth across the states (generally less than 5%), most telling is the difference between the faster growing northern tier states and the slower growing southern tier states. At the heart of this difference is a disparity in the level of net in-migration.

Figure 13: The Sources of New England's Population Change in the 1990s



And what is true about this northern-southern split is equally true for the region as a whole: **Figure 13** shows how slow growth for the region reflects low levels of in-migration, rather than other potential causes of slow growth such as small net rates of natural increase (excess births over deaths).

In fact, when we calculate the square of the correlations of the net in-migration and net natural increase with the change in population (**Table 6**), we find that more than 86% of the change in the population of the New England states over the last five decades of the 20th century can be explained by net in-migration. By comparison, only 11% of such change is then explained by the natural increase.³⁸

³⁸ **Table 6** reports the squared correlations which give the percentage of the change in any one variable that can be explained by any other, assuming a simple bivariate relation between pairs of variables.

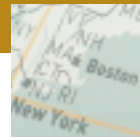
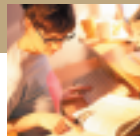
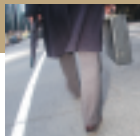


Table 6: The Overwhelming Influence of In-Migration on Population Growth in New England From 1950-2000

Two Factors Behind Population Growth In New England And Their Relative Contribution To Overall Growth	
Net In-migration	86.6%
Net Natural Increase (excess births over deaths)	11.4%

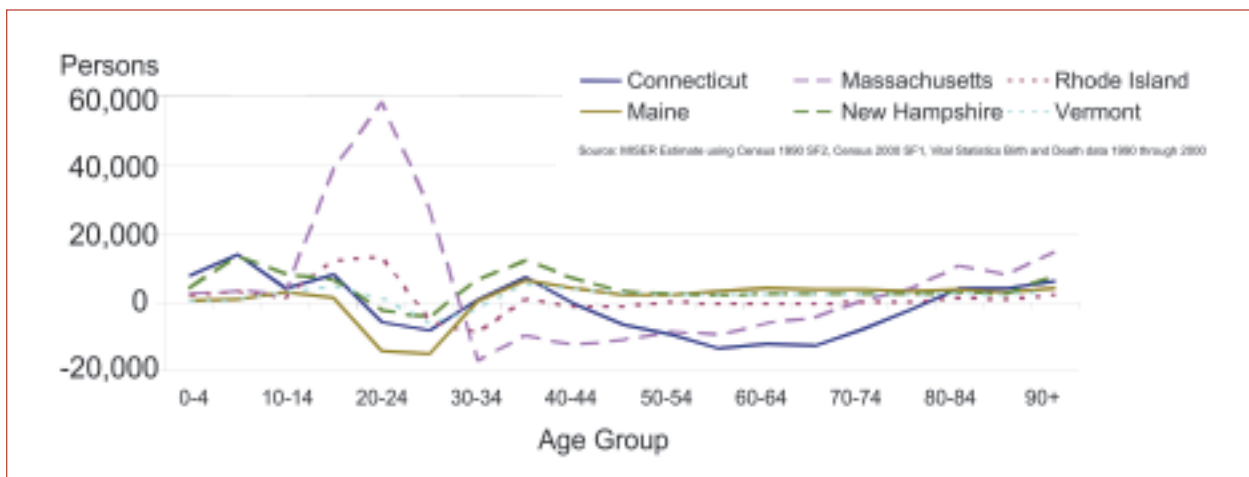
2-3 Evidence For The Youth of In-Migrants

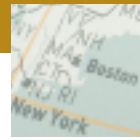
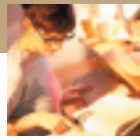
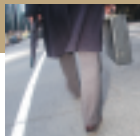
Because of the special role of migration in regional growth, we now turn our attention to the age of the migrating population, maintaining a narrow focus on the period from 1990 to 2000.

Figure 14 examines the varying levels of migration by age across the region. It shows similarities in migration patterns with only a few exceptions worth comment. One of the exceptions evident in **Figure 14** is the contrast between those states displaying small but positive amounts of net in-migration of their population aged 40-64 (sometimes even up to age 69) and those with out-migration in the same age group.

Connecticut and Massachusetts suffer persistent out-migration of their mid-life and older working-age populations. In Connecticut, the loss of 40-64 year-olds between 1990 and 2000 was significant—an 85,000-person loss. The loss in this age group represents 3.92% of the state’s working-age population. Massachusetts fares little better. Its 96,000-person loss represents roughly 2.5% of the working-age population. These population losses surely represent a loss of significant permanent economic capacity.

Figure 14: Net Migration Among New England States in the 1990s By Age





The second exception to the otherwise broad similarities in migration across the New England region is the sizable differences in migration levels for those aged 15-34. In all cases, the difference in the migration of persons 15-34 when compared with the migration of those older or younger is sizable. As will be discussed, it is most likely due to the powerful effect of higher education decision-making. In some states, like Massachusetts and Rhode Island, there is significant net in-migration for purposes of attending college. In other states such as Maine, Connecticut, and New Hampshire, there is significant net out-migration for college or post-graduate schooling.³⁹

The negative net migration numbers in the working-age populations of Connecticut and Massachusetts as shown in **Figure 14** indicates how difficult it has been for these two largest New England states to maintain their primary working-age populations. Despite positive economic conditions, high employment rates, and healthy income gains for much of the 1990s relative to the rest of the nation, the economies in Connecticut and Massachusetts evolved during this period in ways that may have undermined their ability to maintain their sizable populations. Intense competition facing local companies from out-of-state or international competitors may have contributed. Decisions by local companies to restructure in the face of competition by relocating some operations out-of-state while maintaining high wage and salary income for remaining employees also may help explain the phenomena.

2-4 Evidence For The Student Status of In-Migrants

The previous section shows the relative youth of in-migrants, but is there hard evidence that they are largely college students? Census data supports a definitive, yes.

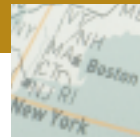
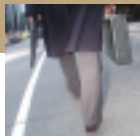
Figure 15 is based on the number of people in each New England state in the year 2000 who reported living elsewhere five years earlier but who, at the time the 2000 Census was taken, were enrolled in post-secondary college programs.⁴⁰ Calculating the number of persons who fit this category allows us to estimate the total migration into each New England state during the five years 1995-2000.⁴¹

Figure 15 makes clear that about one-third of young in-migrants aged 15-19 arriving in Maine, New

³⁹ While college attendance does not begin at age 15, the behavior of the entire age group of 15-19-year-olds is influenced by college migration that begins in earnest at age 18. We find in **Figure 14** that all of the states (perhaps excluding Maine), on net, strongly attract the 15-19 age group because of the presence of high quality colleges in the various New England states.

⁴⁰ **Figure 15** is based on detailed Census 2000 PUMS data.

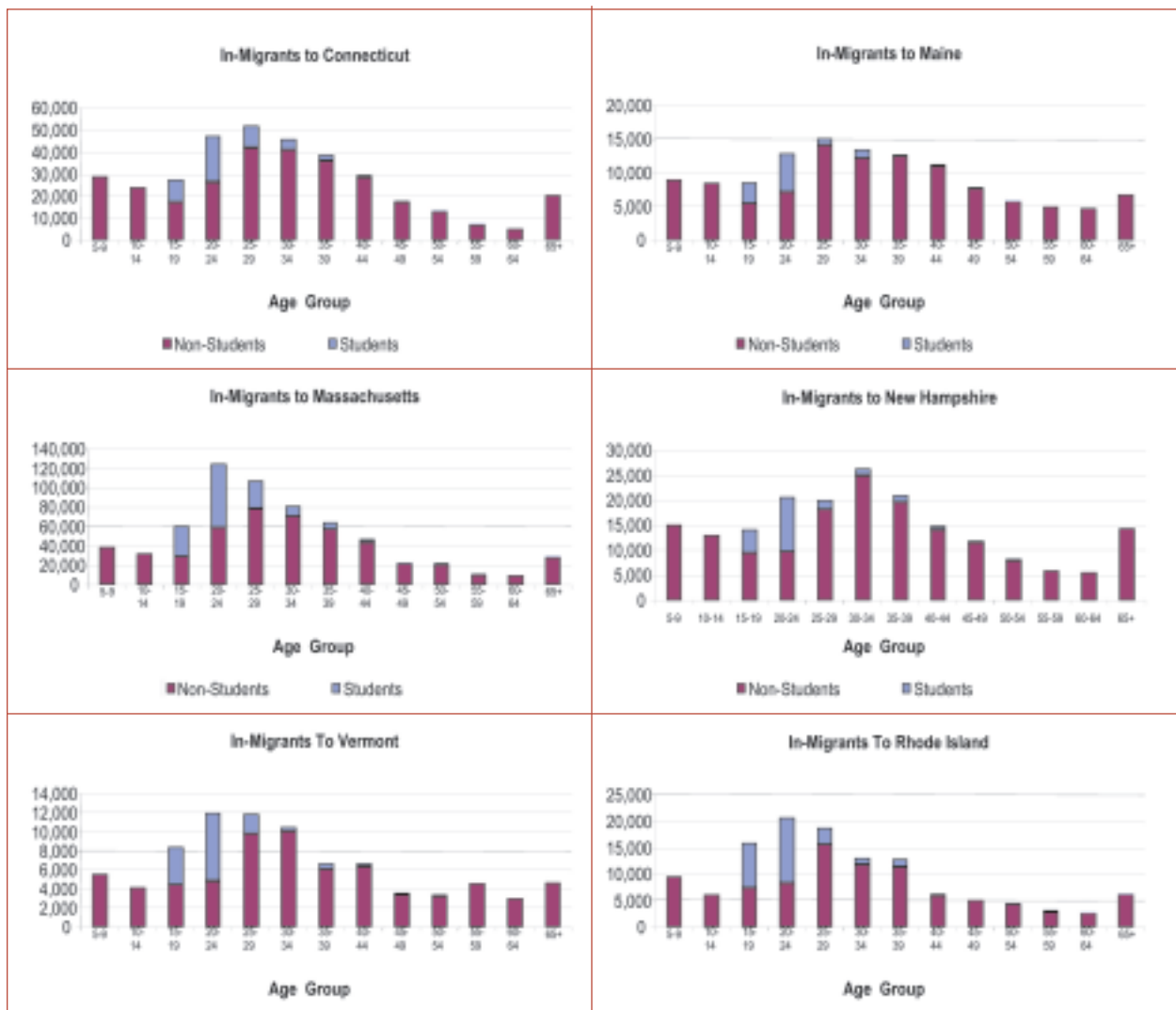
⁴¹ It is worth noting that, as some students may finish an undergraduate degree in exactly four years (the nominal time for a "four-year" baccalaureate degree), **Figure 15** likely understates the role which college plays in migration decisions. This is a complicated question since the number of years one spends in school working toward a "four-year" degree is quite variable. Similarly variable is the continuity of progress at a single school and the potential starting date for the cohort that was a) elsewhere in 1995, b) in a specific N.E. state in 2000, and c) enrolled in school. On the other hand, many of the cohort that moved in Fall 1995 would have graduated in 1999 (others in 2000 or later, getting counted as still in school by the 2000 Census). If maintaining residence in their college state, they would look like in-migrants not enticed by college when actually they are, hence our use in the text of the phrase "likely understates."

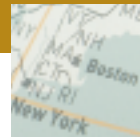
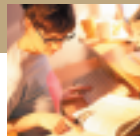
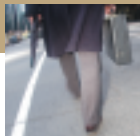


Hampshire, and Connecticut have come for school purposes.⁴² Even more noticeable, more than half of those aged 15-19 coming to Rhode Island, Massachusetts, and Vermont, come for school.

For all but Massachusetts, Rhode Island, and Vermont, the percentages rise sharply in the age range 20-24, showing the prominence of traditional undergraduates entering college at 17-18 in Rhode Island, Massachusetts, and Vermont. A close look at the age 20-24 category similarly reveals that education is the motive for migration for the majority of in-migrants in all New England states except Connecticut and Maine. Even these two states are close with 43% and 44% of their age 20-24 populations arriving for education purposes, respectively.

Figure 15: In-migration and Participation in College at the Time of In-migration For Each of the New England States (1995-2000)





For ages greater than 25, the percentage of those arriving for education drops significantly lower. The overall in-migration rate gradually declines as well, with the qualified exception of New Hampshire. In the Granite State in-migration remains strong for those in their thirties. In this case, in-migration may be more a function of people arriving for new jobs, coupled with a perception of lower tax burdens and living costs.

2-5 Additional Evidence For The College-Aged As A Source of Growth

Figure 16 shows other interesting features of gross in-migration in New England states.⁴³ Most important, for all states, one can see the preponderance of in-migration in the college-age categories. In every case, the second of the columns for each state far surpasses the first and third columns indicating higher propensities of migration among college-age populations, compared to the general and the working-age population. In all cases but New Hampshire and Maine, the in-migration rate for college-age students is more than twice as high as the rate of migration for the general population.

Also of note, New Hampshire attracts the fewest migrants from outside the region—the most from within. This is consistent with the perception that New Hampshire mainly grows as the result of relocation from within the region. But surprisingly Rhode Island, and less surprisingly, Vermont and Maine follow in close proximity.

On the other hand, Massachusetts and Connecticut overwhelmingly attract in-migrants from states outside of the region. Connecticut brings almost 90% of its in-migrants from beyond the region; Massachusetts brings more than 80% of its in-migrants from outside the region.

In all cases but New Hampshire and Maine, the in-migration rate for college-age students is more than twice as high as the rate of migration for the general population.

⁴² Stark differences exist in the migration behaviors of those coming into New England by age and by the orientation of these migrants toward college. However, for every state in New England there appears to be a greater number of in-migrants among the younger population (over 17 and less than 35). This reflects what is often called a greater “propensity” to migrate of some groups compared with other groups. Such “propensity” is a phenomenon of age. Many researchers have noted that the propensity of those in a certain age category to migrate holds reasonably constant over time for any given region. See Morrison, P.A., 1969, “Probabilities from Longitudinal Records,” in E.F. Borgatta (ed.), *Sociological Methodology*, San Francisco, Josey Bass, pp. 286-294; Greenwood, M.J., 1968, “An analysis of the Determinants of Geographical Labor Mobility in the United States,” *Review of Economics and Statistics*, vol. 51, pp. 189-204; and Shaw, P.R. *Migration Theory and Fact*, Bibliography Series Number Five, Regional Science Research Institute, Pennsylvania, 1975.

⁴³ **Figure 16** is based on detailed Census 2000 PUMS data.

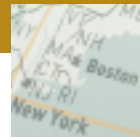
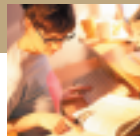
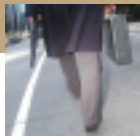
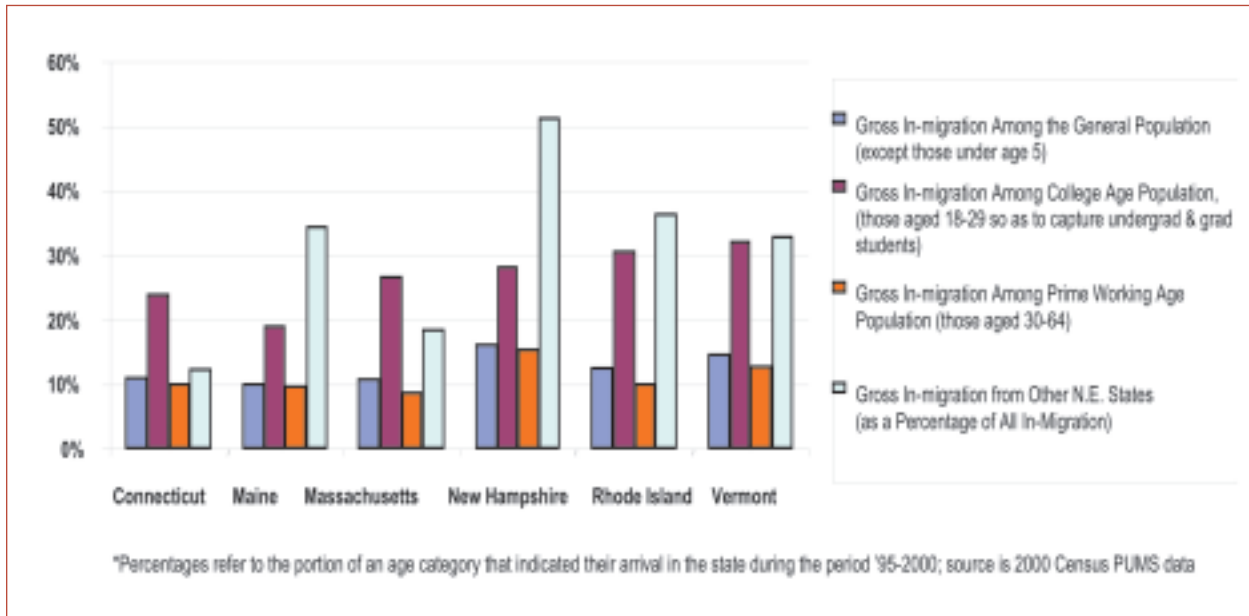


Figure 16: Various Gross In-Migration Rates For Six New England States



2-6 A Closer Look At Student Enrollment Patterns In The Region

As we have noted, student-age populations have a much higher propensity to migrate than the rest of the population. Thus a closer view of the origins of student populations enrolled in each state's higher educational system is useful.

Figure 17 shows data on the origin of all student enrollments by state and by type of institution.⁴⁴ Here, however, rather than relying on individual institutional reports used in compiling IPEDS, the data is derived from a large, 1% sample of the population. Persons in this sample were asked: whether they were enrolled in school at the time of the 2000 Census, in what sector (public or private), and where they lived five years earlier in 1995.⁴⁵

⁴⁴ This data was derived from the 2000 Census Public Use Microdata System (PUMS). It is similar to that contained in the biennial series from the National Center for Educational Statistics' (NCES) Institutional Post-secondary Educational Data System (IPEDS). The IPEDS data is done only biennially and has a very long lag time before it is reported for public use. At the time that we computed these data from PUMS, the latest IPEDS data available was for 1998.

⁴⁵ Some who report that they lived somewhere other than in a specific New England state in 1995 and who were in school in the state in 2000 may have moved into that state prior than 2000 for purposes other than their pursuit of education and then decided on going to school after migrating. But we suspect that we will have identified most persons correctly as arriving from other states and for college purposes.

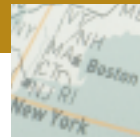
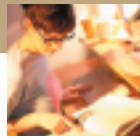
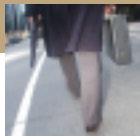


Figure 17 also shows that Massachusetts in the late 1990s ranked highest in the percentage of the public institution students coming from in-state origins (80%). Maine and Connecticut trailed a reasonable distance behind at 74% and 70%, respectively. This has been the result of a long-standing state mandate in Massachusetts that public institutions limit their out-of-state draws.⁴⁶

Figure 17: Origin of Students Enrolled in Each New England State

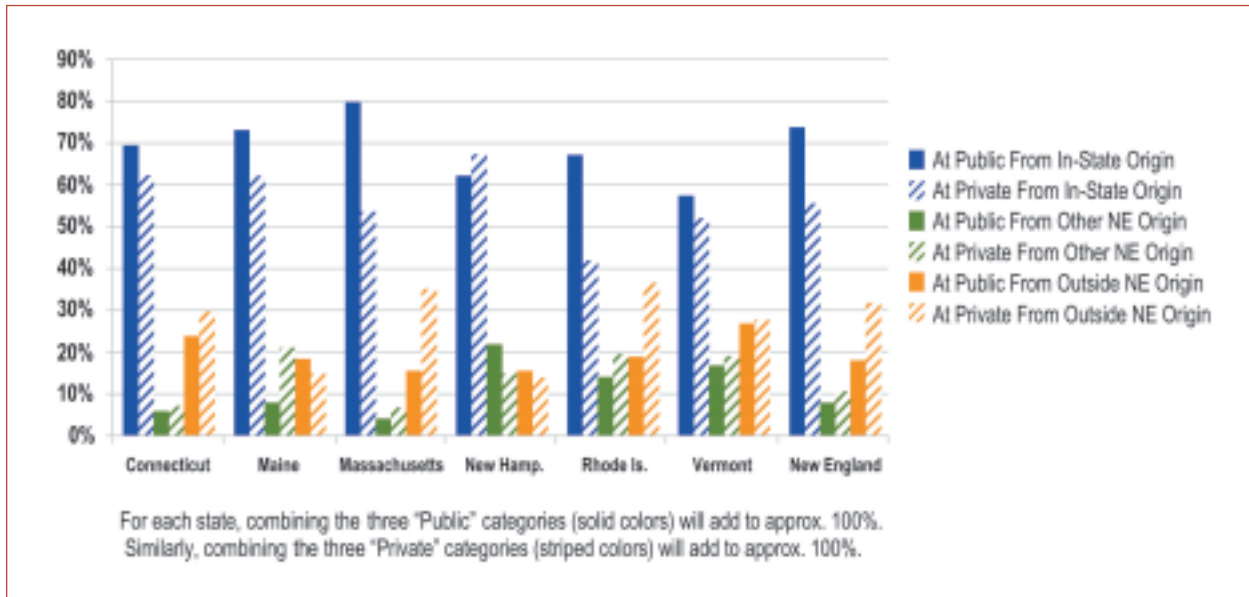


Figure 17 reveals interesting developments among private sector institutions as well. For example, despite the reputation that highly selective private institutions in Massachusetts enjoy as schools that draw deeply from national pools, the Commonwealth only ranks third in relative terms among New England states in such a draw. Only 45% of Massachusetts private college students come from out-of-state compared to Rhode Island and Vermont's private institutions which draw 56% and 46% of their private students, respectively, from outside of their borders.

Given the complex and diverse mix of students enrolling in the public and private institutions in the various states, it is somewhat surprising that, in terms of the total draw of students from outside the region, only Rhode Island and Vermont look much different from the others. This is evident in **Table 7**. Whereas Rhode Island and Vermont attract 47% and 45% of their total students from outside their states, the other four New England states attract much less (35% or less) of their total students from elsewhere.

⁴⁶ The University of Massachusetts throughout much of the 1990s operated under restrictions requiring that the percentage of undergraduates coming from outside of the Commonwealth be kept under 15%. This requirement was subsequently lifted; yet, in all the New England states the expectation remains that schools receiving public support should reserve the majority of their slots for in-state residents.

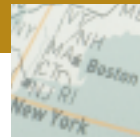
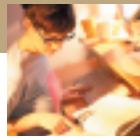
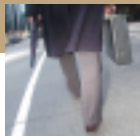


Table 7: New England States Have Varying Levels of Students With Origins Outside the State

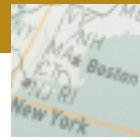
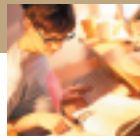
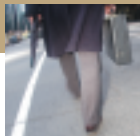
College Student Enrollments Originating From Outside the State	
Rhode Island	47%
Vermont	45%
Massachusetts	35%
New Hampshire	34%
Connecticut	34%
Maine	2%

Returning to **Figure 17**, notice that New Hampshire and Rhode Island, followed quite closely by Vermont, enroll the largest percentage of their students from other New England states. These range from 15% in Vermont to 19% in New Hampshire.

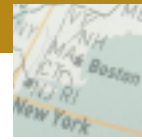
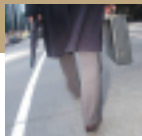
According to **Figure 17**, the states drawing most heavily from outside of the region are, in order of rank: Massachusetts, Connecticut, Rhode Island, and Vermont. Rhode Island and Vermont can be characterized as drawing the most from out-of-state overall because they are the only two states that draw both from other New England states and from outside of the region. For their part, it appears that Massachusetts and Connecticut draw relatively better from beyond the region, while Maine and New Hampshire draw relatively better from within the region.

2-7 Review of Key Findings

- The extent to which existing migration into the New England region can be traced to a sizable influx of young people is largely unappreciated. The duration of stay for this particular kind of migration is quite variable depending on a young person’s affinity for the region and the opportunities that present themselves during his or her stay.
- Slow growth for the region has resulted from low overall levels of in-migration, and not from other causes such as low levels of natural increase (excess births over deaths).
- More than 86% of the change in the population of the New England states over the last five decades of the 20th century can be explained by net in-migration.



- Connecticut and Massachusetts suffer persistent out-migration of their mid-life and older working-age populations. In Connecticut, the loss of 40-64 year-olds (between 1990 and 2000) was significant—an 85,000-person loss. The loss in this age group represents 3.92% of the state’s working-age population. Massachusetts fares little better. Its 96,000-person loss represents roughly 2.5% of the working-age population.
- About one-third of young in-migrants aged 15-19 arriving in Maine, New Hampshire, and Connecticut have come for school purposes. Even more noticeable, more than half of those aged 15-19 coming to Rhode Island, Massachusetts, and Vermont, come for school.
- A close look at the age 20-24 category similarly reveals that education is the motive for the migration of a majority of in-migrants in all New England states except Connecticut and Maine. Even these two states are close, with 43% and 44% of their age 20-24 populations arriving for education purposes, respectively.
- In all states but New Hampshire and Maine, the in-migration rate for college-age students is more than twice as high as the rate of migration for the general population.
- Despite the reputation that highly selective private institutions in Massachusetts enjoy as schools that draw deeply from national pools, the Commonwealth only ranks third in relative terms among New England states in such a draw. Only 45% of Massachusetts private college students come from out-of-state compared to Rhode Island and Vermont’s private institutions which draw 56% and 46% of their private students, respectively, from outside of their borders.
- Rhode Island and Vermont attract 47% and 45% of their total students from outside their states, while the other four New England states attract much less (35% or less) of their total students from elsewhere.



Part Three

3 Conclusions and Policy Implications

The second part of this study detailed an interesting aspect of the recent era of demographic change in New England: The often unheralded but central role that local colleges and universities play in bringing young people to the region, providing a steady supply of young workers—workers crucial in sustaining the regional economy.

Every New England state needs an economic/education strategy, embraced by its business, government, education, and non-profit leadership, to bring college students here and keep them here.

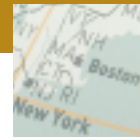
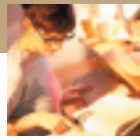
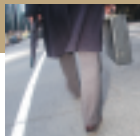
We believe that a renewed appreciation and investment in our higher education infrastructure can go a long way to stemming or reversing both the predicted shortages of educated workers entering the workforce set forth in **Part One**, as well as help address the broader (and related) challenge of regional population decline or stasis that was set forth in **Part Two**.

To be sure, an argument that the health of New England's higher education infrastructure matters a great deal for the region's future prosperity is far from novel.

But our research suggests this is true not simply for the often cited reasons of innovation, new technologies, and sizable research funding that higher education institutions contribute, but because young people arriving in pursuit of college degrees have become arguably the single remaining bright spot in an otherwise bleak outlook for attracting fresh entrants into our local labor markets from elsewhere.

It is not an understatement then to suggest that our future hinges on whether thousands of young people will launch their educations, their graduate studies and their careers here in New England. Understanding the importance of college students as a wellspring of our population growth compels us to expand our conception of higher education institutions, recognizing them not only as sources of innovation, but also as the remedy for our workforce woes, and ultimately, as the region's best insurance policy against economic stasis and decline.

We need then to take up the task of crafting new state policy agendas. Every New England state needs an economic/education strategy, embraced by its business, government, education, and non-profit leadership, to bring college students here and keep them here. And for those young people native to the region, our policies



must help persuade them to enroll and stay here in far greater numbers than at present.

Because much of the long-term demographic changes in the New England states seems to be associated with college attendance and student decisions about educational programs, the public policy initiatives with the most potential to foster future in-migration and prevent possible future shortages of educated workers, are those policies aimed at improving the quality, access, and affordability of our higher education institutions. Anything we can do to raise college participation, retention, and completion rates beyond their current levels will have lasting demographic and economic consequences.

Particularly important are business/higher education/K12 partnerships that develop college aspirations and college readiness as early as middle school. Such partnerships can boost college participation rates of native young people and support their entry into the economy. This is especially important in these times when population growth remains low and encouraging in-migration remains a challenge.

Also worthy of consideration are campus-to-workplace “bridge” programs in which industries, state policy-makers, and higher education institutions collaborate much more closely to encourage recent graduates to pursue careers in high demand areas of the economy. Another need is to expand and systematize internship opportunities so students develop connections to potential workplaces long before graduation.

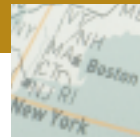
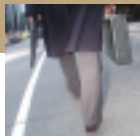
Finally, we note that a vibrant higher education system does not permanently inoculate states against out-migration of their former college students. The college experience introduces a new population to the various states, but whether this population remains or not, depends also upon the environment students enter upon completion of their baccalaureates or post-graduate schooling. The “Housing Report Card” recently issued by the Boston Foundation identified Boston as the most expensive metropolitan area in the nation—a distinction not lost on the current generation of students.

The task before us then could not be more clear: States need to do whatever is necessary to ensure that our colleges and universities are able to do what they do best: Give young people a reason to come here and the skills to stay and build their future here. Our own future depends upon it.

...for those young people native to the region, our policies must help persuade them to enroll and stay here in far greater numbers than at present.

3-1 Note on Appendices

Seven **Appendices** to this study, as well as other supporting materials, are available under separate cover and



can be downloaded in electronic form from www.nmefdn.org. This extensive body of material expands on several arguments contained herein and provides documentation of the models and methods used.

3-2 Acknowledgements

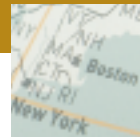
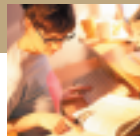
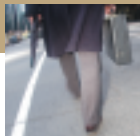
This project was the result of an extended team effort. Key among the team members were Suzanne Smith and Becky Forrest, both of whom worked full-time gathering information on the region from various sources, including data from several decades of decennial Censuses as well as from other federal and state databases. Suzanne and Becky labored diligently to integrate data when differences in racial and ethnic categorization among state and federal sources were discovered. In addition, Suzanne and Becky helped conduct all of the analyses, developed much of the graphical presentations, and supervised the graduate research assistants working on the project. The latter included, most significantly, Maria Del Pilar Mendoza and Bob Lacy who explored various aspects of the region's growth.

Professor Kathryn McDermott and Andrew Churchhill were instrumental in helping collect qualitative data that informed the structure and conclusions of this study. Stephen Culp's skill at graphic design is evident throughout the document. Lastly, we express our thanks to Neil Mello of NJM Strategic Issue Management whose fingerprints on the final product are far-ranging and deep, and whose contributions as editor proved indispensable.

3-3 About The Authors

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Joseph B. Berger is an Associate Professor of Education and Chair for the Department of Educational Policy, Research and Administration in the School of Education at the University of Massachusetts Amherst. He earned his B.A. in anthropology and sociology from Lawrence University (WI) in 1986; his M.A. in college student personnel from Bowling Green State University (OH) in 1990; and his Ph.D. from Vanderbilt University in 1997. Berger's work focuses on the ways in which organizational and policy structures relate to the opportunities and challenges associated with college access and postsecondary degree attainment, particularly for those students who have been traditionally under-represented in higher education. He has



received several national awards for his research, and serves on the editorial boards of *Research in Higher Education*, *Journal of College Student Development*, and *Journal of College Student Retention*.

3-4 About The Nellie Mae Education Foundation

The Nellie Mae Education Foundation is the largest philanthropy in New England that focuses exclusively on promoting access, quality and effectiveness of education. Based in Quincy, Massachusetts, the Foundation provides grants and other support to education programs in New England that strive to improve underserved students' academic achievement and access to higher education. The Foundation also funds research that examines contemporary educational opportunity issues that affect New Englanders, and convenes educators, policymakers and community members to influence public policy in education.

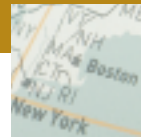
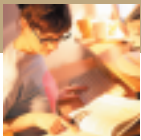
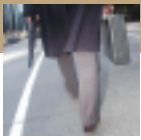
Since it was established in 1998, the Foundation has awarded more than \$63 million in grants and support.

By adopting a strategic and engaged approach to grant making, the Foundation hopes to make a significant contribution to improving educational achievement and opportunity. It seeks to add value by sharing responsibility for program effectiveness, outcomes and creating knowledge with program providers. The Foundation focuses its grant making on student achievement within four program areas:

- **Adult Literacy:** Increasing the number of non-traditional, Adult-Basic Education students that transition from New-England adult literacy programs into college, and funding programs that contain strategies geared toward fostering intergenerational, adult and family literacy.
- **College Prep:** Growing the number of underserved students in New England who, through effective university-school partnerships, are prepared for admission and success in college.
- **Minority High Achievement:** Increasing the number of students of color in New England who achieve at the highest levels through middle, high school and college-based programs that exemplify high expectations and intensive academic support.
- **Out-of-School Matters!:** Boosting enrollment and improving the academic effectiveness of out-of-school programs in New England that serve low-income, middle school youth and explicitly focus on improving in-school achievement.

To learn more about the Nellie Mae Education Foundation, please visit www.nmefdn.org.

Note that the views expressed in this publication are those of the authors and do not necessarily reflect those of the Foundation's Board, Advisors, or staff.



Notes:



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