NEW ENGLAND Transformed

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In April 1975, I joined the Federal Reserve Bank of Boston as an economist specializing in regional issues. New England and the nation were just reaching the bottom of a very severe recession, with signs of recovery not yet evident. The 1973-75 recession had been deeper in New England than the nation, and the region's recovery was expected to be slower. Worse, New England had seen its per capita income slip relative to the rest of the country and was viewed as an old region, with an industry mix heavily oriented to uncompetitive and declining industries.

Today, we still speak about New England being old, but now the focus of concern is the age of the population. We are less worried about our ability to compete for industries than our ability to attract and retain young people. New England, especially the Greater Boston area, has built a reputation for having reinvented its economy, and the region enjoys the highest per capita income of any part of the country. New England's globally renowned research universities and academic health centers have proven to be powerful engines of growth, fostering innovation and supporting sophisticated industrial clusters in life sciences and information technology and the nexus between the two. The region continues to face challenges, particularly in providing opportunities for those who do not possess advanced education and skills. But it has come a long way over the past four decades.

This essay discusses some of the changes that have occurred in New England over the past four decades, comparing the challenges we faced in the mid-1970s with those we face today.

New England in the 1970s

In 1975, New England's future did not look promising. Employment growth since 1950 had fallen well short of that nationally.[1] The recession of 1970-71 had been more severe in New England than the nation, and the region's recovery had lagged that of the nation. This scenario seemed to be replaying itself in the 1973-75 downturn.

New England in 1975 was still contending with the legacy of its early industrialization. Manufacturing had flourished in New England when most of the country was still dominated by farming. The region's early industrial start was the foundation for its prosperity. But industries that had been technological leaders in the 19th century struggled to compete in the 20th — first, against firms in other parts of the country and by the 1970s, increasingly against overseas competitors. Yet so dominant had the textile and shoe industries been in their heyday that even in the mid-1970s,

after years of decline, they were still sizable — albeit declining — employers. Newer, more vibrant manufacturing industries, notably electronics and aircraft engines, had emerged; but these were tied to defense spending, which was sharply curtailed as the Vietnam War wound down.

Adding to New England's woes was the oil embargo of 1973 and the resulting increase in oil prices. New England was much more dependent upon oil than the rest of the country, relying on oil for heating and electricity generation as well as for transportation. Elsewhere, natural gas and coal were more important fuel sources for non-transportation needs. Because of New England's dependence on oil, energy costs rose much more in the region than in the country as a whole.[2]

Anxieties about the future were particularly acute in Massachusetts and Rhode Island. Both states had been centers for the textile industry. Both states were severely affected by the closing of military bases in the early 1970s. Both states had developed reputations as hostile to business, and Massa-

chusetts had acquired the nickname "Taxachusetts" for its high tax burden.

Competition for manufacturing jobs from "Sunbelt" states in the South and West was a key concern, but competition within the region was also an issue. New Hampshire had been growing more rapidly than the rest of the region. While New Hampshire's success was commonly attributed to its low taxes and a pro-business attitude, many in Massachusetts thought that New Hampshire took advantage of its proximity to its larger neighbor and the more generous public services provided by Massachusetts.

Some things change; some things stay the same

The precarious state of New England's future in 1975 seemed to be summarized by the decline in its per capita income from 109 percent of the national average in 1970 to 103 percent in 1975.[3] Despite the challenges of the post World War II years, per capita income in New England had remained close to 10 percent above the national average. But now, New England was losing ground. And the southern states were making rapid gains. Would New England and the South trade places?[4] This was more than a purely economic issue.

In fact, the South's role in the nation has grown, while New England's shares of U.S. employment and population have declined — from 6 percent in 1970 to 5 percent today. But in terms of income, New England has performed extraordinarily well. Per capita income in New England in 2010 is 20 percent above the national average, the highest of any major region of the country. Some will note — correctly — that the cost of living is higher in New England than in much of the country; so per capita income overstates the region's economic well-being. But the high cost of living in New England was also a lament in 1975, when relative incomes were much lower.

What went right in New England? Among the developments contributing to New England's relative prosperity were

- rising educational attainment in the region;
- relatively strong economic growth in the late 1970s and 1980s; and
- slow population growth in the 1990s and 2000s.

The region's research universities have been important engines of growth, and new industrial clusters have emerged based on concentrations of advanced skills and knowledge sets.

Rising educational attainment

Educational attainment was higher in New England than the nation in 1970, but not strikingly so. Despite a concentration of prestigious colleges and universities in the region, the fraction of the adult population in New England with at least a bachelor's degree was only 12.1 percent compared with 10.7 percent nationwide.[5] Massachusetts and Connecticut had larger fractions of college-educated adults than the nation, but the college shares in Rhode Island and Maine were below average.

Over the next three and a half decades, New England's margin of superiority widened even as educational levels rose everywhere. As of 2008, 35 percent of adult New Englanders had college degrees, compared with a national share about 28 percent.[6] Of the six New England states, only Maine was below the national average. Furthermore, New England's college graduates were more likely than their counterparts nationally to have advanced degrees.

Since college graduates earn substantially more than high school graduates and since this college premium has increased since the 1970s, rising educational attainment might seem a sufficient explanation for New England's high relative income.[7] However, the timing does not match. The bulk of New England's income gains occurred in the 1980s, while its educational level has continued to increase relative to that elsewhere.

It is probably more accurate to say that New England enjoyed a burst of growth from the late 1970s to the late 1980s that boosted productivity and incomes. Subsequently, despite episodes of economic stress, New England was able to maintain its position because educational attainment continued to rise and labor force growth slowed.

Advances in educational attainment did more than impart skills to the workforce. Higher levels of education facilitated the emergence of new industrial clusters based on state-of-the-art technology and concentrations of highly educated workers. Among these were computers and related manufacturing industries in the 1970s; software and information services in the 1980s; and more recently, life sciences activities. Additionally, throughout this period, elements of New England's financial services industry have been on the forefront of both financial innovations and information management. All of these industry groups compete nationally and internationally; productivity and pay are high. But they are not immune from recession or competitive challenges. The transformation of New England has not made it recession-proof. And in times of falling labor demand, net outmigration has acted as a safety valve, supporting wages and income levels.

A short history

While not obvious at the time, 1975 was a turning point for New England. The region recovered strongly from the recession and enjoyed relatively vigorous growth for the following ten years. The economic challenges of the first part of the 1970s had overshadowed the emergence of a new set of firms and industries that came to be characterized as "high technology industries." The quintessential high tech industry was the minicomputer industry, which flourished in the Greater Boston area and southern New Hampshire. But much of the region saw growth in manufacturing firms employing large numbers of scientists and engineers.

The rise of high tech in New England has been chronicled in many places.[8] Technological advances at the region's universities, often sparked by defense-related research, and the entry into the labor force of highly educated baby boom workers were key drivers. Not only did the rise of high tech contribute directly to the region's prosperity, but it also changed New England's image in a fundamental way: a region once seen as stagnant came to be viewed as dynamic and innovative.

New England flourished. Governor Dukakis of Massachusetts ran for president in 1988 on the basis of the "Massachusetts Miracle" and the state's transformation into a national and global high tech leader. Per capita income in New England in that year was 120 percent of the national average.[9] The regional unemployment rate was 3 percent.[10]

Increasing prosperity drove up housing prices. In the Boston area, the median sales price of an existing single family home rose from about 20 percent above the national average in 1983 to double the national average in 1988.[11] Construction took off, not only for housing but also for office, industrial, and commercial buildings.

And then the boom imploded. Construction had surged ahead of more fundamental drivers of the New England economy. High tech had begun to struggle in the mid-1980s, as the minicomputer companies succumbed to competition from personal computers and as the Reagan defense build-up came to an end. Overall growth remained strong, however, as construction had taken over as an economic driver in its own right. But when construction began to falter, the underlying weakness in fundamentals was exposed. The faltering became a plunge, and a host of construction-related industries were dragged down. Housing prices fell. Commercial property values collapsed. Many New England banks, which had lent heavily against real estate, failed. Banking problems in turn affected credit availability and added to the challenges already facing New England businesses.

WITH VERY HIGH PAY LEVELS, THE SECURITIES INDUSTRY'S CONTRIBUTION TO EARNINGS IS MUCH LARGER THAN ITS CONTRIBUTION TO JOBS. PROFESSIONAL AND TECHNICAL SERVICES, ESPECIALLY COMPUTER SYSTEMS DESIGN; INFORMATION; AND EDUCATION AND HEALTH SERVICES ALL PERFORMED WELL.

While the recession of 1990-91 was relatively mild in the country as a whole, for New England it was a regional version of the Great Recession of 2007-2009. Wage and salary employment in the region fell 10 percent.[12] Declining housing prices caused foreclosures to soar, as homeowners who lost their jobs and could not make their mortgage payments could neither sell nor refinance. People moved out and migration into the region fell off.[13] This population outflow and the resulting slow growth in the regional labor force helped cushion the effect of the falloff in labor demand.

New England saw a gradual return to prosperity as the decade of the 1990s unfolded. Driving the recovery were a more diverse group of industries than the high tech manufacturing and services that had been so important in the 1970s and 1980s. Financial services, especially the securities industry, grew vigorously in southwestern Connecticut and Greater Boston. With very high pay levels, the securities industry's contribution to earnings is much larger than its contribution to jobs. Professional and technical services, especially computer systems design; information; and education and health services all performed well. Massachusetts, in particular, was on the forefront of both the dot.com and telecommunications booms.

By 2000, New England seemed to be on top again. The region's per capita income was 20 percent above the national average; the regional unemployment rate was 2.8 percent — the lowest in the country.[14] Housing prices in much of the region had recovered in nominal terms, and the rate of appreciation was beginning to accelerate. The manufacturing sector, however, remained severely challenged. In 2000, New England had only 1 million manufacturing jobs, compared with 1½ million twenty years earlier. Job losses were widespread and included sophisticated industries like computers and aircraft engines as well as lower-skill, lower-wage industries. Since the middle of the 19th century, the New England economy had been distinguished by the high fraction of its workforce in manufacturing. In 1980, 24 percent of employment in New England was in manufacturing, compared with 18 percent nationally. But in 2000, manufacturing's share of employment had fallen to roughly 12 percent in both the region and the nation.[15]

The 2001 recession hit Massachusetts hard. The rest of New England fared about the same as the nation. But cutbacks in spending on technology equipment and software after the Y2K date change, the bursting of the dot.com bubble, and the stock market decline all affected sectors important to Massachusetts. Once again, the combination of economic distress in Massachusetts and better circumstances elsewhere in the country triggered outmigration, cushioning the rise in unemployment. In contrast with the experience in the early 1990s, the regional housing market remained very strong. Homeowners could easily sell and move to regions of greater opportunity.

Recovery was slow. Education and health care, professional and technical services, the securities industry and real estate provided most of the jobs. Manufacturing employment continued to decline.

And then came the Great Recession. Although not quite as severe in New England as the nation, the recession showed the same general pattern in both. The experience of individual New England states varied considerably. For two years, Rhode Island had the second or third highest unemployment rate of any state, while unemployment rates in New Hampshire and Vermont were consistently lower than rates in most states. Notably, Massachusetts fared somewhat better than the nation, in contrast with the recessions of 1991 and 2001. Also in contrast with the experience in the two preceding recessions, outmigration from New England did not increase. Economic conditions in most of the country were no better than in New England; and in some states that had been favored destinations for New England residents, conditions were substantially worse. At the end of 2010, New England — like the nation — was seeing a slow recovery.

Where are we now?

Clearly, New England cannot be considered a declining region today. While its shares of U.S. population and employment have declined, New England has had the highest income of any part of the country for the past twenty-five years. For much of that time, the region's unemployment rate has been below the national average.

Nevertheless, New England faces significant challenges. Many observers of the New England economy are concerned about the region's slow population growth and advancing age. The median age in all six New England states is above the national average. By this measure, Maine and Vermont are the oldest and second-oldest states in the country, and New Hampshire ranks fourth.[16] The explanation is not that the fraction of older people in New England is so much higher than elsewhere. It is higher; but a bigger difference is the smaller fraction of the population in New England that is under 18 years of age. After the baby boom, birth rates fell more in New England than in the rest of the country — and they have remained low ever since.

Aging population

The aging of the New England population raises several concerns. Many worry that an older population will have health care and other service needs that will place a fiscal burden on state governments. Growing numbers of state and local government retirees will also strain state and local government budgets. Interestingly, there is little discussion of the implications of the region's relatively small population of children. In considering the demands for government services, it seems logical to consider both ends of the age spectrum. One would think that fewer children would translate into less pressure on school budgets. The *total* dependency ratio, that is the ratio of the number of people too old and too young to work to the number of people of working age, is actually lower in New England than in most of the country.[17]

Another concern is that the aging of the New England population will result in labor shortages that could crimp the region's future growth. The availability of highly educated labor is considered to be one of New England's key competitive advantages; and as noted above, the entry into the labor force of highly educated baby boomers trained in state-of-the-art computer and other technologies is thought to be one of the reasons for the flowering of high tech industries in the region in the 1970s. These baby boomers are now reaching retirement age, raising the prospect of future shortages of skilled workers, with negative implications for the region's competitive position.

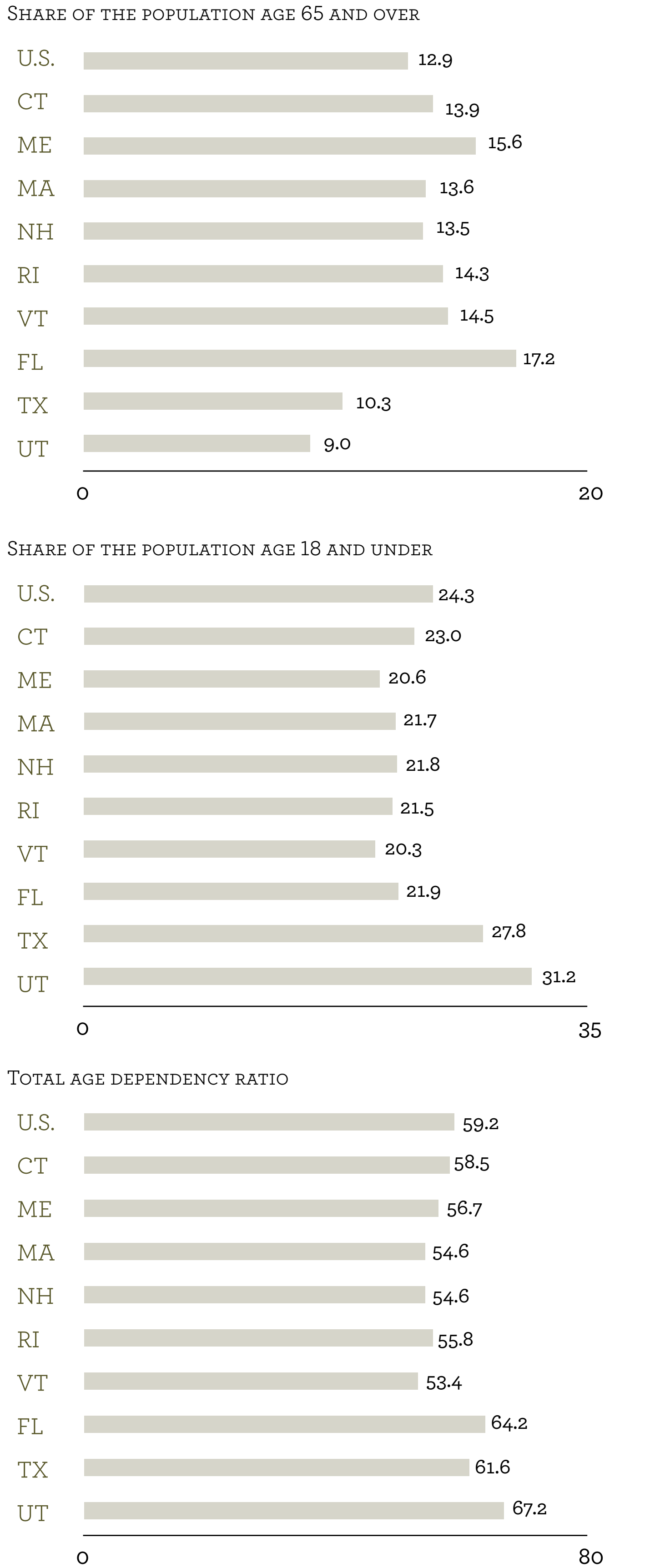
Over the past twenty years, however, New England has had to contend more with a shortage of jobs than a shortage of workers. There have been three severe recessions. Two of these, the recessions of 1991 and 2001, were deeper and longer in the region than the nation, contributing to net outmigration to the rest of the country. Given this history of weak labor demand and an unemployment rate in 2010 of over 8 percent, some New England workers might see the pending retirement of the baby boomers as a positive development — enhancing their own employment and earnings prospects.

Alicia Sasser Modestino of the Boston Fed recently examined in detail the potential for labor force shortages in New England. She found that the potential for shortages is greatest in the mid-skill range — in occupations requiring an associate's degree or equivalent, rather than at the upper end. These middle level skills are especially prevalent in health care and in office and administrative support occupations. The overall potential for shortages is most pronounced after 2020.

Although Modestino's projections suggest that the supply of higher skill workers may be adequate, at least in the aggregate, her analysis flags some worrisome developments. First, even in the recession year of 2009, vacancy rates for computer-related occupations, engineers, and scientists were quite high. And before the recession, vacancy rates were very high. While employment in high technology manufacturing and related services industries has fallen in recent years, high vacancy rates in key occupations raise the question of whether the competitive position of these industries has been adversely affected by shortages of specialized labor.

Perhaps of even greater concern are projections of future labor supply that show minimal increases in overall educational attainment. Minorities, especially Latinos, will be an increasing share of the labor force, both in New England and nationally. Because minorities have lower education levels than whites, this demographic shift is projected to limit increases in overall educational attainment — even al-

The Old, the Young, and Age Dependency Ratio New England and Selected States

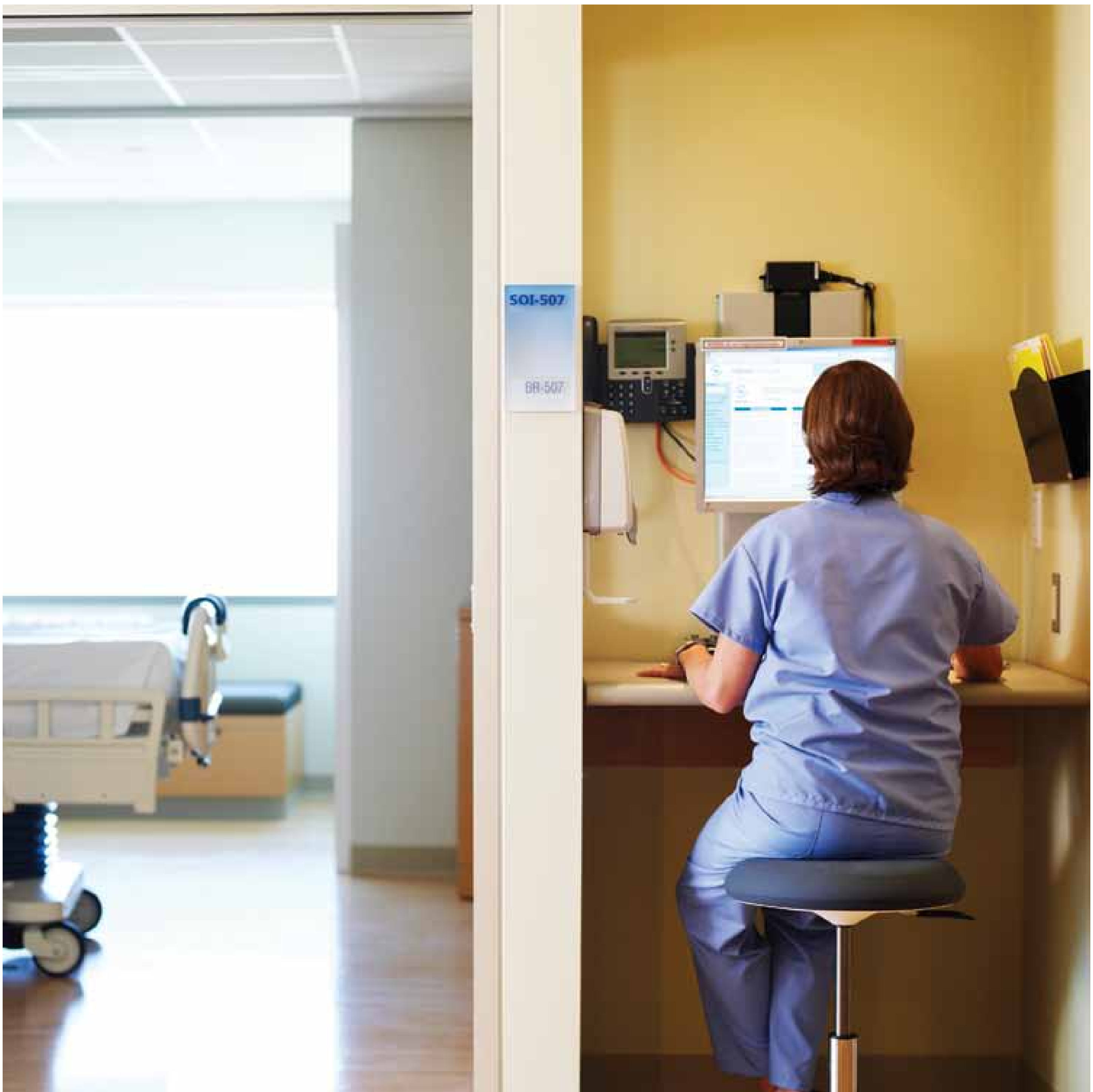


Source: U.S. Census Bureau, "Annual Estimates of the Resident Population by Sex and Age for States and for Puerto Rico, April 1, 2000 to July 1, 2009," June 2010, Table 16.

lowing for increasing educational gains among minority populations.[18] New England should maintain its educational advantage relative to the nation, but it seems unlikely to make much progress relative to its own past performance.

Why is this worrisome in the absence of projected shortages of high-skill workers? Because the supply of high-skill workers can create its own demand. The emergence of high technology industries in the mid-1970s was not a continuation of past trends. The entry into the labor force of the highly educated baby boomers played a key role in these industries' development. Further, concentrations of highly educated individuals from diverse fields can create a culture of innovation in which different perspectives, experiences, and expertise come together to generate new ideas that, in turn, lead to new opportunities. This networking is most often associated with Silicon Valley; but New England, especially the Boston area, has also benefited from this phenomenon.[19]

The region's research universities and, increasingly, their affiliated medical schools, have been important sources of innovative technologies that have formed the basis for new firms. These institutions are magnets for top students and researchers from across the country and around the world. Will these students and researchers choose to stay in New England? And if they choose to become entrepre-



THE REGION'S UNIVERSITIES AND, INCREASINGLY, THEIR AFFILIATED MEDICAL SCHOOLS, HAVE BEEN IMPORTANT SOURCES OF INNOVATIVE TECHNOLOGIES…THESE INSTITUTIONS ARE MAGNETS FOR TOP STUDENTS AND RESEARCHERS FROM ACROSS THE COUNTRY AND AROUND THE WORLD.

neurs, will they locate their businesses in the region? Research, again by Alicia Sasser Modestino, shows that New England's retention rate for non-native graduates is relatively low.[20] Moreover, foreign nationals, who compose a substantial fraction of the graduate-student population, face formidable hurdles when they seek to become permanent residents. However, a recent study of entrepreneurship at the Massachusetts Institute of Technology (MIT) indicates that MIT, the institution with the strongest reputation for generating new firms, remains an active source of new technology-based start-up businesses, many in close physical proximity to the universities.[21] Furthermore, other universities in the region are actively trying to emulate MIT in this regard.

Decline of manufacturing

While highly skilled workers have generally prospered in New England, workers without a college education have found their opportunities increasingly constrained.

The number of manufacturing jobs in New England has fallen by roughly half since the mid-1980s. For the past ten years, manufacturing employment nationally has also been falling rapidly. High productivity growth has contributed to the decline in manufacturing jobs. But in addition, manufacturers in both the nation and New England have lost ground to foreign competitors. In the past ten years, in industry after industry, employment has fallen sharply as imports have soared.

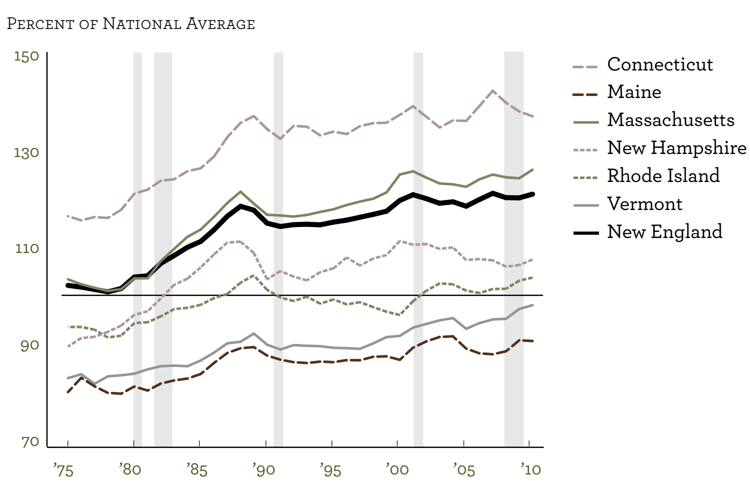
Historically, manufacturing production offered relatively high-wage jobs for people who lacked formal education. Construction, although a much smaller industry than manufacturing, was another option. However, with the Great Recession of 2007-2009, construction jobs plummeted. Men have been especially affected by the employment declines in both industries. And for many men who have lost their jobs in these industries, the alternatives are not promising. Opportunities to match the wages that they enjoyed in manufacturing and construction are few. Jobs paying comparably require more formal education.

More generally, educational attainment has not increased as much among men as among women. The ramifications of this situation are potentially far reaching. The lower levels of education among men, especially minority men, and the poor earnings prospects of men who lack college are thought to contribute to lower marriage rates.[22] Low marriage rates are, in turn, associated with more children born outside of marriage, more single-parent families, and higher rates of poverty.

Poverty rates in New England

Poverty rates in New England are lower than nationally by a considerable margin. All six New England states were below the national average in 2008, with New Hampshire having the lowest poverty rate of any state. But in some cities and towns poverty rates are high. Poverty rates are especially high, over 25 percent, in some of the region's former manufacturing centers — Hartford, Providence, Lawrence, and Springfield.[23] This geographic concentration of the poor creates negative spillovers that tend to be self-reinforcing — poor schools, higher crime rates, poorly maintained buildings and infrastructure. Communities with high concentrations of poverty face higher demands for public services, while at the same time local property tax and other resources are limited.

New England State Per Capita Income Relative to the National Average, 1975-2010



Source: Bureau of Economic Analysis, U.S. Department of Commerce.
Note: Shaded areas indicate recessions.

State governments have provided some relief through local aid, but their ability to help has been severely constrained in recent years by the Great Recession.

It could have been worse

Some challenges that seemed pressing in 1975 have either diminished or their consequences have been less dire than feared. The high cost of energy and New England's dependence on imported oil are a case in point. In 1975, the nation had just gone through an oil embargo that caused huge lines at gasoline stations and a sharp spike in oil prices. Because New England was much more dependent upon oil than the nation, many feared that higher oil prices would cripple the region's economy. But these fears have not been realized.

Conservation and increases in energy efficiency helped, as did the fact that New England industries were generally less energy intensive than industries nationally. Federal deregulation of natural gas prices led to increases in the supply of natural gas nationally and, eventually, in New England. Nuclear power plants that were under construction or in the planning stages in 1975 were completed and contributed importantly to the region's energy mix.

At times, over the next three decades, concerns about the adequacy of energy supplies, especially electricity, would intensify and lead to calls for aggressive action. But to date, ways have been found to meet New England's needs without draconian conservation measures, controversial new construction, or serious consequences for the region's economic growth. This is not to suggest that more should not be done to encourage conservation or to develop new energy alternatives. Rather, the point is simply that, to date, this has been a more manageable problem than was feared in 1975, and many of the energy issues confronting New England today, including how to address concerns about carbon emissions, are not unique to the region.[24]

Another problem that seems to have receded is New England's reputation as a high-tax region, hostile to business. This perception was attributable, in large measure, to Massachusetts. Each of the six New England states has a different political environment and a different strategy for encouraging economic development. But with half of the region's population and economic activity, Massachusetts' image tends to dominate. Moreover, some features of doing business in Massachusetts are mirrored in other states. All of the New England states are characterized by small municipal jurisdictions that wield considerable power. Environmental considerations and community character matter a lot in New England; so the process of securing building and other permits can be arduous. Political leaders in New England recognize the benefits of a streamlined approach, but local control is also much valued.

In 1975, many businesses leaders regarded Massachusetts as a pro-labor, anti-business state. Massachusetts had also embraced the Great Society with enthusiasm, expanding the social safety net and, in the process, increasing taxes.

To some extent, hostility to business was understandable, given a long history of disinvestment by the once dominant textile industry. However, with the emergence of the minicomputer and other high tech companies, a new group of business leaders came to the fore. These leaders aggressively pushed a more pro-business agenda, promising to create large numbers of high-paying jobs in return — and for a time, they delivered.

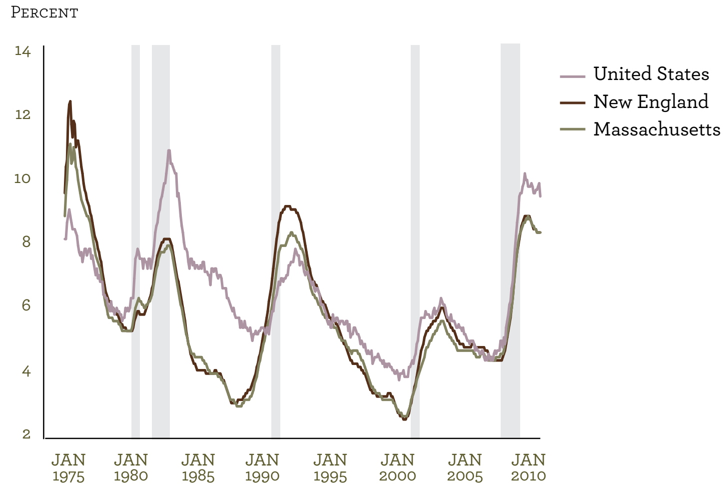
A key element of their agenda was lower taxes. There was also growing grassroots support for lower taxes, inspired in part by the example of California's Proposition 13. In 1980, Massachusetts voters passed a referendum limiting property taxes to 2 ½ percent of property values. Proposition 2 ½ redefined the tax situation in Massachusetts, exerting a restraining influence that remains to this day. At the same time, the Commonwealth began to promote itself as a business-friendly, technologically savvy place. Political leaders, as well as the public, embraced the dynamic, can-do image.

The recession of 1990-91 brought a hard end to the Massachusetts Miracle and threatened to revive old hostilities. Instead, however, political leaders of different stripes came together and made a number of tax and other changes intended to make the state more attractive to entrepreneurs and investors. Today, Massachusetts' tax burden compares favorably with that in most states.[25] However, while the reality has changed, Massachusetts may never be able to shed its catchy nickname as Taxachusetts.

Conclusions

New England is a different place today than it was back in 1975. Notably, New England has demonstrated an ability to prosper despite setbacks. Both in reality and in its image, New England has been transformed from a region dependent on older, traditional manufacturing industries to one that sustains itself through knowledge-intensive activities.

Monthly Unemployment Rate, 1975-2010
United States, New England, and Massachusetts



Source: Bureau of Labor Statistics and New England Economic Indicators.
Note: Shaded areas indicate recessions.

This transformation began with the simultaneous flowering of computer-based high technology industries and the entry into the labor force of young, energetic, highly educated baby boomers.

Now, the most pervasive concerns in the region center on the implications of the aging of the population. Some of the concern is based on the demand for services that an older population may impose. Some of the concern focuses on the possibility of labor shortages. Perhaps a bigger issue, however, is whether a projected leveling off in the region's educational attainment will adversely affect the region's capacity for innovation.

The loss of manufacturing jobs was a concern in 1975, and it is a concern today — but with a difference. Thirty-five years ago, the primary fear was competition from the Sunbelt states of the South and West. Today, both New England *and* the nation are challenged by aggressive and increasingly innovative global competitors. Energy, which seemed a critical problem for the region in the 1970s, remains a concern; but the dire consequences that seemed imminent have not materialized and New England's biggest challenges are, again, shared by the rest of the country.

As I look back over the past thirty-five years, I am struck, first, by New England's ability to adapt to changing circumstances and, second, by how quickly and unexpectedly circumstances can change.

Endnotes

[1] Lynn E. Browne, "The Impact of Industry Mix on New England's Economic Growth since 1950," Federal Reserve Bank of Boston, *New England Economic Indicators*, April 1977.

[2] Robert Eisenmenger and Richard Syron show the ratio of energy costs to manufacturers in New England to the cost to manufacturers in the rest of the United States rising from 1.5 in 1971 to 2.3 in 1974 in "The Energy Crisis and New England's Economy," *New England and the Energy Crisis*, Federal Reserve Bank of Boston, Proceedings of a Conference held in October 1975.

[3] Calculated from data in the Bureau of Economic Analysis, Regional Economic Accounts at http://www.bea.gov/regional/spi/action.cfm as found on February 17, 2011.

[4] See, for example, projections by the BEA's Regional Economic Analysis Division in "Regional and State Projections of Income, Employment and Population to the Year 2000," in the *Survey of Current Business*, November 1980. New England's per capita income falls to 98 percent of the national average by 2000, while per capita income in the Southwest rises to 98 percent. The Southeast remains the lowest income region.

[5] Yolanda K. Kodrzycki, "New England's Educational Advantage: Past Successes and Future Prospects," *New England Economic Review*, January/February 2000, Table 1.

[6] State educational attainment is from the U.S. Census Bureau, *Statistical Abstract of the United States*, 2011, Table 229, p. 151. New England figures are calculated by weighting state attainment by populations age 25 and above from U.S. Census Bureau, "Annual Estimates of the Resident Population by Sex and Age for States and for Puerto Rico: April 1, 2000 to July 1, 2008" as found at http://www.Census.gov/popest/states/asrh/SC-EST2008-02.htm.

[7] See calculations of the change in the college premium since 1980 in Figure 6 in Alicia Sasser Modestino, "Mismatch in the Labor Market: Measuring the Supply of and Demand for Skilled Labor in New England," Federal Reserve Bank of Boston New England Public Policy Center, Research Report No. 10-2, 2010. Available at http://www.bos.frb.org/economic/neppc/researchreports/2010/rr1002.htm.

[8] See, for example, Lynn Elaine Browne and Steven Sass, "The Transition from a Mill-based to a Knowledge-based Economy: New England, 1940-2000," *Engines of Enterprise: An Economic History of New England*, ed. Peter Temin. (Harvard University Press, 2000).

[9] From BEA Regional Economic Accounts at http://www.bea.gov/regional/spi/action.cfm as found on February 17, 2011.

[10] Federal Reserve Bank of Boston, *New England Economic Indicators*, First Quarter 1990, Historical Data, p. 26.

[11] Data from National Association of Realtors as found in the Federal Reserve Bank of Boston, *New England Economic Indicators*, First Quarter 1990, Historical Data, p. 31.

[12] The recession started earlier and lasted longer in New England. BEA wage and salary employment in New England (NAICS) fell 10 percent from 1989 to 1992. Data from the regional data base in HAVER Analytics as of February 17, 2011.

[13] Figure 4 in Alicia Sasser, "Voting with Their Feet? Local Economic Conditions and Migration Patterns in New England." Federal Reserve Bank of Boston New England Public Policy Center, Working Paper No. 09-1, 2009. Available at http://www.bos.frb.org/economic/neppc/wp/2009/neppcwp0901.htm.

[14] Per capita income from http://www.bea.gov/regional/spi.drill.cfm and unemployment rate from http://www.bls.gov/news.release/History/srgune_02232001.txt as of February 22, 2011.

[15] Calculated from full and part-time employment data (SIC) in the BEA Regional Economic Accounts at http://www.bea.gov/regional/spi/action.cfm as found on February 18, 2011. These calculations refer to total employment, including self-employed. For wage and salary employment, manufacturing accounted for 26 percent of jobs in New England in 1980 and 14 percent in 2000; in the United States, manufacturing accounted for 21 percent of wage and salary jobs in 1980 and 13 percent in 2000.

[16] U.S. Census Bureau, "Annual Estimates of the Resident Population by Sex and Age for States and for Puerto Rico: April 1, 2000 to July 1, 2009," Table 16 at http://www.census.gov/popest/states/asrh/SC-EST2009-02.html as found on February 17, 2011.

[17] U.S. Census Bureau American FactFinder, GCT-T6-R. Age Dependency Ratio of the Total Population, Data Set: 2009 Estimates, http://factfinder.census.gov/servlet/GCTTable?format=U-40Se&geo_id=01000US&ds_name=PEP_2009_EST&_box_head_nbr=GCT-T6-R as found on February 22, 2011.

[18] Modestino, "Mismatch," (2010), Table 7 and Stephen Coelen and Joseph B. Berger, New England 2020: *A Forecast of Educational Attainment and its Implications for the Workforce of New England States*, (commissioned by the Nellie Mae Foundation, June 2006).

[19] See Robert Krim et al., *Innovate Boston: Shaping the Future from the Past: Four Amazing Centuries of Innovation.* Boston History and Innovation Collaborative, 2006. Available at http://www.bostonhistorycollaborative.org/pdf/InnovateBoston.pdf. Section II is particularly relevant.

[20] Alicia Sasser, "The Future of the Skilled Labor Force in New England: The Supply of Recent College Graduates," Federal Reserve Bank of Boston New England Public Policy Center Series, Research Report No. 08-1 (2008) Table 8. Available

at http://www.bostonfed.org/economic/neppc/research reports/2008/rr0801.pdf on February 22, 2011.

[21] Edward B. Roberts and Charles Eesley, *"Executive Summary Entrepreneurial Impact: The Role of MIT,"* Kauffman Foundation, February 2009. Available at http://entrepreneurship.mit.edu/sites/default/files/files/ExecSummary_Entrepreneurial_Impact_The_Role_of_MIT.pdf on February 22, 2011.

[22] D'Vera Cohn and Richard Fry, "Women, Men and the New Economics of Marriage, Executive Summary," Pew Research Center, Social & Demographic Trends, January 19, 2010. Available at http://pewsocialtrends.org/2010/01/19/women-men-and-the-new-economics-of-marriage/ on December 10, 2010.

[23] These are poverty rates for individuals. The U.S. rate in 2008 was 13.2 percent; New Hampshire's rate was 7.6 percent. U.S. Bureau of the Census, *The 2011 Statistical Abstract* as found at http://www.census.gov/compendia/statab/cats/income_expenditures_poverty_wealth.html on February 22, 2010.

[24] In 2008, the six New England states and four Atlantic states signed the Regional Greenhouse Gas Initiative (RGGI), a regional version of cap and trade proposals that have been very contentious at the national level.

[25] In 2008, state and local taxes as a percent of personal income were 10.5 percent in Massachusetts, compared with 11.3 percent nationally, and the Commonwealth ranked 38th among all states and the District of Columbia. In 1977-78, in contrast, state and local taxes were 13.7 percent of personal income in Massachusetts, compared with 11.2 percent nationally, and the state ranked third in its tax burden. Not all the New England states moved in the same direction, however. The tax burden has increased in Maine and Connecticut since the 1970s. New Hampshire remains very low. Source: Massachusetts Budget and Policy Center data in presentation by Michael J. Widmer, Massachusetts Taxpayer Foundation, to the Commonwealth Summit, January 29, 2011.