Mismatch in the Labor Market: Measuring the Supply and Demand for Middle-Skill Workers in Massachusetts

Alicia Sasser Modestino
Senior Economist
New England Public Policy Center
Federal Reserve Bank of Boston

Presented at:

Credentials that Work
LMI Innovators Network Convening
April 17, 2013

FEDERAL RESERVE BANK OF BOSTON™

New England Public Policy Center
at the Federal Reserve Bank of Boston

Why do we care?

- Some point to a current or future **"shortage"** of labor in Massachusetts arising from slower population growth, typically higher net out-migration, and an older workforce that will soon be retiring.

- Others point to a potential **"mismatch"** between worker skill levels and the skills demanded by employers arising from structural changes in the economy as we shift away from manufacturing and towards more knowledge based industries.

- Bottom line: we need not only a ***sufficient number*** of workers but also a workforce with the ***right mix of skills*** to meet the needs of the state's economy.

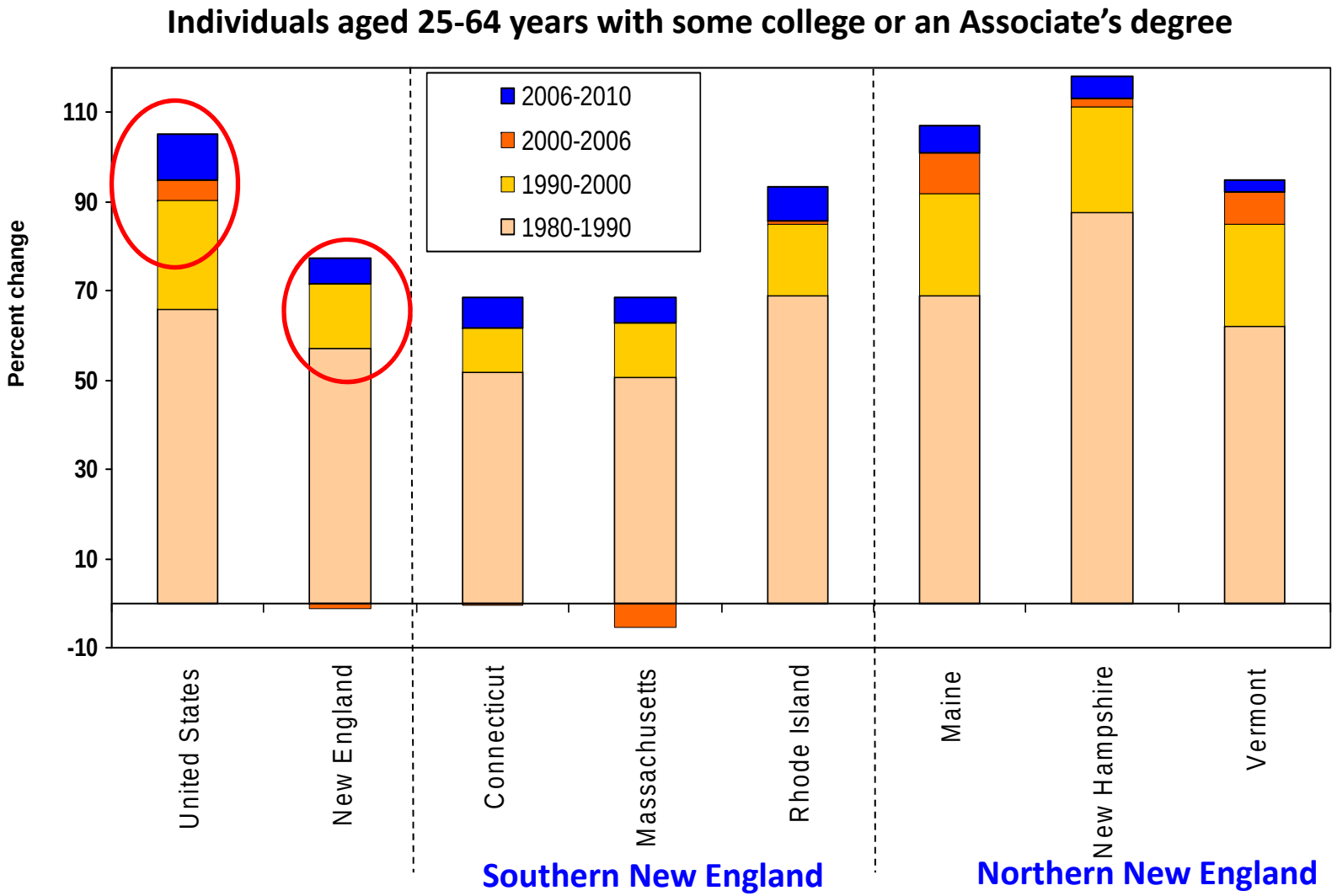
What are the key policy questions?

- 1. How has the **skill mix** of the Massachusetts workforce compared to demand over the past several decades?

- 2. What are the **unique labor supply constraints** that the Commonwealth will face in the future?

- 3. What role can **public policy** play in addressing the potential gaps in the state's labor force during these uncertain times?

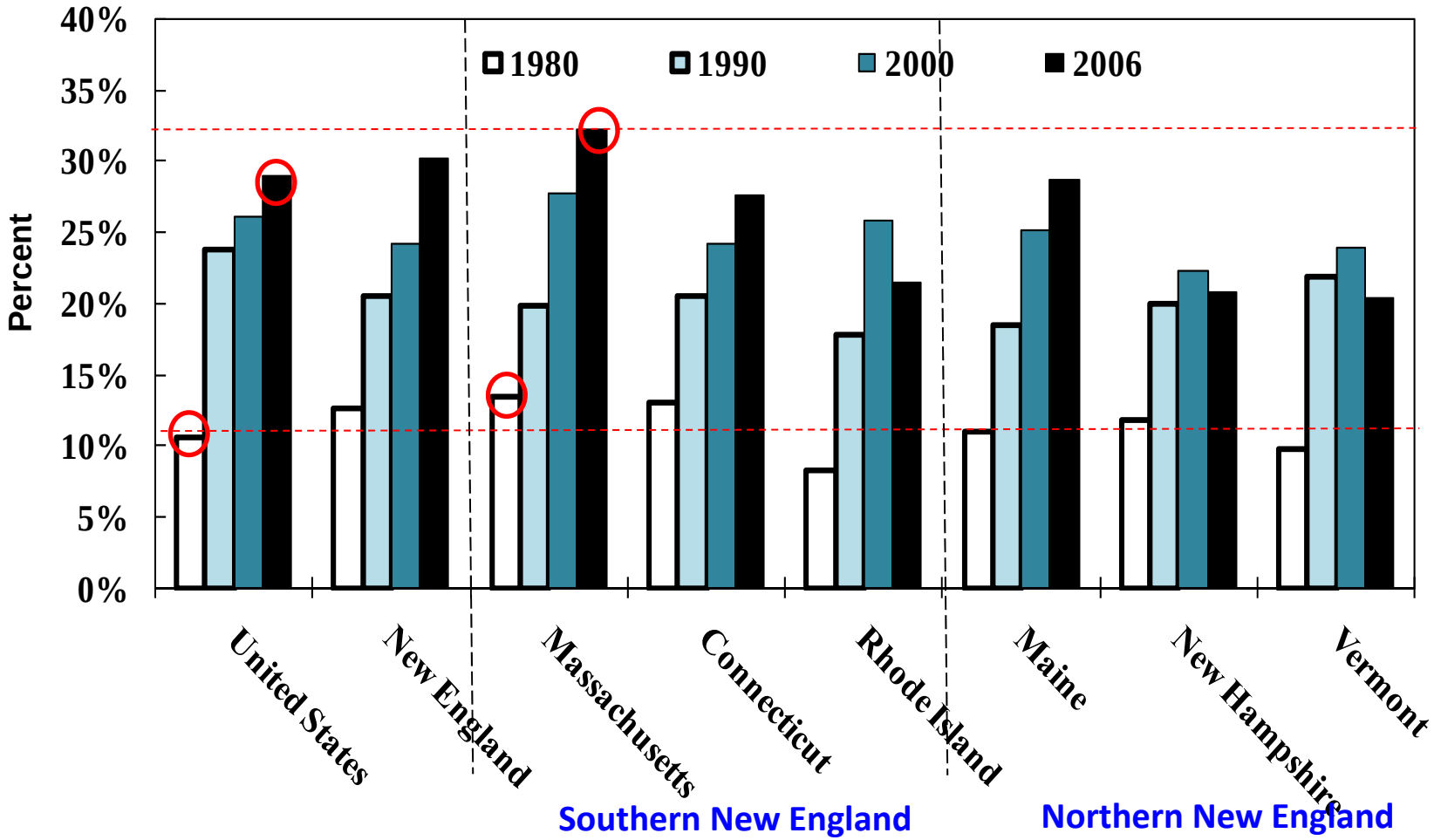
The number of "middle-skill" workers with only some college or an Associate's degree has been growing more slowly in New England.



Source: Author's calculations based on the 1980, 1990, and 2000 decennial Census and the 2005-07 and 2009-11 combined American Community Surveys.
Note: Educational attainment in 1980 is defined by number of years of completed education and is not strictly comparable to that in 1990 and later years, which are based on degrees completed.

Since 1980, the wage premium for middle-skill workers relative to those with only a high school degree has been increasing.

Premium paid to men with an associate's degree versus a high school diploma



Source: Author's calculations based on the 1980, 1990, and 2000 decennial Census and the 2005 and 2006 American Community Surveys (combined).

Why has the demand for college-educated workers been rising?

- Employers in both the region and the nation are willing to pay a premium for skilled workers despite there being relatively more of them.
- This premium has been growing over time, indicating that the demand for such workers has outpaced their supply.
- Increasing demand for college-educated workers can result from:
  - Employment shifts ***across*** industries or occupations that use differing amounts of college-educated labor (e.g. shift from manufacturing to education and healthcare)
  - Employment shifts ***within*** industries or occupations towards using more college-educated workers (e.g. shift from low-skill to high-skill manufacturing)

Occupations in New England with "critical" vacancies before the Great Recession employed a large number of middle-skill workers.

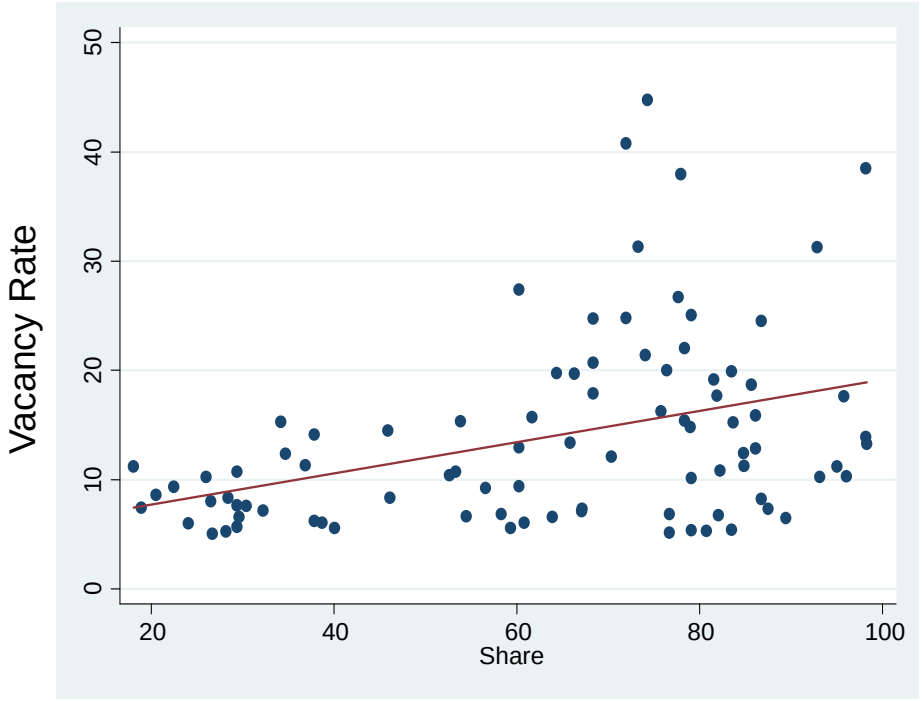
Example: Healthcare Practitioners and Technical Occupations, 2006

	Vacancy Rate (%)		Education Distribution (%)		
Occupation	**New England**	**United States**	**Low-skill**	**Middle-skill**	**High-skill**
Healthcare practitioners and technical (all)	**8.9**	**6.6**	**8.2**	**39.2**	**52.7**
Physical therapists	23.9	21.6	2.4	9.0	88.5
Diagnostic medical sonographers	21.2	10.0	9.6	67.1	23.3
Cardiovascular technologists/technicians	20.4	9.8	9.6	67.1	23.3
Radiologic technologists/technicians	16.5	8.7	9.6	67.1	23.3
Speech language pathologists	16.0	12.8	1.1	1.5	97.5
Pharmacists	15.1	10.7	0.7	4.4	94.9
Respiratory therapists	13.7	6.9	3.1	69.0	27.9
Registered nurses	11.0	8.9	1.4	42.8	55.8
Physician assistants	8.8	7.5	8.4	23.9	67.7
Medical records and health information	8.0	6.3	38.0	48.8	13.2
Medical and clinical lab technologists	6.8	4.1	12.9	36.5	50.6

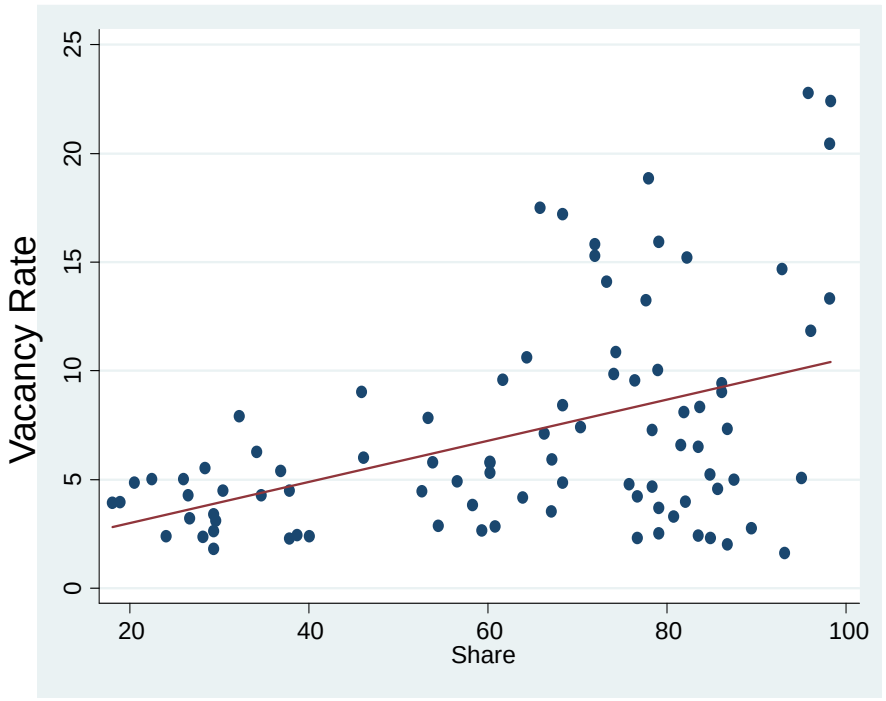
Source: Vacancy rates are the author's **calculations** based on vacancies reported by the Help Wanted Online Survey from the Conference Board and employment reported by the Bureau of Labor Statistics. The education distribution is based on the author's calculations using the 2005-2007 combined American Community Survey.

Occupations that employ a greater share of college-educated workers had higher vacancy rates both before and after the Great Recession.

Vacancy rates versus share of workers with any college degree, Massachusetts
Detailed occupations with “critical” vacancy rates



2006



2009

Source: Vacancy rates are the author’s **calculations** based on vacancies reported by the Help Wanted Online Survey from the Conference Board and employment reported by the Bureau of Labor Statistics. The share of workers with any college degree are the author’s calculations using the 2005-2007 combined American Community Survey.

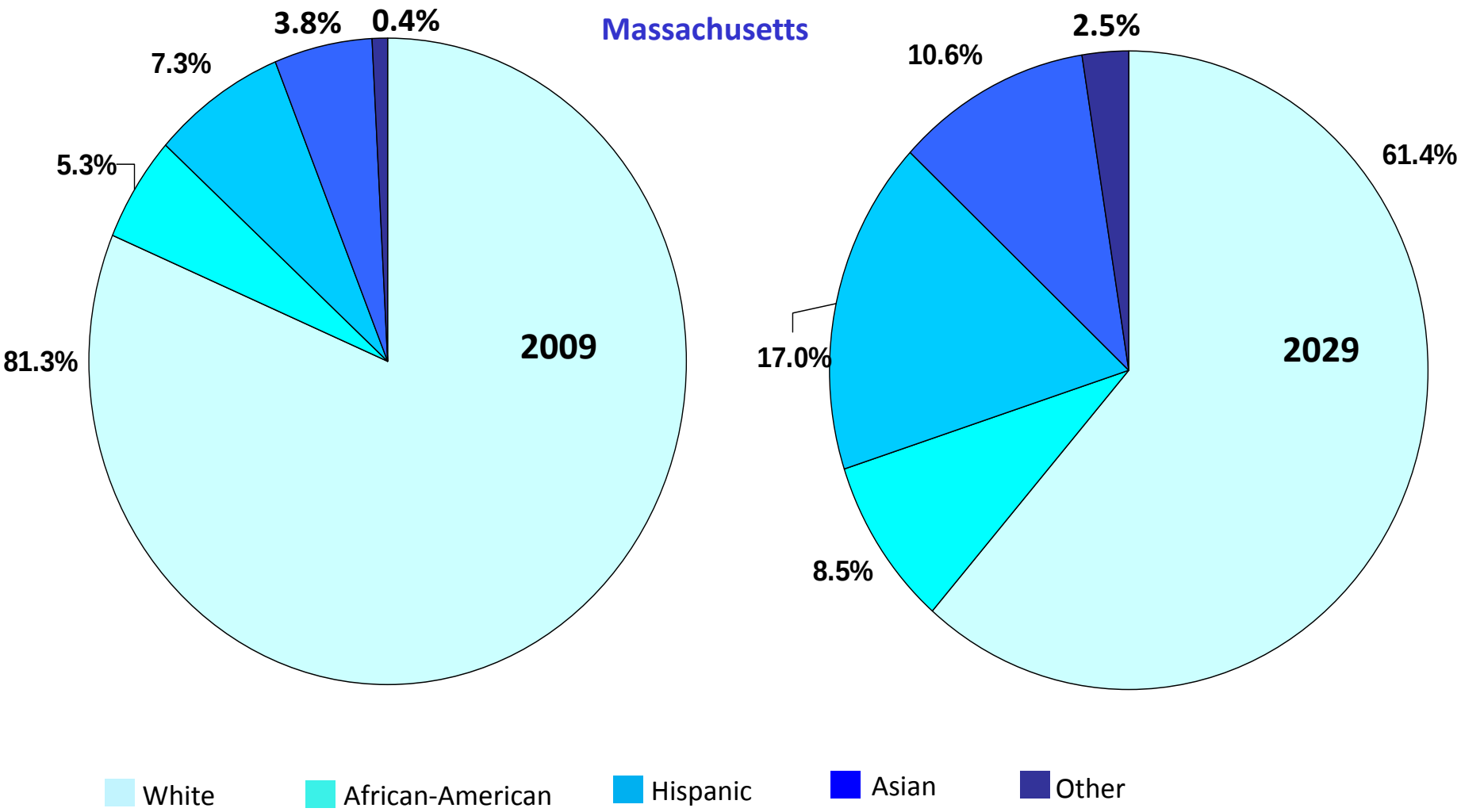
The working age population in Massachusetts will stagnate and then shrink over the next two decades while that of the nation will grow.

Growth in the Number of Individuals Aged 25-64 Years

	Massachusetts			United States		
Population	**Total**	**Foreign**	**Native**	**Total**	**Foreign**	**Native**
Percent change 2009-2019	3.3%	33.8%	-4.5%	11.3%	47.5%	3.2%
Percent change 2019-2029	-1.1%	22.7%	-9.6%	9.1%	39.0%	-0.5%
Labor Force						
Percent change 2009-2019	2.0%	33.9%	-5.7%	10.1%	47.0%	1.9%
Percent change 2019-2029	-1.7%	22.4%	-9.8%	9.2%	38.0%	-0.1%

The composition of the state's labor force will shift to include a greater share of minority and immigrant populations.

Current and Projected Racial /Ethnic Composition of the Labor Force

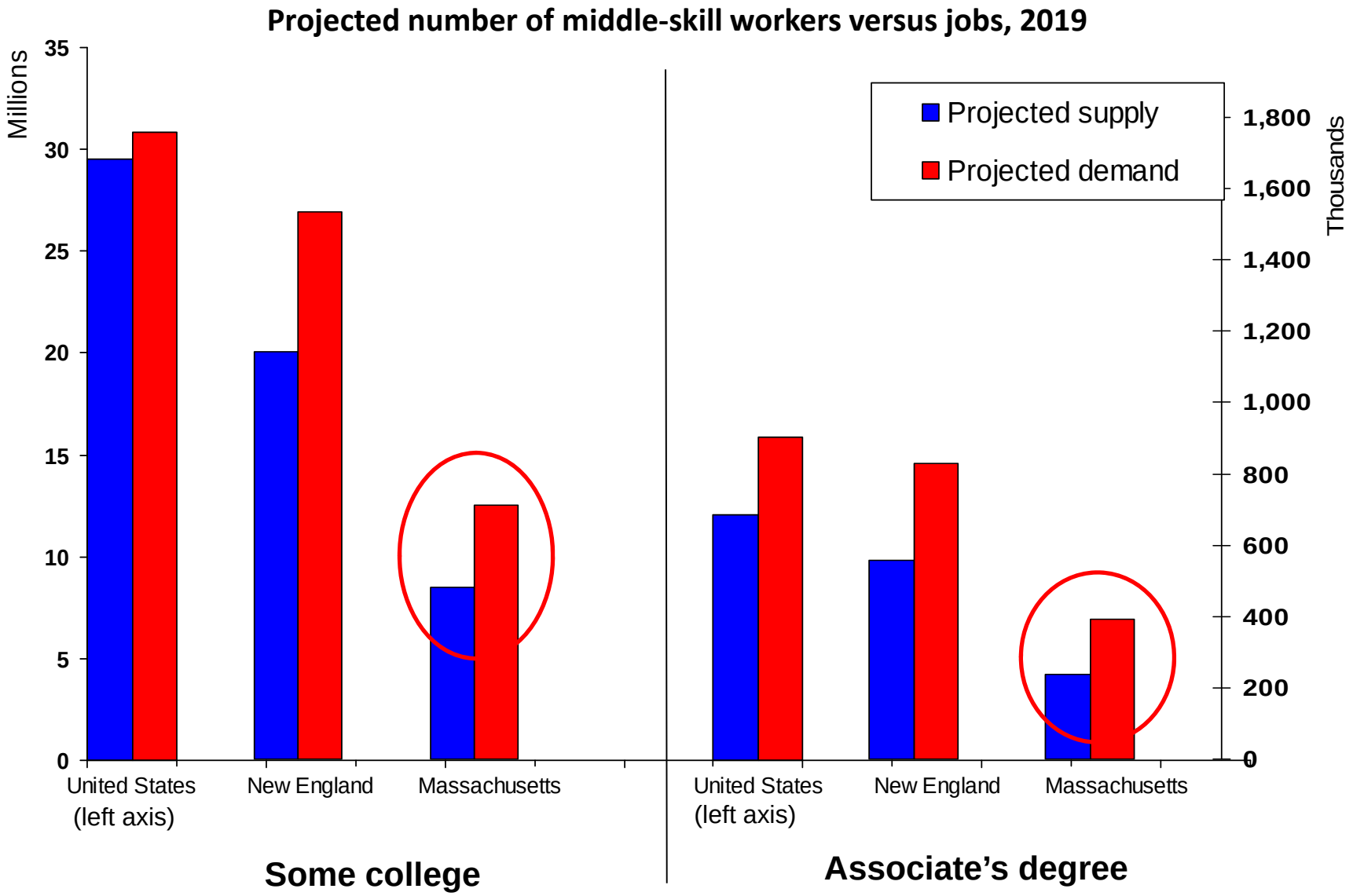


The changing composition of the population will slow the pace of educational attainment among low and middle skill individuals in the Commonwealth.

Educational Attainment of Individuals Aged 25-64 Years

	Less than high school	High school graduate	Some college	Associate's degree	Bachelor's degree	Advanced degree
	Massachusetts					
Actual 2009	**9.1%**	**25.4%**	**16.2%**	**8.2%**	**24.1%**	**16.9%**
Projected 2019	8.8%	24.4%	16.4%	7.8%	25.8%	17.0%
Projected 2029	9.2%	23.2%	16.6%	7.0%	26.4%	17.7%
	United States					
Actual 2009	**13.2%**	**28.5%**	**20.9%**	**8.3%**	**18.7%**	**10.4%**
Projected 2019	13.9%	27.4%	21.0%	8.3%	19.5%	9.9%
Projected 2029	15.3%	26.2%	21.0%	7.8%	19.8%	10.0%

By 2019, the number of middle-skill workers is projected to fall short of demand in both the U.S. and Massachusetts.



We cannot rely on market forces alone to fill the middle-skills gap.

- Workers in the middle of the skills distribution have fewer resources to invest in training and are less mobile than those at the top.
- Private sector training investments by firms are often limited due to a variety of market failures—particularly for middle-skill workers.
- The demand for middle-skill jobs that require manual or non-routine cognitive tasks is not likely to be met through additional automation or outsourcing on the part of firms.
- Even if high-skill workers are able to perform jobs that require less education, it is unlikely that they would choose to do so unless there were no other options.

In addition to ongoing efforts to expand traditional four-year baccalaureate attainment, specific education and training policies that target growing categories of middle-skill jobs is warranted.

- Yet the region's higher education system seems skewed toward private institutions that produce bachelor degree holders.

- At the same time the role of community colleges has expanded from providing relatively easy access to college coursework to providing a range of job skills training and other programs that serve the educational needs of the local community.

- Although college enrollment has been increasing, college completion rates have not—particularly at two-year institutions that serve middle-skill workers.

While the Commonwealth's four-year institutions are highly competitive relative to the nation, completion rates at our community colleges are below the national average.

Degree Completion and Transfer Rates, 2010

	Two-year public		Four-year public		Four-year private	
	Completion	**Transfer**	**Completion**	**Transfer**	**Completion**	**Transfer**
Connecticut	10%	21%	48%	10%	75%	5%
Maine	27%	14%	39%	19%	68%	NA
Massachusetts	**16%**	**20%**	**50%**	**3%**	**75%**	**2%**
New Hampshire	26%	NA	53%	NA	67%	4%
Rhode Island	9%	22%	46%	NA	70%	7%
Vermont	16%	NA	41%	NA	69%	3%
New England	16%		48%		71%	
United States	22%		53%		61%	

Source: *Trends & Indicators,* The New England Board of Higher Education, 2012. National Center for Education Statistics, 2012.

Part of the problem may stem from a lower level of funding...

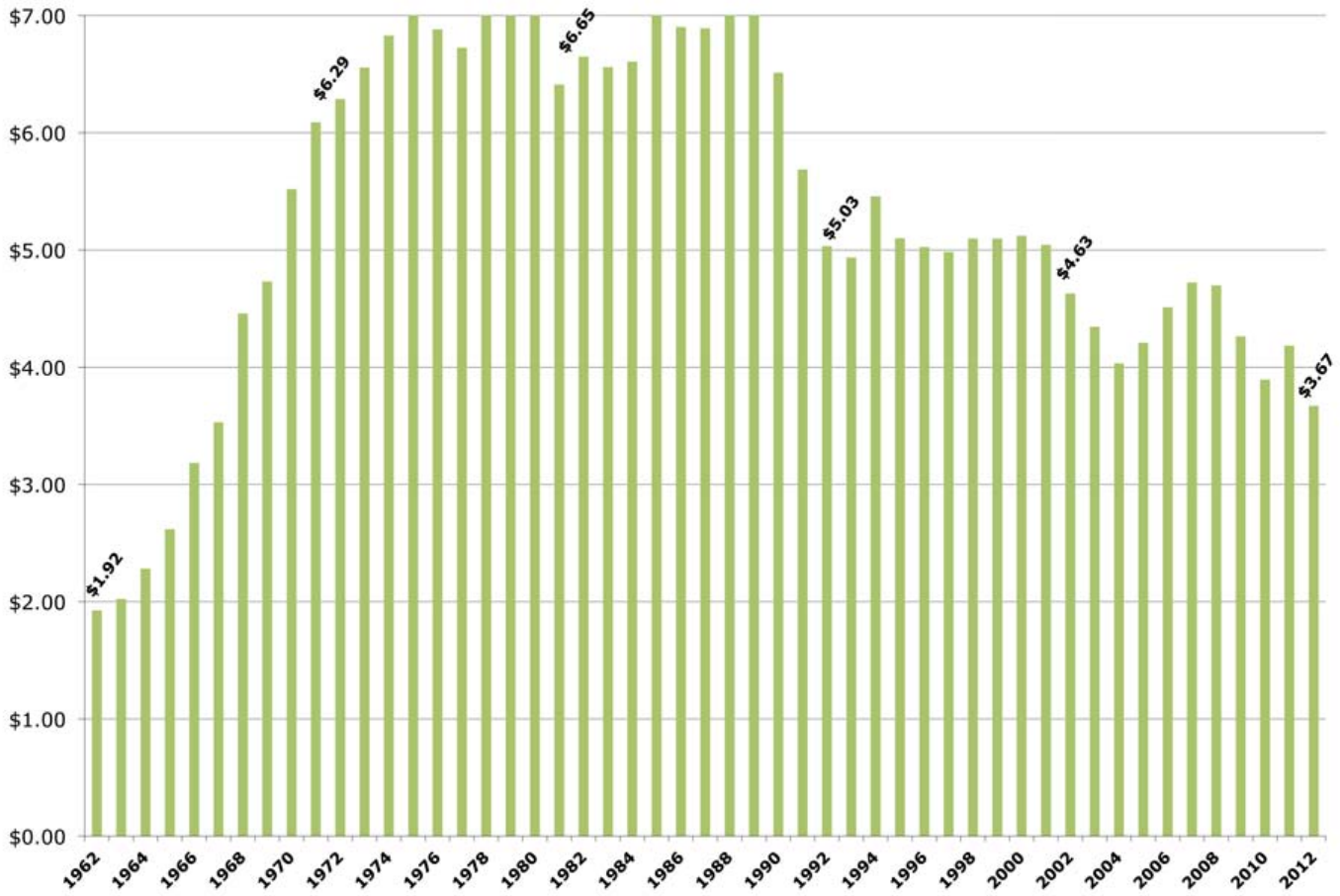
State and Local Support for Higher Education Operating Expenses per Capita ($)

	2007		2011	
	Amount	**Rank**	**Amount**	**Rank**
Connecticut	$252	23	$301	10
Maine	$196	38	$200	36
Massachusetts	**$155**	**46**	**$173**	**40**
New Hampshire	$94	50	$104	50
Rhode Island	$173	45	$150	47
Vermont	$137	49	$150	48
United States	$242		$243	

Source: *Trends & Indicators,* The New England Board of Higher Education, various years.

Or funding that has not kept pace over time…

Fig. FIN 11: State Fiscal Support for Operating Expenses of Higher Education per $1,000 of Personal Income in New England, 1961 to 2012



Source: *Trends & Indicators,* The New England Board of Higher Education, 2012.

Potential policy solutions point to growing our own talent.

- Although labor force participation has increased since 1970, particularly among women, further increases are likely to be small.

- Although immigration has been a significant source of labor in the past, immigrants often do not have the education and training to fill middle-skill jobs.

- Increasing postsecondary educational attainment—particularly education and training that targets *growing* categories of middle-skill jobs.

Increasing postsecondary education and training for middle-skill workers would require overcoming a number of challenges.

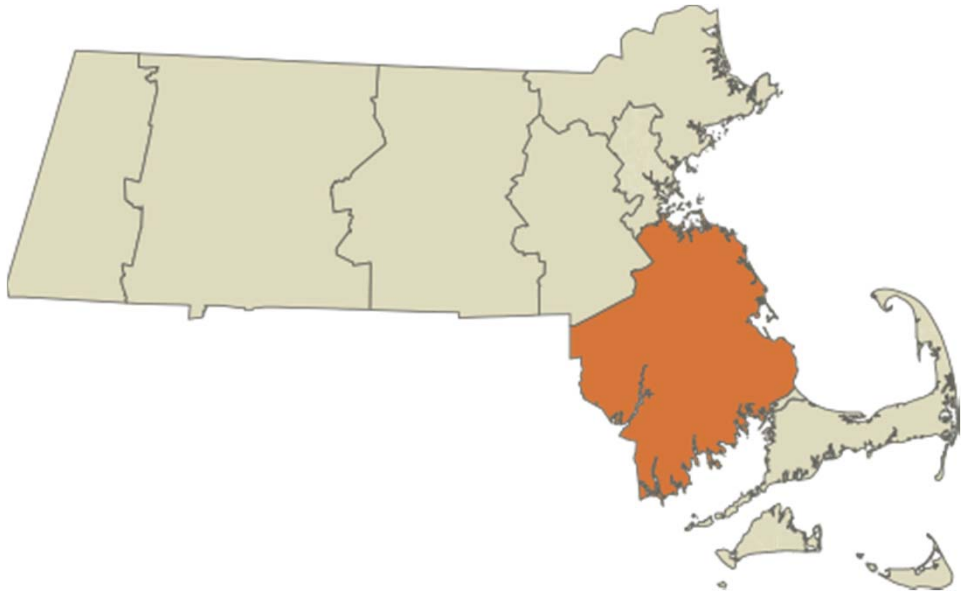
- Future gaps stem from changes in the composition of the labor force towards greater shares of immigrant and minority populations. Further gains in educational attainment among these traditionally disadvantaged groups would require significant investment in financial aid.

- In addition to financial assistance, community college students often face greater challenges to completion than those attending four-year institutions. Programs in other states have shown that offering remedial courses, stipends, child care, and transportation during periods of study can boost completion rates.

- "Middle-skill" jobs often require specific skill sets rather than general knowledge. Greater communication between firms that hire "middle-skill" workers and the institutions that educate them could better align training curriculum with employer needs.

Better data can help guide workforce development professionals, policy makers, and civic, education, and business leaders as they make decisions about education and training opportunities.

Labor Market Trends in Massachusetts Regions



http://www.bos.frb.org/economic/neppc/labor-market-trends-in-massachusetts-regions/index.htm