

## Pioneer Valley Regional Planning Session II

Thursday, June 15



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Introduction

## Objectives

- Confirm **regional criteria** to select high priority industries and occupations
- Confirm regional **high priority industries and occupations**
- Confirm top demographic, labor pool, and talent pipeline considerations impacting workforce skills gaps

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Introduction

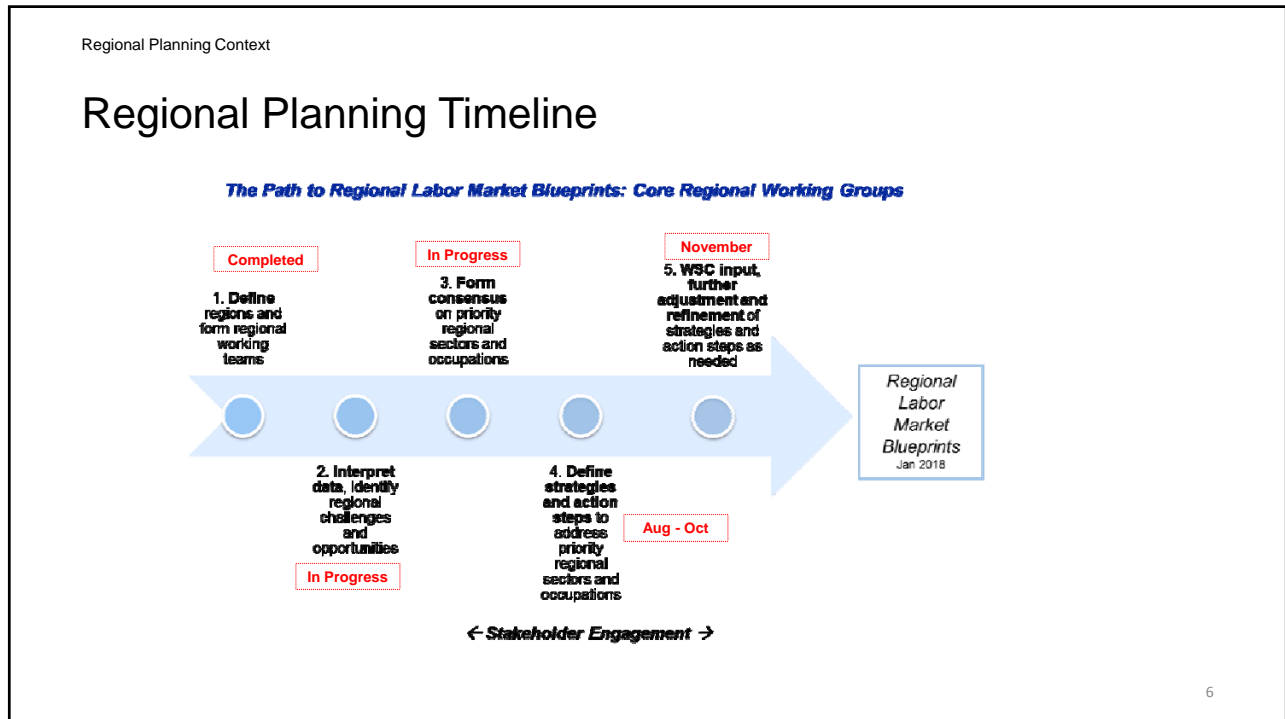
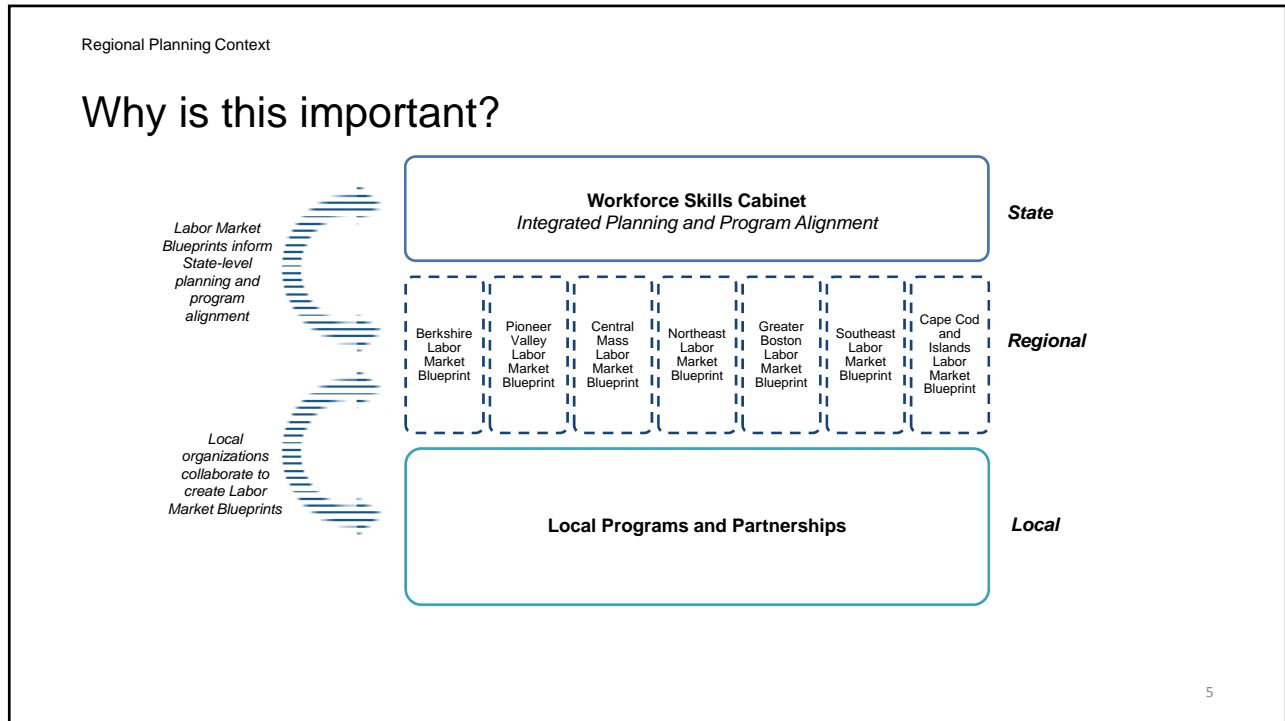
## Agenda

- Regional Planning Context
  - Regional planning timeline
  - Blueprint structure
- Regional Demographic Context
  - State and Regional Demographics on the Workforce
- Framing the Data Process to Identify Priority Industries/Occupations
  - Region's Preliminary Criteria
  - Confirming Industry Priorities
  - Review Occupational Gap Priorities
  - Data Tool

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## I. Regional Planning Context

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Regional Planning Context

## Blueprint Review – Identify Strategies for Skill Gaps

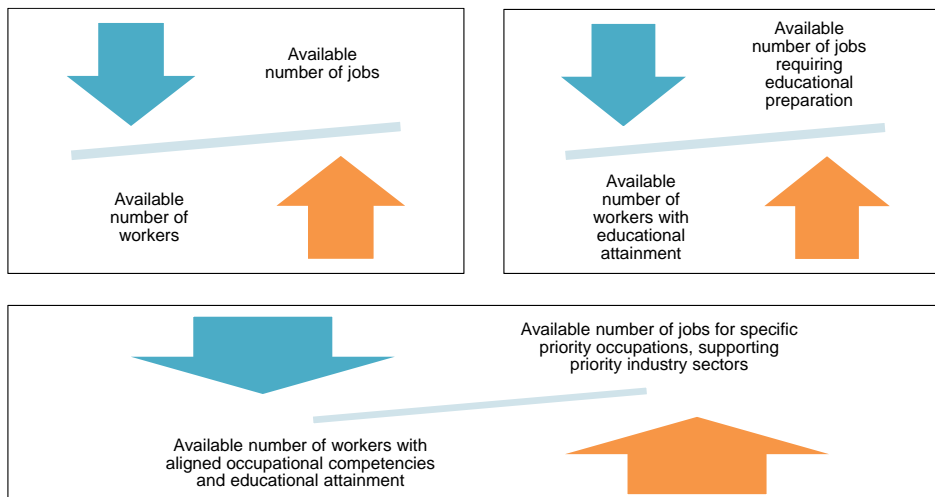
Introduction	Describe the process of creating a regional plan.
Where are we now?	Describe the current state of your region, including an analysis of industries, occupations, demographic shifts, and gaps between employer demand and employee supply. I. Industry Demand Analysis II. Occupational Demand Analysis ← Session I III. Regional Context: Demographic and Industry Trends IV. Workforce Supply ← Session II
Where do we want to go?	Describe the collectively developed criteria, industry and occupational priorities, vision, mission, and goals for your region. I. Criteria for Priority Industries and Occupations ← Sessions I-II II. High Priority Industries III. High Priority Occupations IV. Assets V. Vision, Mission, Goals ← Sessions III-IV
How do we get there?	Describe the strategies you will jointly employ to align the work of multiple systems around your shared vision, mission, and goals. I. Shared Strategies II. Mutually Reinforcing Activities ← Sessions III-IV

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Regional Planning Context

## Framing the conversation: What is a skills gap?

Changes in *demand* (jobs) or *supply* (people) can impact the skills gap.



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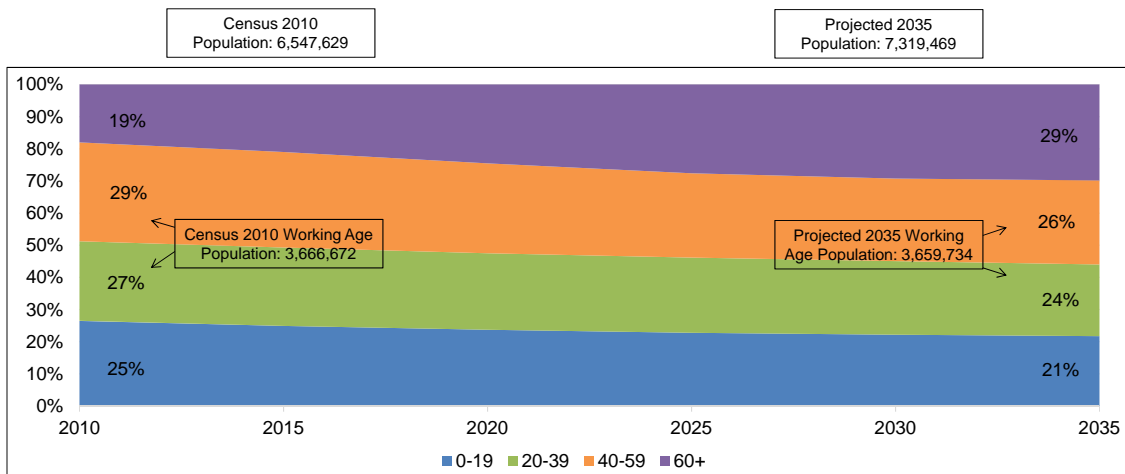
# I. Regional Demographic Context

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Demographic Deep Dive

## Projected State Population Growth by Age, 2010-2035

The share of older residents is increasing, while the share and number of the working age population is declining.



UMass Donahue Institute, Long-term Population Projections for Massachusetts Regions and Municipalities, March 2015

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Demographic Deep Dive

## State Trends, Race/Ethnicity and Place of Origin

Massachusetts population growth is driven by immigration and growth in diverse populations.

Massachusetts	2000	2012-2014	Share of Total Population 2012-2014	Absolute Change	Percent Change	Average Annual Growth Rate
Total Population*	6,131,752	6,447,295	100%	<b>315,543</b>	5.1%	0.4%
<b>Nativity</b>						
Native Born	5,279,860	5,326,213	83%	<b>46,353</b>	0.9%	0.1%
Foreign Born**	851,892	1,121,082	17%	<b>269,190</b>	31.6%	2.1%
<b>Race/Ethnicity</b>						
White, non-Hispanic	5,026,398	4,817,401	75%	<b>-208,997</b>	-4.2%	-0.3%
Black, non-Hispanic	300,758	407,723	6%	<b>106,965</b>	35.6%	2.4%
Asian, non-Hispanic	224,242	375,130	6%	<b>150,888</b>	67.3%	4.0%
Hispanic	412,496	678,193	11%	<b>265,697</b>	64.4%	3.9%
Other race, non-Hispanic	167,858	168,848	3%	<b>990</b>	0.6%	0.0%
*Civilian non-institutional population						
**Foreign born is defined here as those born outside of the 50 states and the District of Columbia, who was not born to American parents abroad, and people born in Puerto Rico and other U.S. territories.						

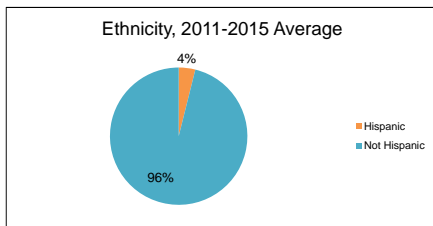
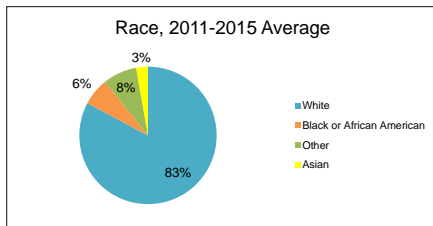
Source: Commonwealth Corporation via 2000 Census, 2012-2014 American Community Survey, PUMS.

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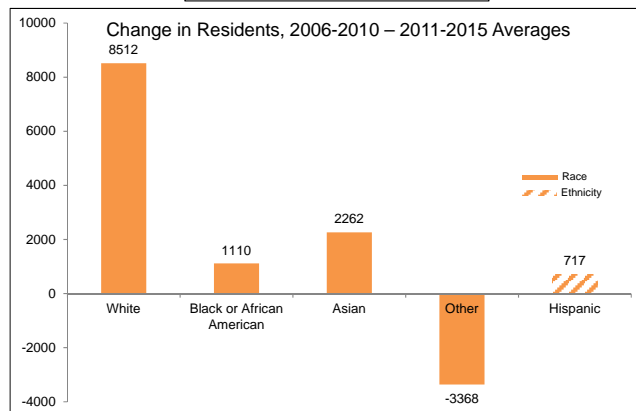
Demographic Deep Dive

## Regional Trends, Race/Ethnicity

While raw population growth is driven by an increase in white residents, the minority population is growing at a faster rate.



Total Population Estimate: 715,163  
2011-2015 Average



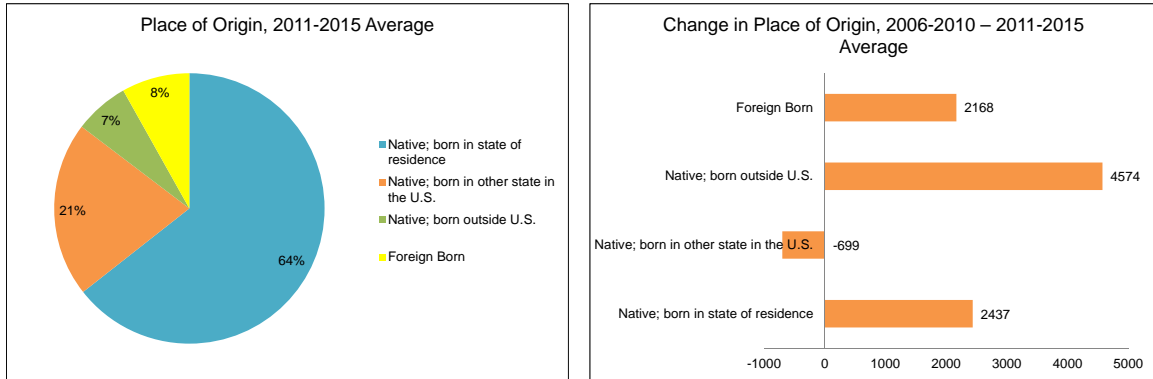
Source: American Community Survey, Selected Characteristics of the Total and Native Populations of the United States, 5 Year Averages 2011-2015

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Demographic Deep Dive

## Regional Trends, Place of Origin

Pioneer Valley is attracting foreign-born residents, the number of migrants from other states has slightly decreased.



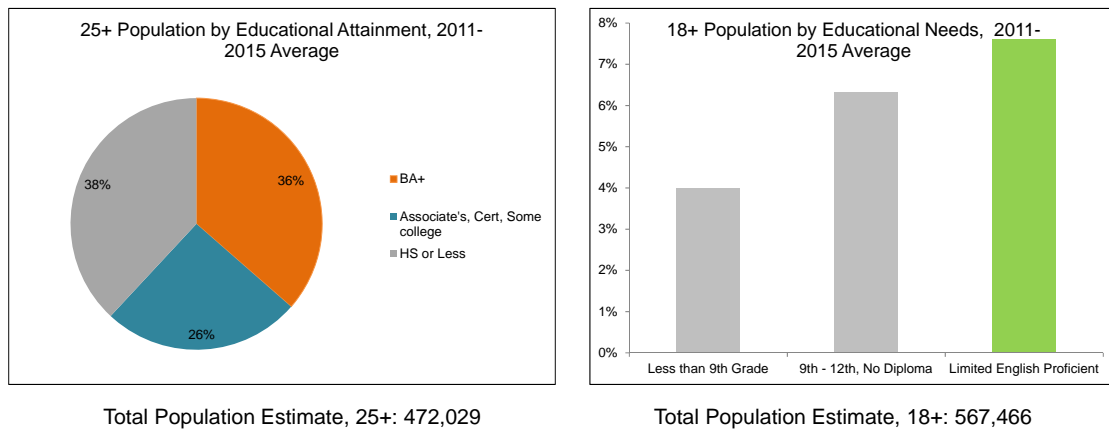
Source: American Community Survey, Selected Characteristics of the Total and Native Populations of the United States, 5 Year Averages 2011-2015

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Demographic Deep Dive

## Regional Trends, Education

Although much of Pioneer Valley is highly educated, a notable portion of residents require basic education or English language supports.



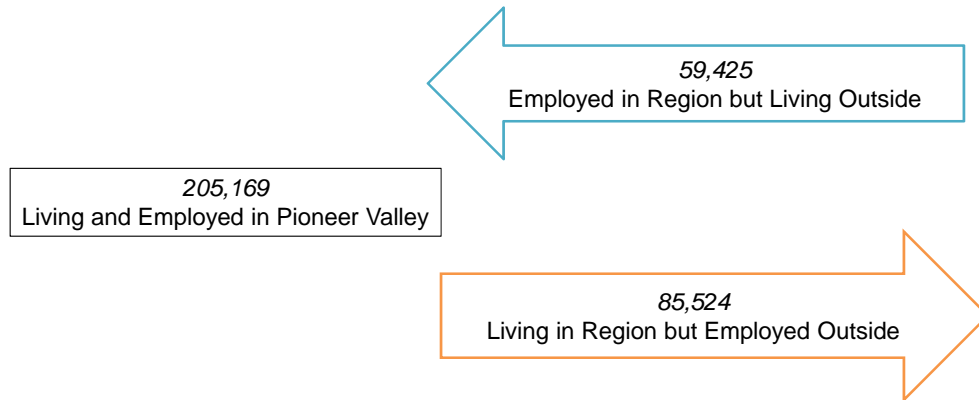
Source: American Community Survey 5 Year Averages 2011-2015

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Demographic Deep Dive

## Regional Commuter Patterns

Pioneer Valley sends approximately 85,000 residents outside the region to work, and attracts approximately 60,000 residents from outside its borders.



U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics (Beginning of Quarter Employment, 2nd Quarter of 2002-2014).

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Demographic Deep Dive

## Takeaways

- As our State's population ages, the share of working-age and young people is declining.
- Pioneer Valley is still largely white, but small increases in population are driven by minority populations, foreign-born individuals, and residents whose primary language is not English.
- The number of people migrating to Pioneer Valley from other States has declined.
- The labor pool draws from outside the region, and employers hire employees from outside of Pioneer Valley.

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## II. Framing the Data Process to Identify Priority Industries/Occupations

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Confirming Industry Priorities

### Preliminary Criteria

- **Strong Growth and Employment Base**
  - Oriented to both current and future needs
  - Future focuses
- **Support Economic Development**
  - Aligned with other strategies
  - Cross region/state borders
  - Local business support
- **Career Pathways**
  - Credit for prior learning + stackable credits
  - Real pathways not fragile ones
  - Requiring a PSE credit
- **High Growth, High Wage Occupations (4 and 5 Stars)**
  - Aligned w/employer demand
  - Living wages
- **Supply Gap**
- **Supportive Employers**
  - Virtuous circle
  - Helping job seekers to overcome barriers (CORI, cliff effect, digital c.c., divide transportation)
  - Healthy workplaces
  - Those w/ less red tape
  - Equitable benefits to job seekers

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Confirming Industry Priorities

## Preliminary Priorities

### Industries

- Agriculture: Farm/food systems processing
- Education Services
- Health Care + Social Services
- Manufacturing
- Professional and Technical Services: IT

### Occupations

*None Identified Yet*

### Special Industry Considerations

- Middle Mile Fiber Network
- Tech Spring (Start Up)
- Innovation Sectors

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Confirming Industry Priorities

## Regional Industry Priorities– Establishments, Employment, Wages

Industry	ESTABLISHMENTS			EMPLOYMENT			WAGES		
	Count	Share	Change	Count	Share	Change	Total Wages	Avg Weekly Wages	Change
<b>Agriculture, Forestry, Fishing &amp; Hunting</b>	146	0.6%	▲ 6.6%	1,559	0.5%	▼ -2.6%	\$10,365,738	\$511	▲ 16.7%
<b>Manufacturing</b>	804	3.2%	▼ -3.6%	25,497	8.5%	▼ -5.3%	\$371,178,692	\$1,120	▲ 7.8%
<b>Professional and Technical Services</b>	1,519	6.0%	▲ 2.8%	8,101	2.7%	▲ 2.8%	\$129,297,278	\$1,228	▲ 11.6%
<b>Educational Services</b>	514	2.0%	▲ 6.0%	40,013	13.3%	▲ 7.8%	\$529,128,334	\$1,017	▲ 2.9%
<b>Health Care and Social Assistance</b>	10,655	41.8%	▲ 20.1%	70,635	23.4%	▲ 13.3%	\$817,889,012	\$891	▲ 13.6%

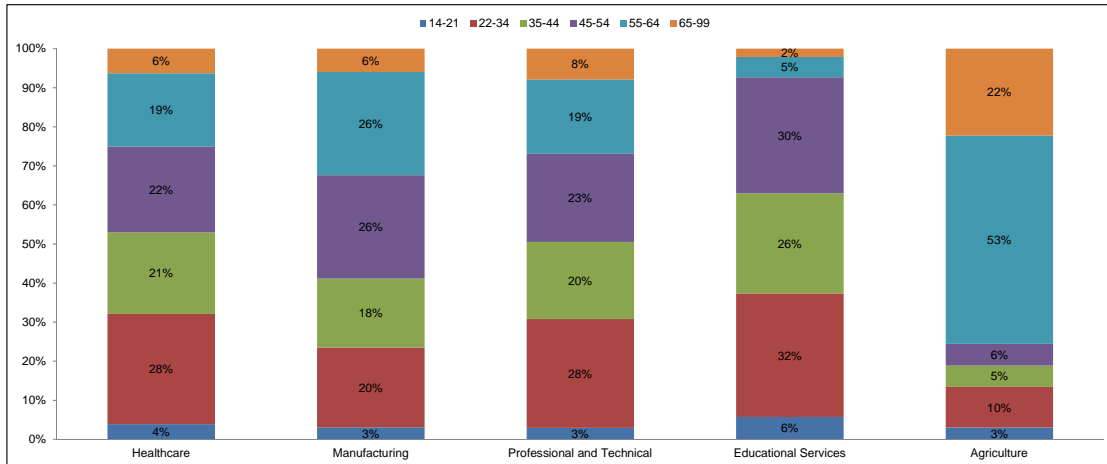
Source: Department of Unemployment Assistance/Bureau of Labor Statistics Quarterly Census of Employment and Wages, Q3 2013 - 2016

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Confirming Industry Priorities  
 Industry Overview: Age

## Priority Regional Industries by Age

Among priority industries, 32% of Manufacturing and 75% of Agriculture is over the age of 55. Educational Services has the youngest workforce, with almost 90% under the age of 55 and Professional Technical Services (74%).



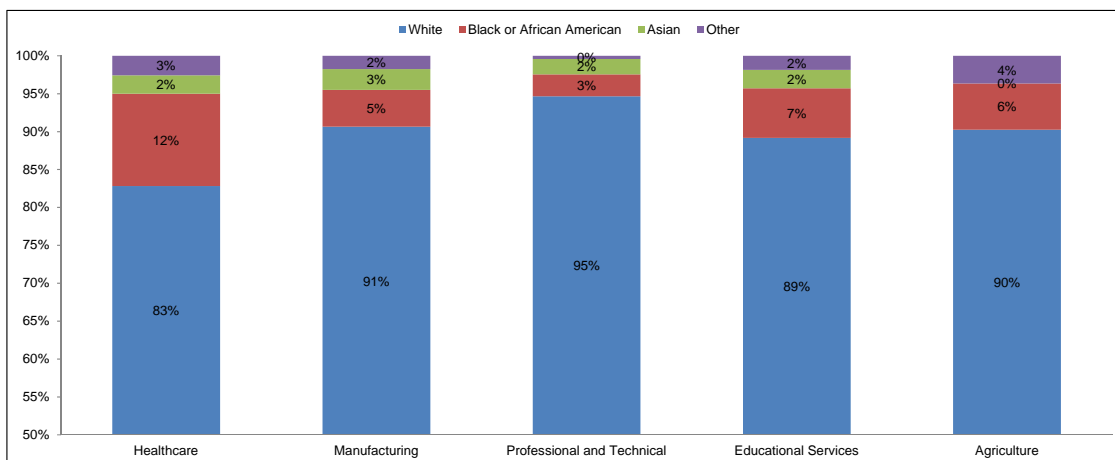
Source: US Census Longitudinal Employer-Household Dynamics: Quarterly Workforce Indicators Q2 2016

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Confirming Industry Priorities  
 Industry Overview: Race and Ethnicity

## Priority Regional Industries by Race

Healthcare has the most racial diversity, with 17% non-white employees. Professional and Technical is the least diverse industry, followed by Manufacturing and Agriculture.



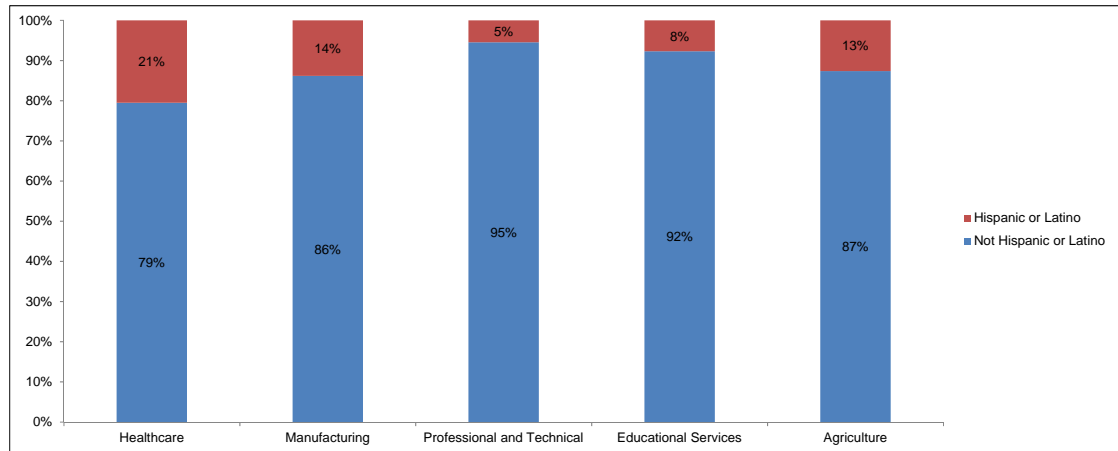
Source: US Census Longitudinal Employer-Household Dynamics: Quarterly Workforce Indicators Q2 2016

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Confirming Industry Priorities  
 Industry Overview: Race and Ethnicity

## Priority Regional Industries by Ethnicity

Healthcare has the highest share of Hispanic/Latinos.



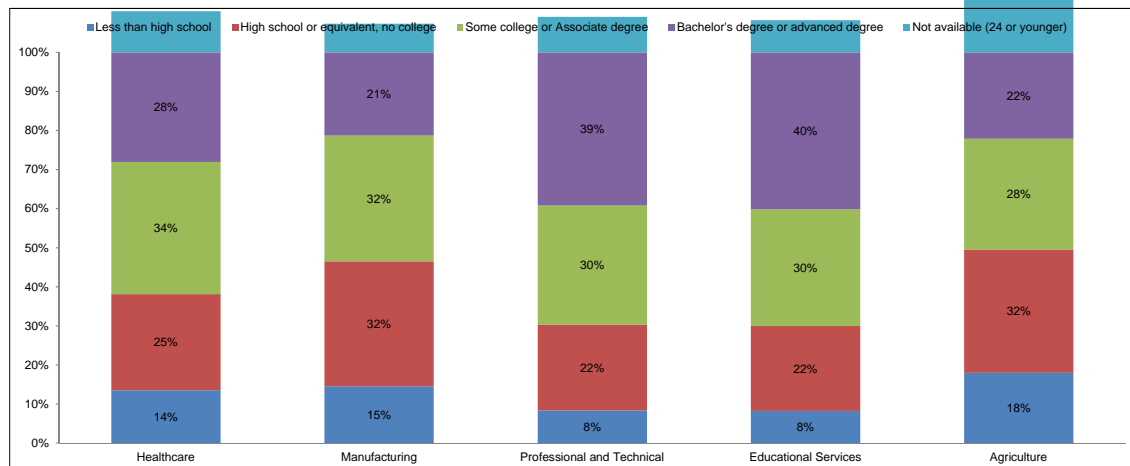
Source: US Census Longitudinal Employer-Household Dynamics: Quarterly Workforce Indicators Q2 2016

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Confirming Industry Priorities  
 Industry Overview: Race and Ethnicity

## Priority Regional Industries by Educational Attainment

More than 50% of employees in all selected industries have post-secondary schooling. In Professional and Technical Services and Education, approximately 70% of employees have more than a high school diploma.



Source: US Census Longitudinal Employer-Household Dynamics: Quarterly Workforce Indicators Q2 2016

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Confirming Industry Priorities

## Takeaways

- Manufacturing and Agriculture are likely to face labor shortages due to the aging population.
- Healthcare demonstrates the most employee diversity.
- Current employee educational attainment in Professional Technical Services and Education Services is dominated by post-secondary educational attainment (70% of workers) whereas Healthcare, Agriculture and Manufacturing offer more opportunities for individuals with less than post-secondary attainment.

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Confirming Industry Priorities

## Discussion

- Does this information support your priority industry selections so far? What other questions do you have?

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### III. Confirming Supply Gaps and Occupational Priorities

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Supply Gap Analysis

How do we calculate a supply gap ratio?

*Supply Gap Ratio = Projected Qualified Individuals Per Opening*

- Supply Gap Ratio is a **proxy measure** for understanding what occupations are likely to not have enough talent to meet employer demand.
- Supply / Demand = Supply Gap Ratio
  - 100 qualified individuals / 50 potential openings = supply gap ratio of 2
    - 2 qualified individuals per opening (More supply than demand)
  - 6 qualified individuals / 12 potential openings = supply gap ratio of 0.5
    - 0.5 qualified individuals per opening (Less supply than demand)

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## How do we calculate demand and supply?

### Demand

How many potential job openings do we expect for a given occupation?

*Average of total number of jobs for each occupation across three data sets...*

- 2017 projections from openings and replacement (OES)
- 2024 projections from openings and replacement (OES)
- Help Wanted Online annualized 2016 job postings

### Supply

How many qualified individuals do we potentially have available to fill a relevant job opening?

*Sum of available workers or graduates related to an occupation from multiple data sets...*

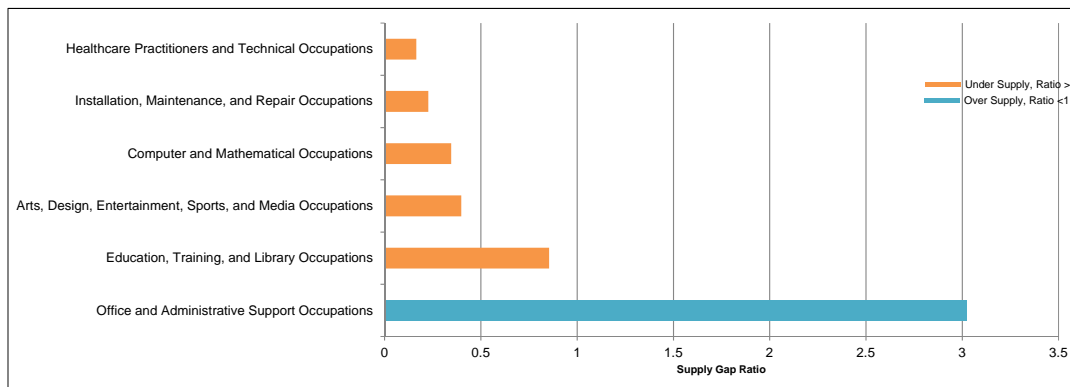
- Unique UI claims, 2016 (DUA)
- Relevant completer data
  - Voc-Tech completers, 2013-2015 average (DESE), 50% available\*
  - Community College completers, 2013-2015 average (DHE), 90% available
  - State University completers, 2013-2015 average (DHE), 71% available
  - Private University completers, 2013-2015 average (iPEDS), 55% available

\*All retention figures are statewide, studies cited in Data Tool

\*\*Occupations requiring post-secondary education only

## Regional Supply Gap Overview: Sub-BA Clusters

Healthcare, Installation, and Computer and Mathematical occupations average the lowest ratios of qualified individuals per opening at the sub-BA level.

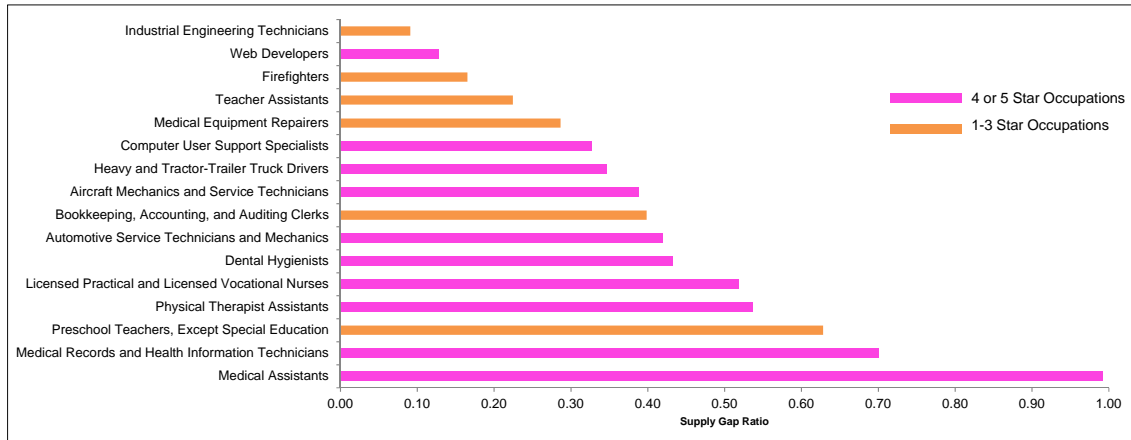


*Occupations requiring a postsecondary non-degree award, some college, or an Associate's Degree, 20+ Demand Index only*

Supply Gap Analysis

## More Openings than Qualified: Regional Sub-BA Occupations

Among all occupations requiring an Associates or Certificate, a number of four and five star occupations do not have enough regional supply to meet employer demand.



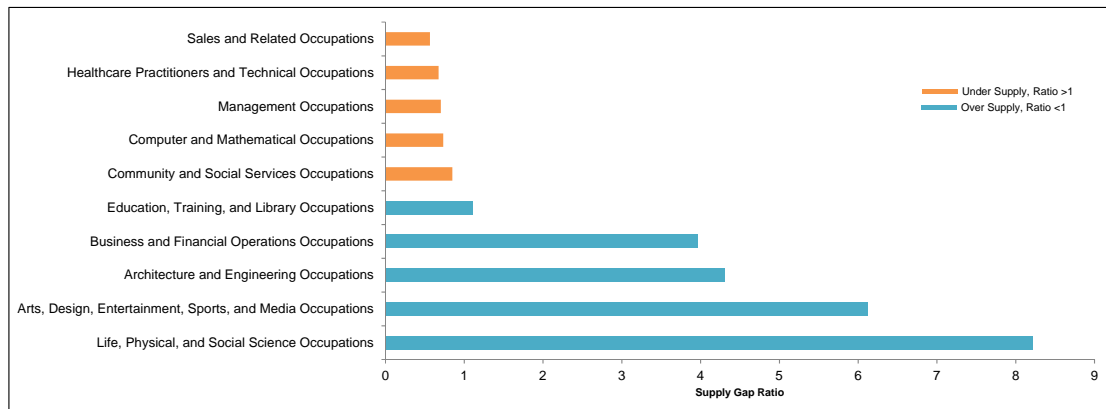
Occupations requiring a postsecondary non-degree award, some college, or an Associate's Degree, 20+ Demand Index Only

Source: OES Projections 2014-2024, OES Projections 2015-2017, HWOL 2016 average, IPEDS, Massachusetts Department of Higher Education, Department of Unemployment Assistance

Supply Gap Analysis

## State Supply Gap Overview: BA Clusters

Sales, Healthcare, Management, and Computer and Mathematical Occupations average the lowest ratios of qualified individuals per opening at the BA level.



Occupations requiring a Bachelor's Degree, Demand Index 100+ Only

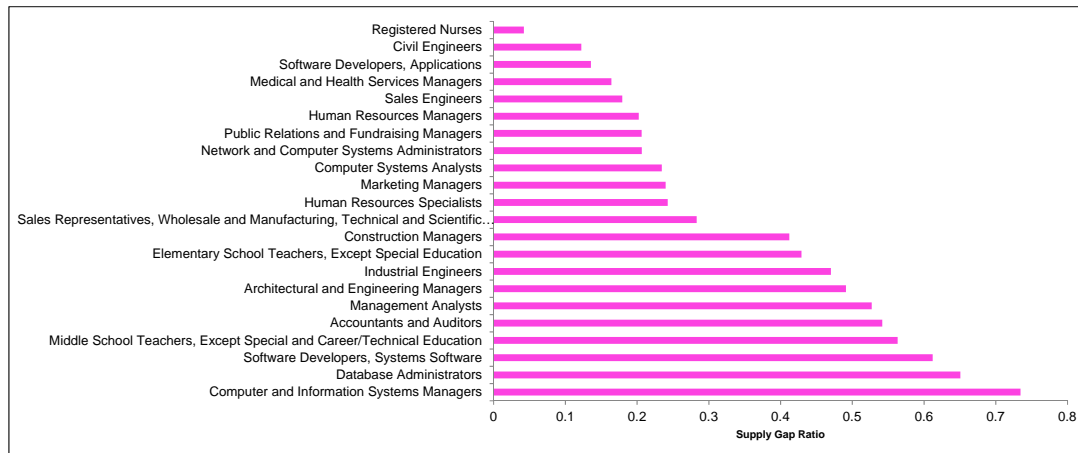
Source: OES Projections 2014-2024, OES Projections 2015-2017, HWOL 2016 average, IPEDS, Massachusetts Department of Higher Education, Department of Unemployment Assistance



## Supply Gap Analysis

## More Openings than Qualified: State BA Occupations

A number of 4 and 5 star occupations, largely in STEM fields, are in short supply.



*Occupations requiring a Bachelor's Degree, 4 and 5 stars, Demand Index 100+ only*

Source: OES Projections 2014-2024, OES Projections 2015-2017, HWOL 2016 average, IPEDS, Massachusetts Department of Higher Education, Department of Unemployment Assistance

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## Supply Gap Analysis

## Takeaways

### Associate's, Some college, Post-secondary Certificate

- In Pioneer Valley, we can expect supply gaps in 4 and 5 star occupations primarily in categories of Computer Support/IT, Installation, Transportation, and Healthcare Support.

### Bachelor's Degree

- Across the State, we expect supply gaps in 4 and 5 star occupations primarily in STEM fields, with an emphasis on Healthcare and Computer and Mathematical occupations.

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Confirming Occupation Priorities

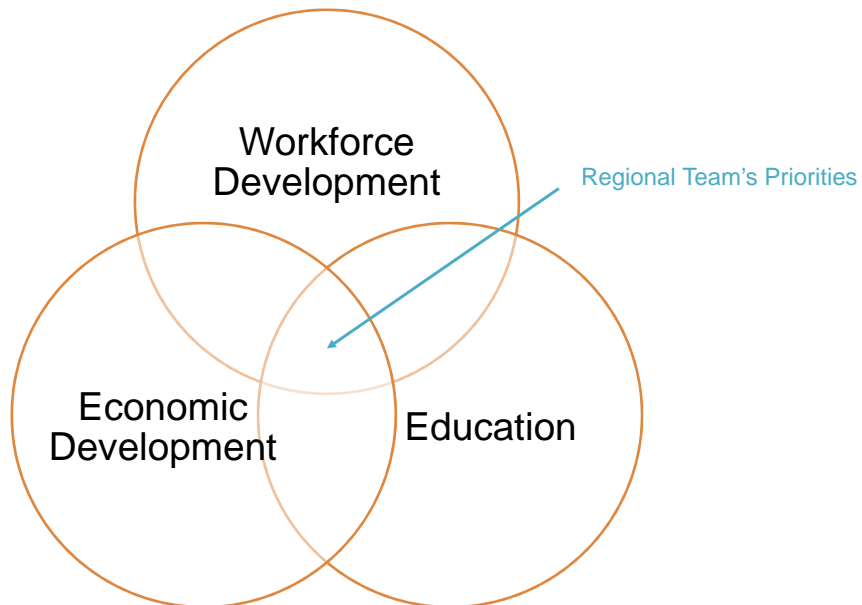
## Region's Industry/Occupation Priorities, Sub-BA

Industry Priorities	Supply Gap, 4 and 5 Star	Supply Gap, 1-3 Star	High Indexed Demand	4 and 5 Star Occupations, HS or Below	Career Pathway Entryway	Supportive Employer/Meets Econ Dev Goals
1. Health Care	Dental Hygienists LPNs Physical Therapist Assistants Medical Assistants Medical Records and Health Information Technicians	Medical Equipment Repairers	Nursing Assistants Home Health Aides		<i>Nursing Assistants Home Health Aides Medical Assistants</i>	
2. Education Services		Teacher Assistants Preschool Teachers			<i>Teacher Assistants</i>	
3. Manufacturing				Machinists Industrial Machinery Mechanics First Line Supervisors of Production and Operating Workers	Team Assemblers	
4. Professional and Technical Services (IT)	Web Developer Computer User Support Specialist				<i>Computer User Support Specialist</i>	
5. Agriculture				Farmers, Ranchers, other Agricultural Managers		
Other	Heavy Tractor Trailer Drivers Automotive Service Technicians / Mechanics Aircraft Mechanics / Technicians					

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Confirming Occupation Priorities

## Reminder



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Confirming Occupation Priorities

## Data Tool

- Demo

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Work Time

## Group Review

- Work in mixed groups (workforce, education, economic development groups)
- Confirm **regional criteria** to select high priority industries and occupations
- Discuss and confirm regional **high priority industries and occupations (slide 34)**
- Share out upon conclusion of work time

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# Appendix

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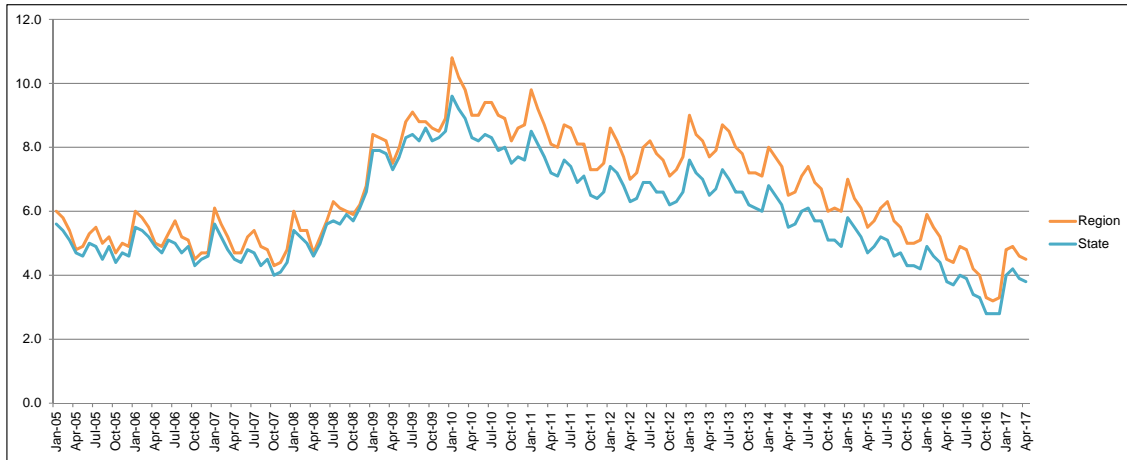
## I. Labor Force and Unemployment Demographics

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Unemployment Rate Deep Dive

## State and Regional Unemployment Rate

Pioneer Valley unemployment rates trend about a .5-1 percentage point above those of the State, and have diverged more sharply from the State's rate since 2010.



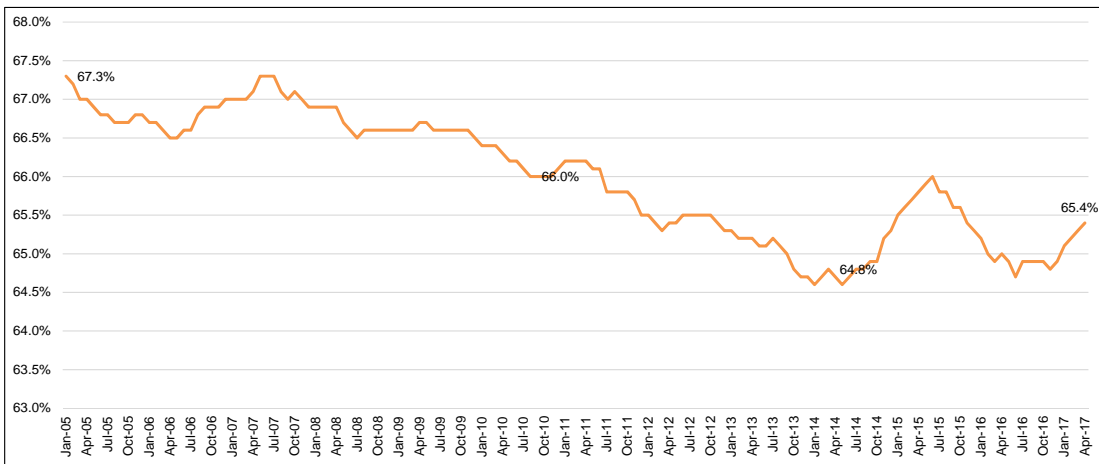
Source: Bureau of Labor Statistics, 2005-2017 Seasonally Unadjusted Data

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Unemployment Rate Deep Dive

## State Labor Force Participation Rate

The labor force participation rate has not recovered to pre-recession levels.



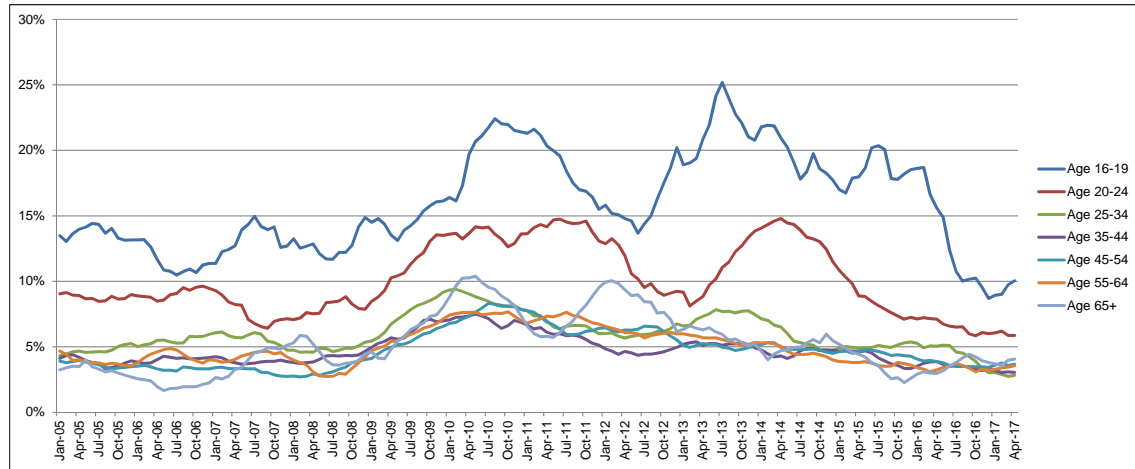
Source: Bureau of Labor Statistics, 2005-2017 Seasonally Unadjusted Data

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Unemployment Rate Deep Dive

## State Unemployment Rate by Age, 20-64

Cohorts age 16-19, 20-24, and 65+ have demonstrated the most sensitivity to changing labor market conditions. The highest unemployment rates are among young adults 16-19 and 20-24.

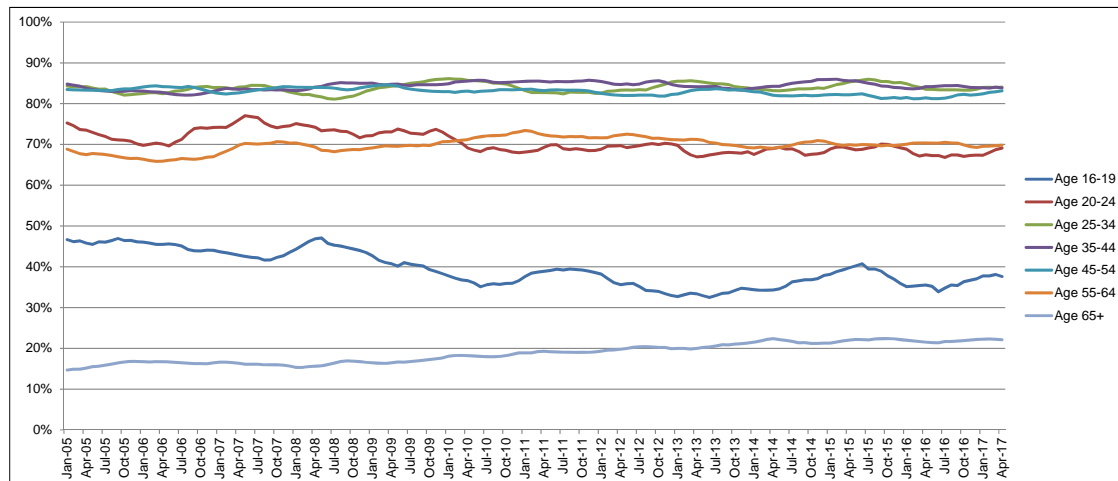


Source: BLS Current Population Survey, 12 Month Moving Averages

Unemployment Rate Deep Dive

## State Labor Force Participation by Age, 16+

Since the year 2005, labor force participation has declined by 5% for 20-24 year olds and has declined by almost 10% for 16-19 year olds. Labor force participation for seniors has increased since 2005 by approximately 7%.

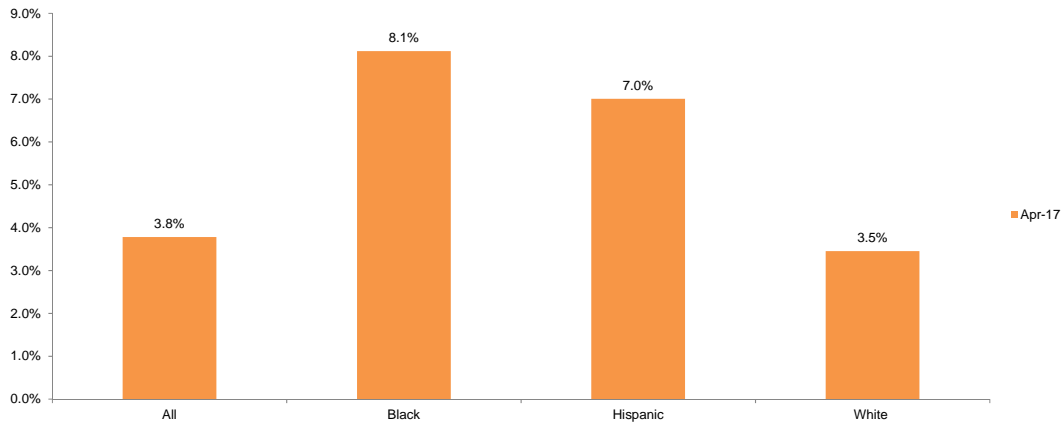


Source: BLS Current Population Survey, 12 Month Moving Averages

Unemployment Rate Deep Dive

## State Unemployment Rate by Race

The white unemployment rate aligns with the state average, whereas Black and Hispanic unemployment rates tend to significantly exceed the trend.



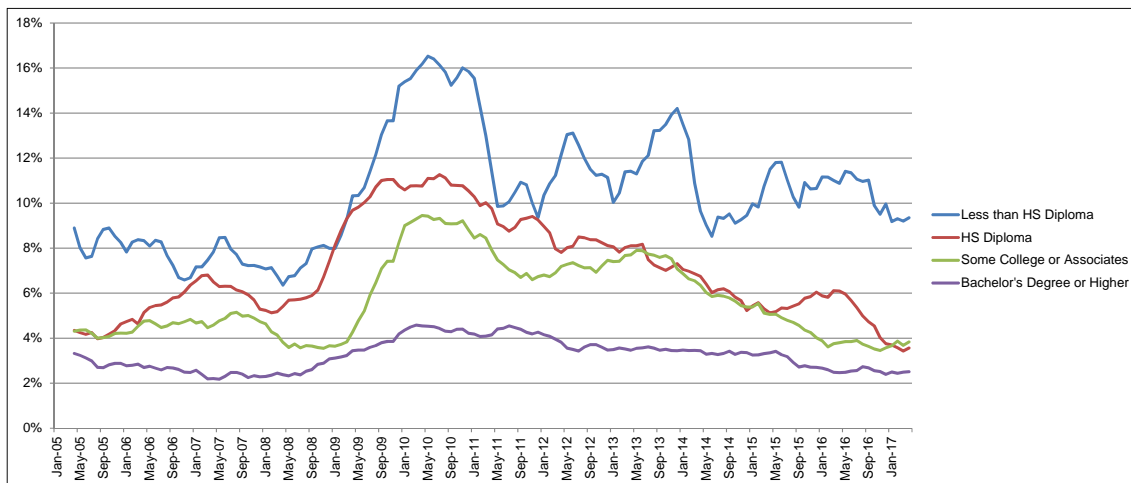
Source: BLS Current Population Survey, 12 Month Moving Averages

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Unemployment Rate Deep Dive

## State Unemployment Rate by Education, 25+

Higher levels of education tend to correlate with lower unemployment levels and more stability during uncertain economic times.

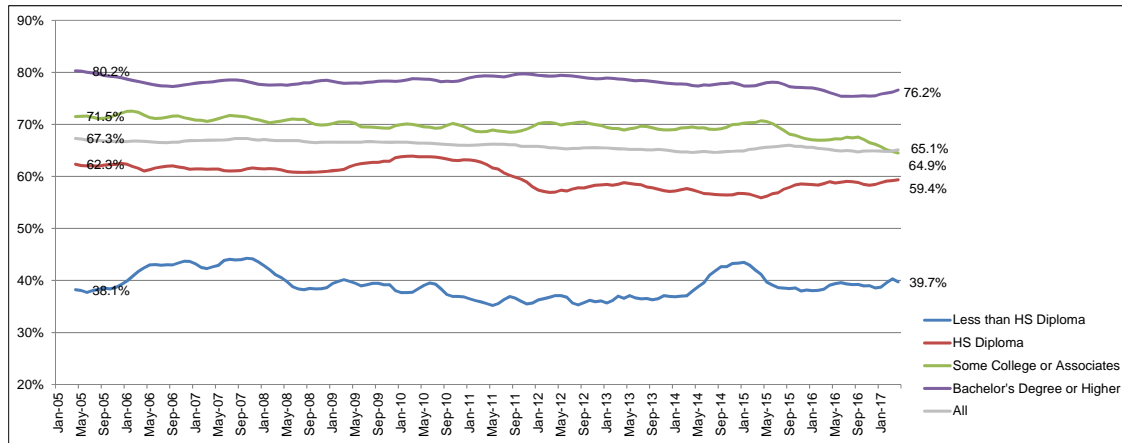


Source: BLS Current Population Survey, 12 Month Moving Averages

Unemployment Rate Deep Dive

## State Labor Force Participation by Education, 25+

Higher education levels are correlated with higher labor force participation rates. However, as the unemployment has declined, labor force participation has also declined in all categories except sub-high school.



Source: BLS Current Population Survey, 12 Month Moving Averages

Unemployment Rate Deep Dive

## Takeaways

- Labor force participation has not recovered after the recession.
- Compared to pre-recession, less young people are in the labor force, and older residents are working longer.
- Minority populations experience higher levels of unemployment and less consistent levels of labor force participation.
- Compared to pre-recession, less educated workers are in the labor force.

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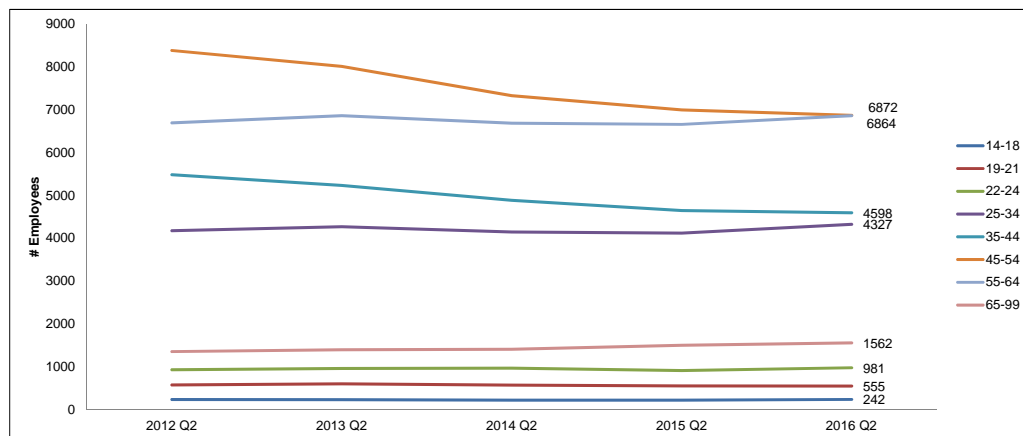
## II. Additional Industry Data

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Industry Deep Dive: Manufacturing

### Manufacturing Employees by Age

Cohorts aged 45-54 and 55-64 make up the largest share of the workforce (52% in 2016). The total number of individuals employed in manufacturing has declined, driven by a decrease in employees aged 45-54 and 35-44, and no significant increase in younger cohorts.



Source: US Census Longitudinal Employer-Household Dynamics: Quarterly Workforce Indicators 2011 – 2016

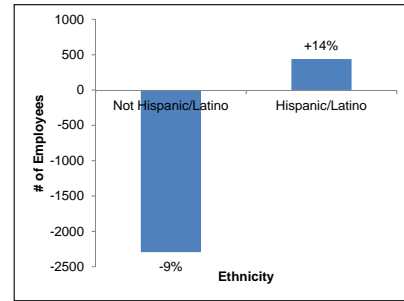
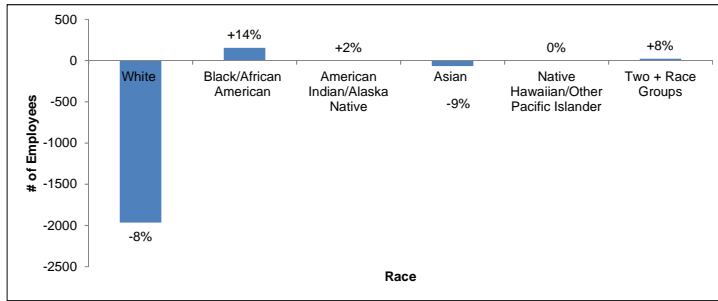
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Industry Deep Dive: Manufacturing

## Manufacturing Employees by Race/Ethnicity

While the number of non-white employees has increased, it has not increased at the same rate as the number of white employees has declined.

Percent and Absolute Change in Employees, Q2 2012 – Q2 2016



Source: US Census Longitudinal Employer-Household Dynamics: Quarterly Workforce Indicators 2011 – 2016

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Industry Deep Dive: Manufacturing

## Manufacturing Employees by Education

The share and number of employees with more than a high school diploma has decreased, while the share and number of employees with less than a high school diploma has remained steady.



Educational Attainment	% Change, 2016 Q2 - 2012 Q2
Less than high school	0%
High school or equivalent, no college	-9%
Some college or Associate degree	-8%
Bachelor's degree or advanced degree	-8%

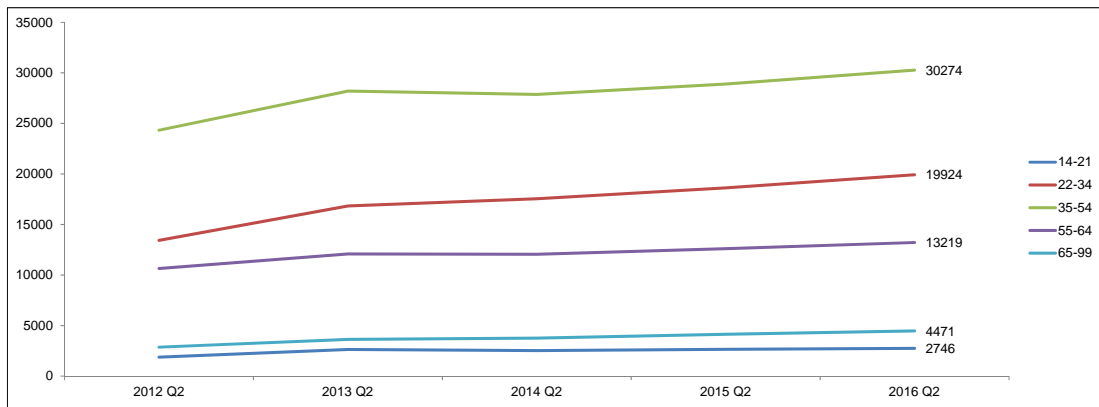
Source: US Census Longitudinal Employer-Household Dynamics: Quarterly Workforce Indicators 2011 – 2016

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Industry Deep Dive: Healthcare and Social Assistance

## Healthcare and Social Assistance by Age

Cohorts aged 22-34 and 35-54 make up the largest share of the workforce (71% in 2016). The total number of individuals employed in healthcare and social assistance has increased slightly across the board.



Source: US Census Longitudinal Employer-Household Dynamics: Quarterly Workforce Indicators 2011 – 2016

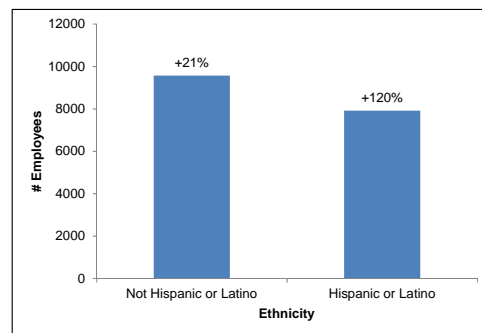
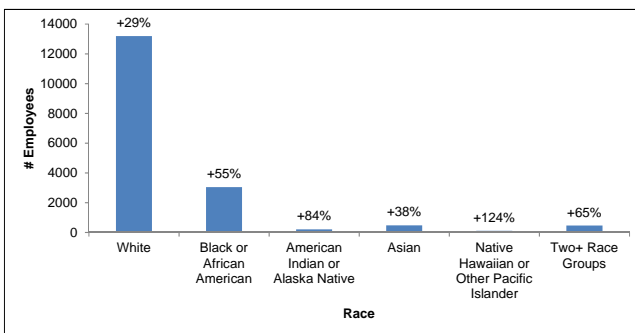
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Industry Deep Dive: Healthcare and Social Assistance

## Healthcare and Social Assistance by Race/Ethnicity

Increases across all race and ethnicity groups are evident, with the most significant raw increase among white workers (13,187, 29%), and the most significant percent increase among Hispanic or Latino workers (7916, 120%).

Percent and Absolute Change in Employees, Q2 2012 – Q2 2016



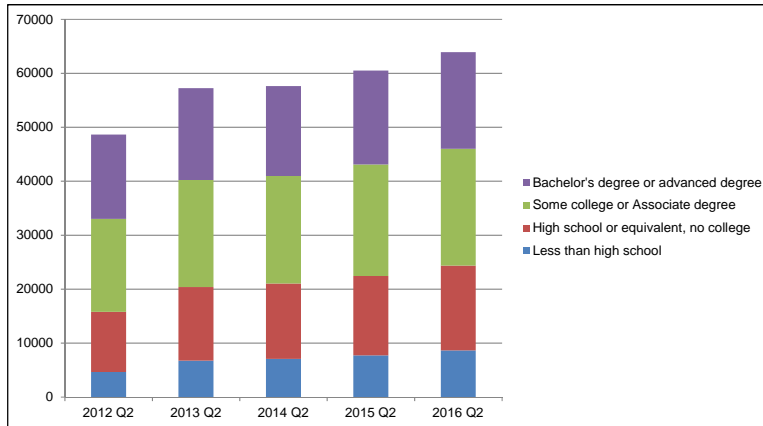
Source: US Census Longitudinal Employer-Household Dynamics: Quarterly Workforce Indicators 2011 – 2016

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Industry Deep Dive: Healthcare and Social Assistance

## Healthcare and Social Assistance by Education

There has been a significant increase in employees with a high school degree or below, likely partially due to the inclusion of Personal Care Attendants in this category.



Educational Attainment	% Change, 2016 Q2 - 2012 Q2
Less than high school	87%
High school or equivalent, no college	41%
Some college or Associate degree	25%
Bachelor's degree or advanced degree	15%

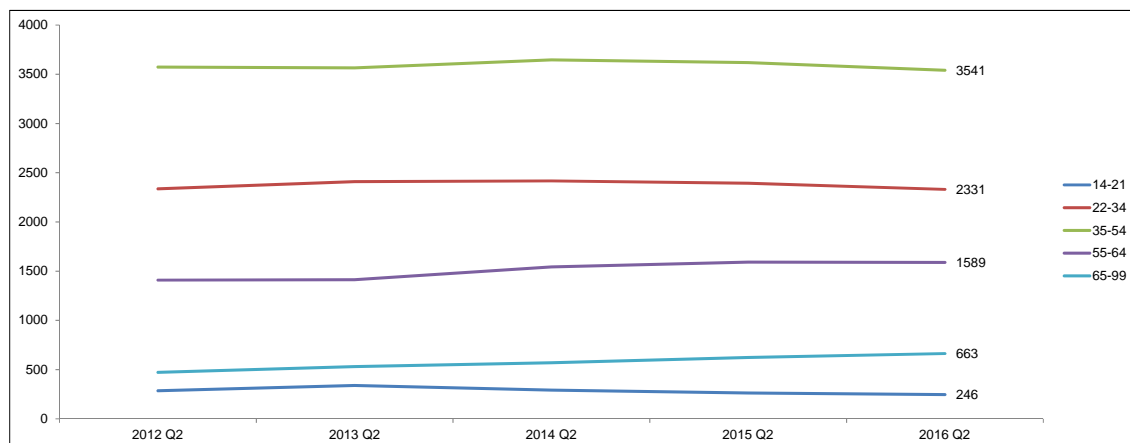
Source: US Census Longitudinal Employer-Household Dynamics: Quarterly Workforce Indicators 2011 – 2016

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Industry Deep Dive: Professional and Technical Services

## Professional and Technical by Age

The 35-54 year old cohort makes up the largest share of the workforce (42% in 2016). The total number of individuals employed in this sector has remained relatively flat over the past four years.



Source: US Census Longitudinal Employer-Household Dynamics: Quarterly Workforce Indicators 2011 – 2016

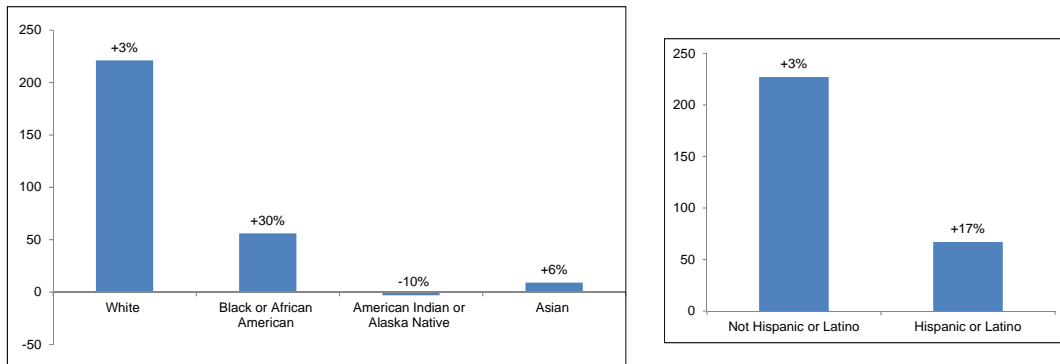
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Industry Deep Dive: Professional and Technical Services

## Professional and Technical by Race/Ethnicity

The most significant raw change is among white workers (221, +3%), and the most significant percent change is among Black or African American workers (56, +30%).

Percent and Absolute Change in Employees, Q2 2012 – Q2 2016



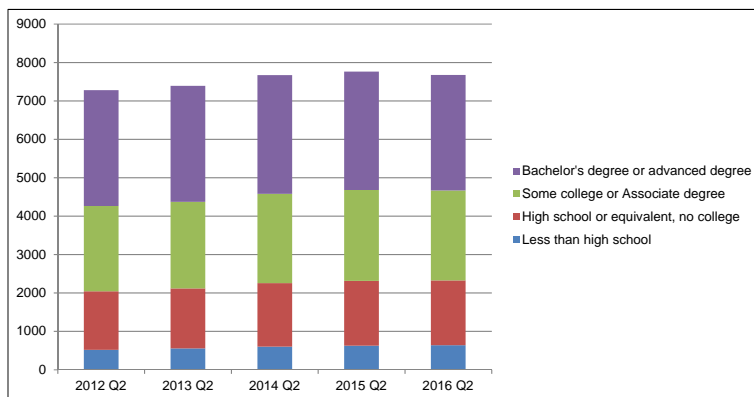
Source: US Census Longitudinal Employer-Household Dynamics: Quarterly Workforce Indicators 2011 – 2016

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Industry Deep Dive: Healthcare and Social Assistance

## Professional and Technical Services by Education

Professional and Technical Services is a highly educated industry, and the largest share of employees have Bachelor's Degrees or above. However, the percent of employees with a high school degree or below is increasing.



Educational Attainment	% Change, 2016 Q2 - 2012 Q2
Less than high school	23%
High school or equivalent, no college	11%
Some college or Associate degree	5%
Bachelor's degree or advanced degree	0%

Source: US Census Longitudinal Employer-Household Dynamics: Quarterly Workforce Indicators 2011 – 2016

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