

Approaches to Immigration Policy and the Human Capital Impact for Boston

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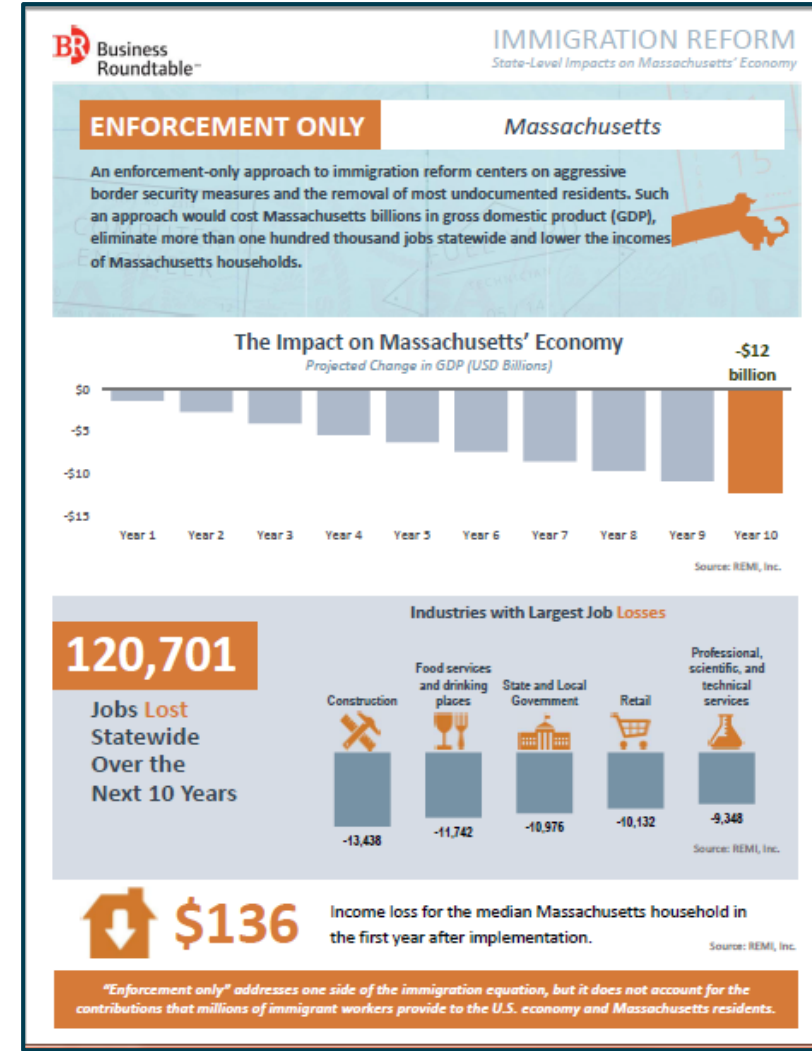
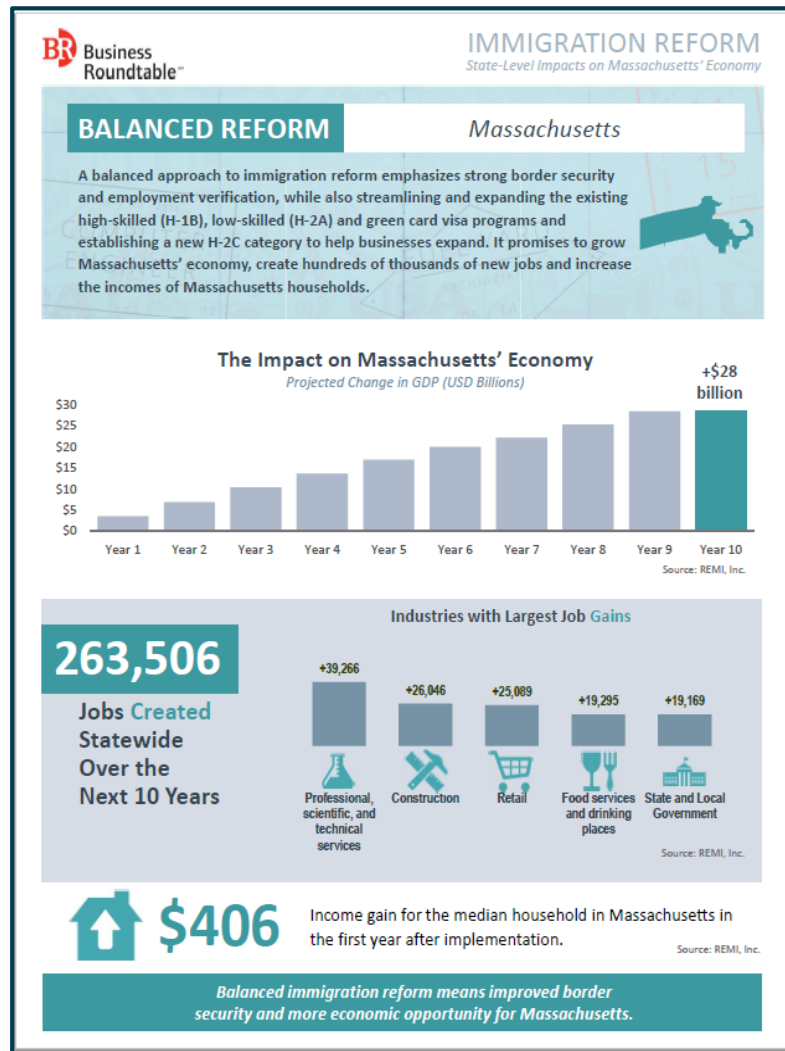
BPDA Research Division



**boston planning &
development agency**

June 6, 2018

Business Roundtable Immigration Analysis



Quantifying Labor Changes for Both Scenarios in Boston

I. Boston labor market change: labor supply

- REMI projections based on these two approaches are used to estimate changes to Boston's labor force over a 10-year period

II-A. The value of human capital

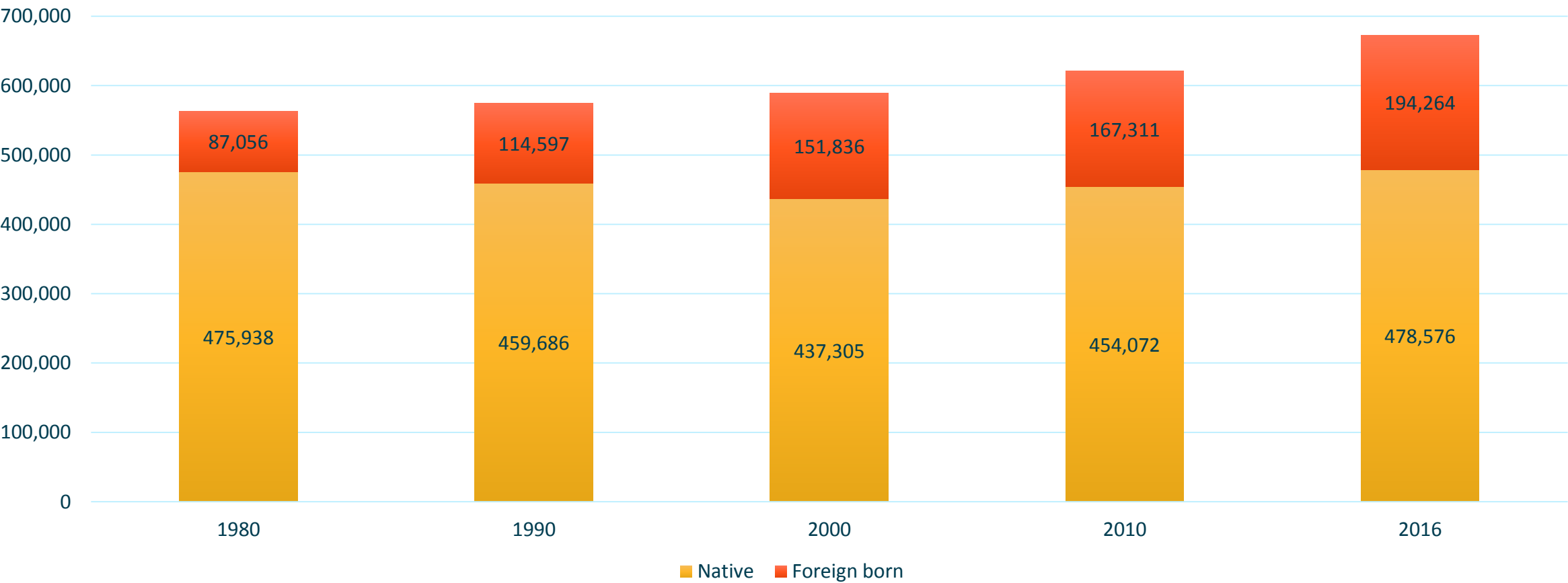
- Human capital that would potentially be gained (balanced scenario)

II-B. Replacement wages

- Wage differentials between native- and foreign-born workers (enforcement only scenario)

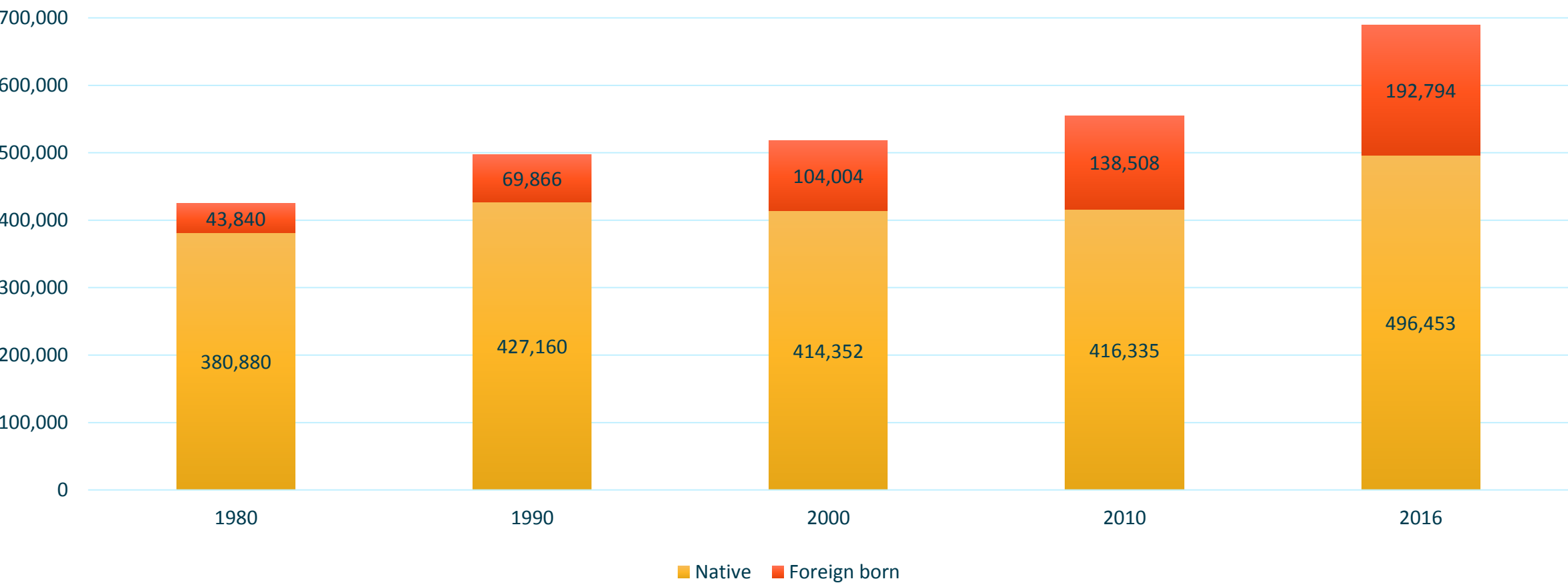
III. Implication to Boston's Economy

Boston's Population 1980-2016



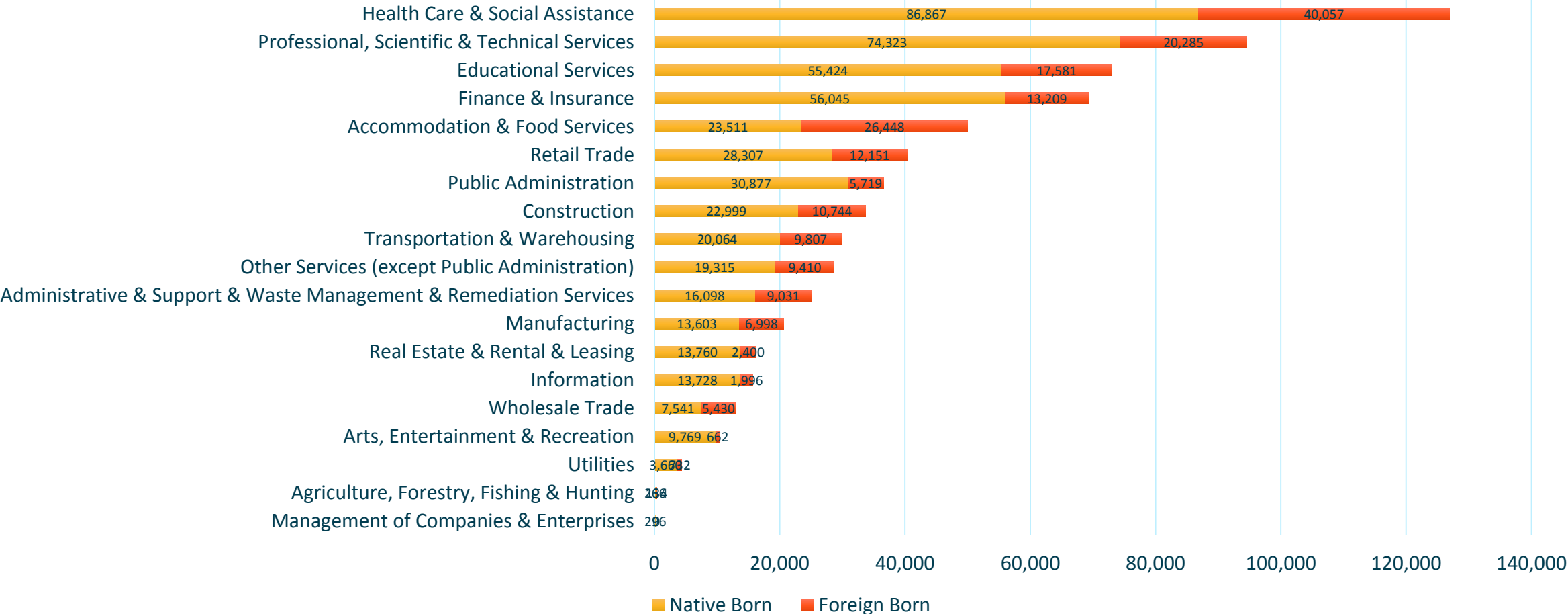
Source: 1980, 1990 & 2000 Decennial Census (IPUMS) & 2010 and 2016 American Community Survey (PUMS), BPDA Research Division Analysis

Boston's Labor Force 1980-2016



Source: 1980, 1990 & 2000 Decennial Census (IPUMS) & 2010 and 2016 American Community Survey (PUMS), BPDA Research Division Analysis

Boston's Employment by Industry 2016



Source: 2016 American Community Survey (PUMS), BPDA Research Division Analysis

Costs & Benefits to Two Immigration Scenarios

- Competing political interests differ on mechanisms for and amount of migration
 - Expanded scenario:
 - Increase visas
 - Restrictive scenario:
 - Decrease current and potential migration
- Labor markets would be influenced by these scenarios

Business Roundtable Scenarios in Boston

- “Economic Effect of Immigration Policies, A 50-State Analysis,” Business Roundtable (2017)
- The report presents two scenarios:
 - Balanced reform
 - Enforcement only
- BPDA Research Division applies assumptions of both scenarios to Boston’s labor force over 10 years and estimates economic impacts
- Boston scenario differs from Business Roundtable scenario

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I. Labor Supply

Balance Reform vs Enforcement Only Proposals

Balanced Reform

- Immigration Innovation Act of 2018
- Border Security, Economic Opportunity, and Immigration Act of 2013 (S.744)

Enforcement Only

- 70 percent of unauthorized immigrants would be removed in 10 years
- Strengthened border security effects of S.744

Balance Reform vs Enforcement Only

Balanced Reform

- H-1B cap increase
- Green Card reform
- Improved border security and enforcement

Enforcement Only

- Deportation and voluntary departure
- Aggressive border security and enforcement

Employment - Industrial Distribution

- H-1B & Green Card Workers:
 - U.S. Citizen & Immigration Service (USCIS) publishes top 30 industries (NAICS 6-digit) of H-1B petitions
- Unauthorized Workers:
 - Migration Policy Institute (MPI) estimates industries of employment for Boston NETCTA unauthorized labor force

Employment Industrial Distribution (Top 5)

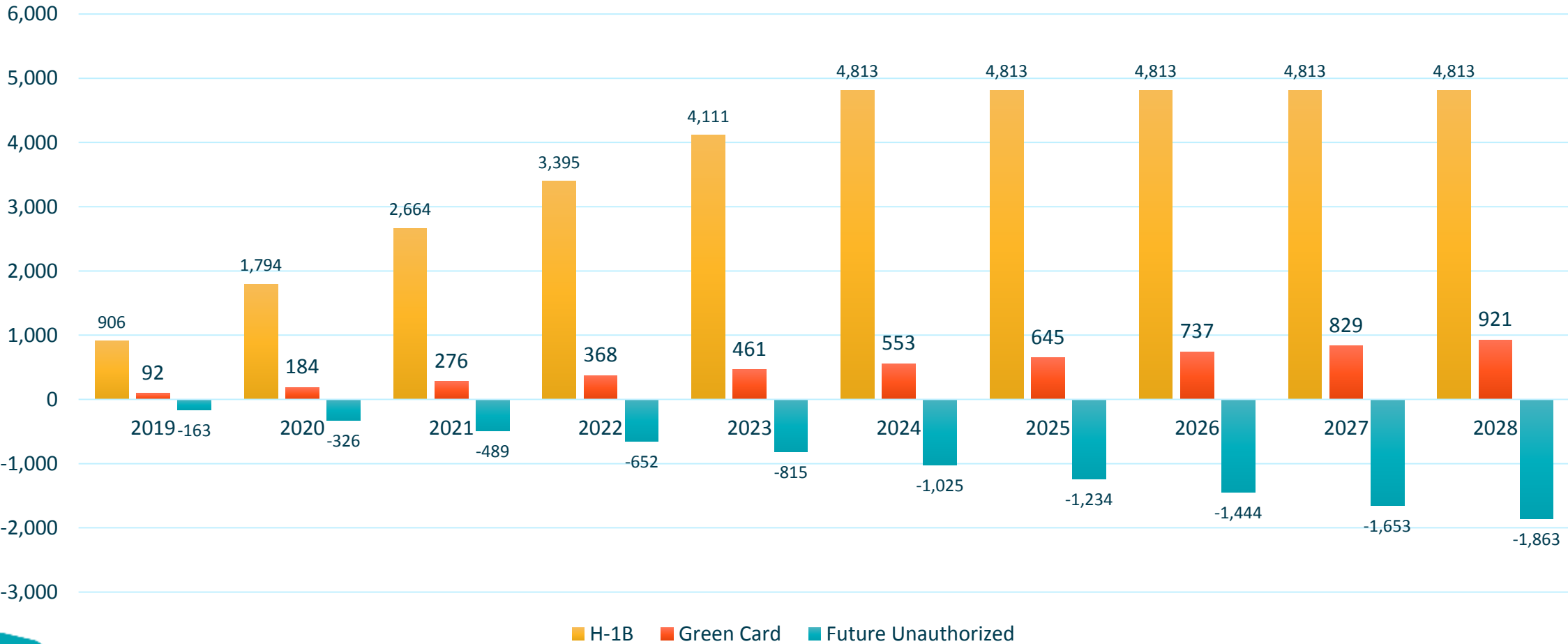
H-1B & Green Card Workers

- Custom Computer Programming Services (32.8%)
- Computer Systems Design Services (10.3%)
- Colleges, Universities, and Professional Schools (4.6%)
- Engineering Services (2.1%)
- Other Computer Related Services (2.0%)

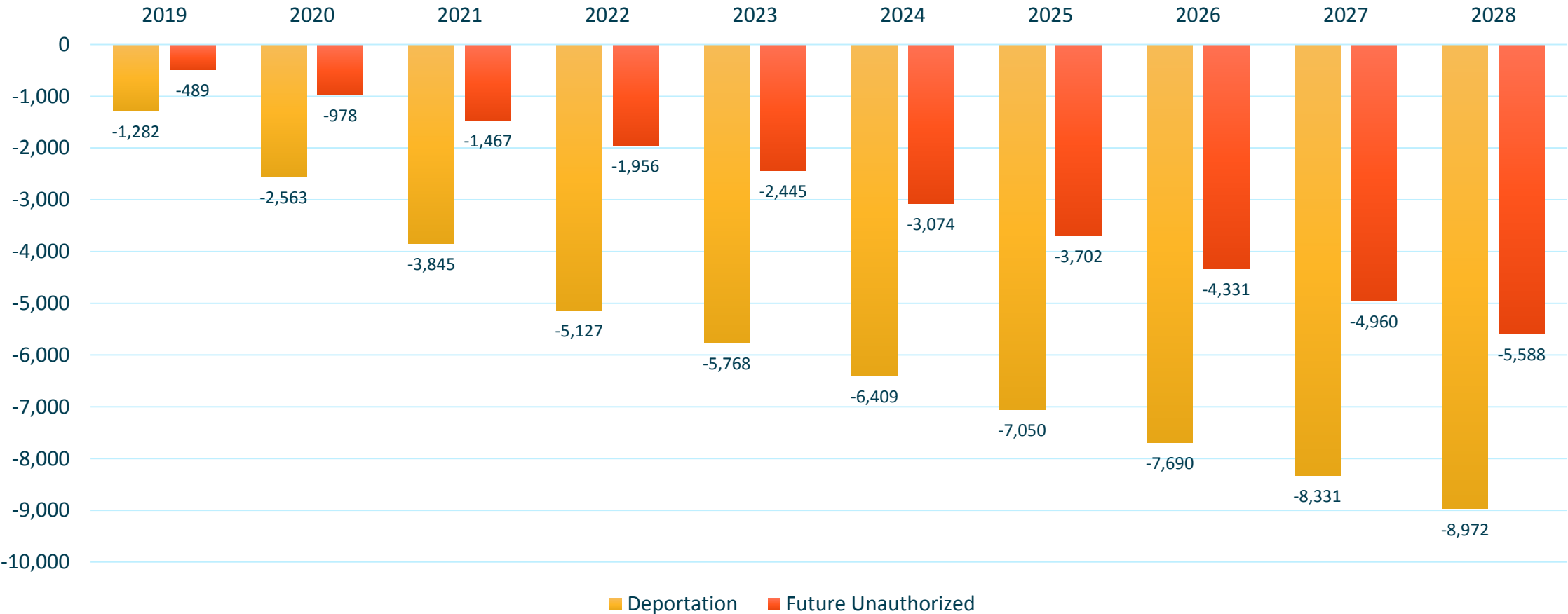
Unauthorized Workers

- Arts, entertainment, recreation, accommodation, and food services (20%)
- Professional, scientific, management, administrative, and waste management (18%)
- Educational, health, and social services (15%)
- Construction (11%)
- Retail trade (8%)

REMI Inputs – Balanced Reform: Employment (Cumulative)



REMI Inputs - Enforcement Only: Employment (Cumulative)



REMI Results – Balanced Reform Scenario

- Jobs increase in 2028: 6,720
 - Direct jobs: 3,871
 - Indirect and induced jobs: 2,849
- Average yearly Gross City Product (GCP) growth: \$1.0 Billion

Source: Regional Economic Models, Inc. (REMI), PI+ Massachusetts Regions, BPDA Research Division Analysis

Top 5 Industrial Employment Growth in 2028 – Balanced

Industry	2028
Professional, Scientific, and Technical Services	3,498
State and Local Government	860
Health Care and Social Assistance	503
Educational Services; Private	402
Administrative and Waste Management Services	299

Source: Regional Economic Models, Inc. (REMI), PI+ Massachusetts Regions, BPDA Research Division Analysis

REMI Results - Enforcement Only Scenario

- Jobs decrease in 2028 (or replacement needed): 23,809
 - Direct job: 14,561
 - Indirect and induced job: 9,248
- Average yearly GCP decrease: \$2.3 Billion

Source: Regional Economic Models, Inc. (REMI), PI+ Massachusetts Regions, BPDA Research Division Analysis

Top 5 Industrial Employment Loss in 2028 (or needed replacement) – Enforcement Only

Industry	2028
Accommodation and Food Services	-3,140
Professional, Scientific, and Technical Services	-2,692
Construction	-2,378
Finance and Insurance	-2,341
Health Care and Social Assistance	-2,255

Source: Regional Economic Models, Inc. (REMI), PI+ Massachusetts Regions, BPDA Research Division Analysis

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II-A. Human Capital - Balanced Reform

Assumptions for Human Capital Estimate

- Balanced Reform
 - Foreign-born workers with H-1B visas or who are Green Card STEM exempted must have a college degree
 - We assume K-12 education occurred outside of the United States

Educational Value for Workers Holding H-1B and Green Card (STEM Exempted) in 2028

Educational Attainment	Immigrant Workers	Distribution (USCIS H-1B Petitions in 2017)	K-12 Years	Bachelor's Degree Years	Master's Degree Years	Professional and Doctoral Degree Years	Total Year
Bachelor's Degree	2,423	42.2%	13	4	0	0	13+4
Master's Degree	2,798	48.8%	13	4	2	0	13+4+2
Professional and Doctoral Degree	514	9.0%	13	4	0	5	13+4+5
Total	5,734	100.0%	-	-	-	-	-

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

Educational Value for Workers Holding H-1B and Green Card (STEM Exempted) in 2028

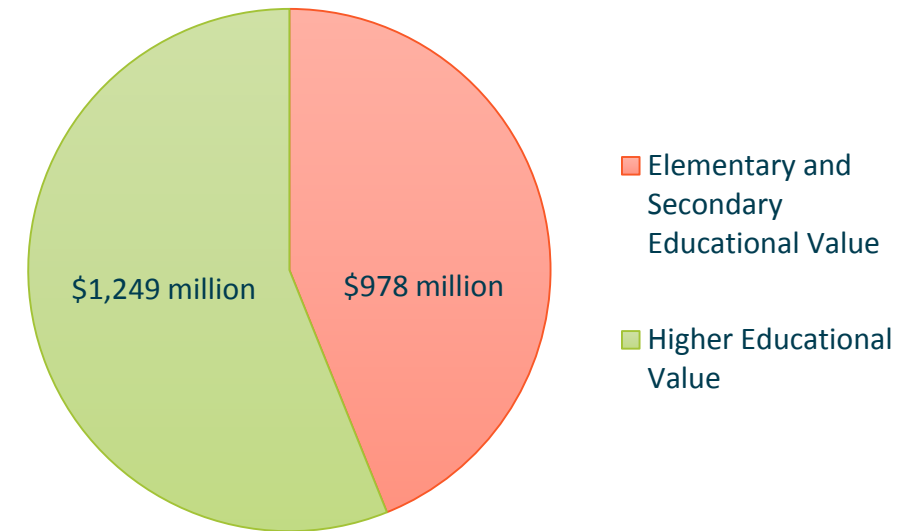
Educational Attainment	Immigrant Workers	Total Educational Years	Cost per year per Student (2016–17 constant \$)	K-12 Total Cost (millions of 2016-17 \$)	Bachelor's Degree Cost (millions of 2016-17 \$)	Master's Degree Cost (millions of 2016-17 \$)	Professional and Doctorate's Cost (millions of 2016-17 \$)	Total Cost (millions of 2016-17 \$)
Elementary and Secondary Education	-	-	\$13,119	-	-	-	-	-
Bachelor's Degree	2,423	13+4	\$45,653	\$413.2	\$442.4	\$0.0	\$0.0	\$855.6
Master's Degree	2,798	13+4+2	\$23,732	\$477.1	\$510.9	\$132.8	\$0.0	\$1,120.8
Professional and Doctoral Degree	514	13+4+5	\$27,024	\$87.6	\$93.8	\$0.0	\$69.4	\$250.9
Total	5,734	-	-	\$977.9	\$1,047.1	\$132.8	\$69.4	\$2,227.3

SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS)

Results – Potential Human Capital Gained

Balance Reform Scenario (H-1B and Green Card STEM Exempted)

- 5,734 workers after 10 years (cumulative)
- \$2.2 billion total value
 - \$1.2 billion in higher educational value
- \$978 million K-12 educational value provided outside US
 - This is cost saving to Boston and other cities and towns in United States



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II-B. Wages – Enforcement Only

II B. Wages – Enforcement Only

- Unauthorized workers who gain legal status receive a 15% wage premium
- Replacement cost of foreign-born workers by native-born workers would be higher, but the magnitude is unknown because Enforcement Only scenario has never been implemented
- Therefore, we do not estimate the wage impact of replacing foreign-born workers

Median Wage Differentials by Industry in Boston

Industry	Native Born	Foreign Born
All Industries	\$60,455	\$38,288
Construction	\$64,486	\$30,228
Health Care & Social Assistance	\$60,455	\$40,304
Professional, Scientific & Technical Services	\$75,569	\$60,455
Public Administration	\$70,531	\$60,455
Retail Trade	\$28,212	\$16,121

Source: 2016 American Community Survey (PUMS), BPDA Research Division Analysis

Median Wage differentials by industry and occupation in Boston

Industry	Related Occupations	Native Born	Foreign Born
Construction	Construction & Maintenance Occupations	\$60,455	\$29,321
Health Care & Social Assistance	Healthcare Practitioners & Technical Occupations	\$75,569	\$61,463
Professional, Scientific & Technical Services	Computer Engineering & Science Occupations	\$83,630	\$65,493
Public Administration	Office & Administrative Support Occupations	\$53,402	\$34,157
Retail Trade	Sales Related Occupations	\$17,734	\$17,129

Source: 2016 American Community Survey (PUMS), BPDA Research Division Analysis

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III. Implication to Boston's Economy

Implication to Boston's Present and Future Economy

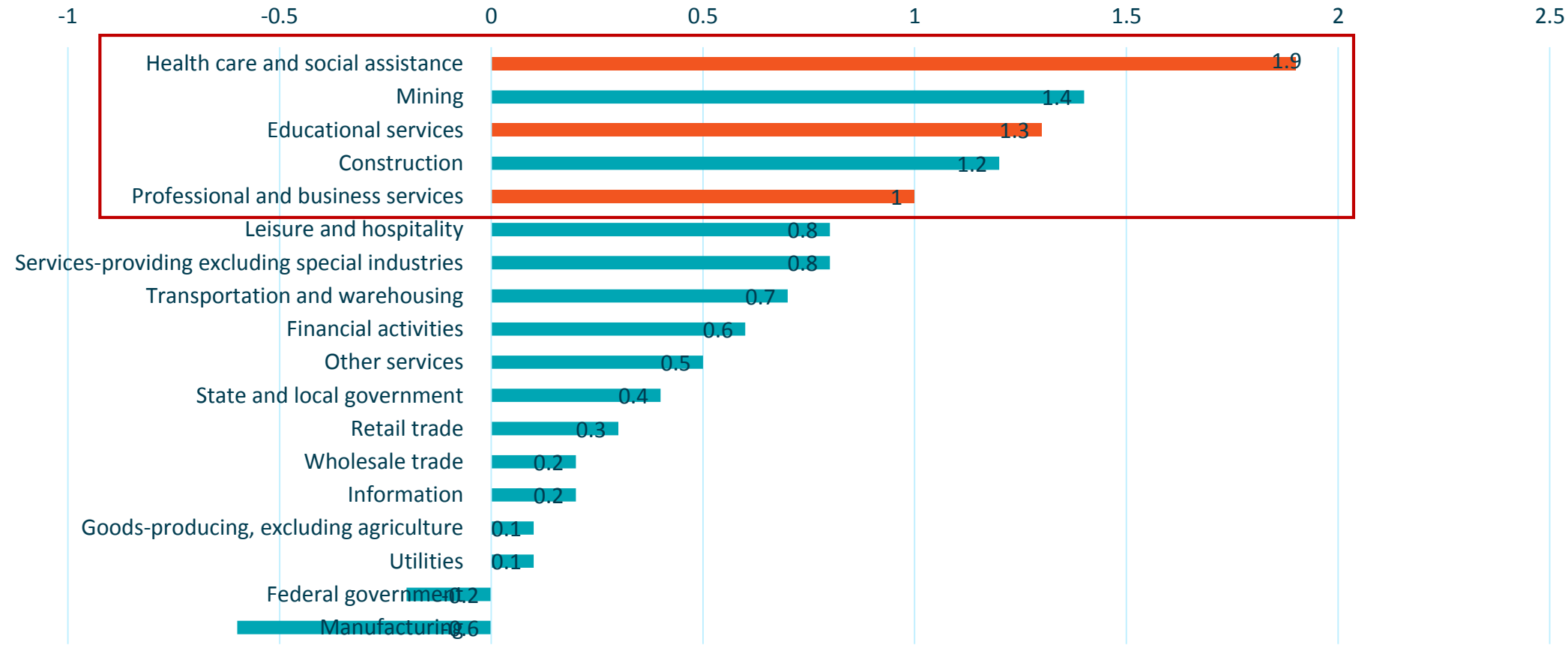
Massachusetts economy (NEEP, 2017)

- At or near full employment at 3.7% in 2017
- Slower labor force growth in Massachusetts
 - Aging population into lower labor force participation cohorts
 - Low domestic migration

Boston consists of 17% of Massachusetts employment

Implications to Future Economic Growth

BLS: US Employment Projection by Industry, 2016-2026 (Compound Annual Growth Rate)



Source: BLS Employment Projection, 2016-2026

Economy Growth Challenges Next 10 Years

- Potential labor supply shortage in key industries in Boston
 - Migration is needed to fill labor market demand
 - International migration
 - H-1B and Green Card holders find Boston attractive
 - Domestic migration
 - NEEP projections raise concerns

Thank You

Questions?