Briefing Book- Labor Market Trends in Metro Boston

Two other briefing books focus on the importance of formal education and ESOL courses to Boston's foreign-born residents. While there are a number of reasons why improving immigrant educational attainment and expanding the availability of ESOL courses is important, the most evident is the accessibility of jobs and the ability to earn enough income to care for one's family. In this briefing we will explore the wage differences in the occupations and industries typically employing members of Boston's native and foreign-born populations. In addition, we will examine labor market projections for our region for the year 2018, with an eye towards understanding the education, training, and skill requirements for jobs expected to grow in the near future. Together, this information will give us a sense of the labor market opportunities that Boston's immigrant population faces today and what they are likely to face in the future.

Demographic Comparison of the Native-Born and Foreign-Born Workforces in Boston

Boston's native-born and foreign-born populations are significantly different on a number of key demographic characteristics. This also holds true when comparing the native-born and foreign- born workforces in the city[1]. In particular, we see that the gender and racial makeup of the native-born workforce are significantly different from that of the foreign-born workforce.

Gender and Boston's Native and Foreign-Born Workforces

In Figure 1 we see significant differences in terms of gender and labor force participation between the native-born and the foreign-born populations in Boston.

Figure 1:

Gender Breakdown of Boston's Workforce

● **Male** ● **Female**

Source: American Community Survey, 2005-2007; BRA Research Analysis.

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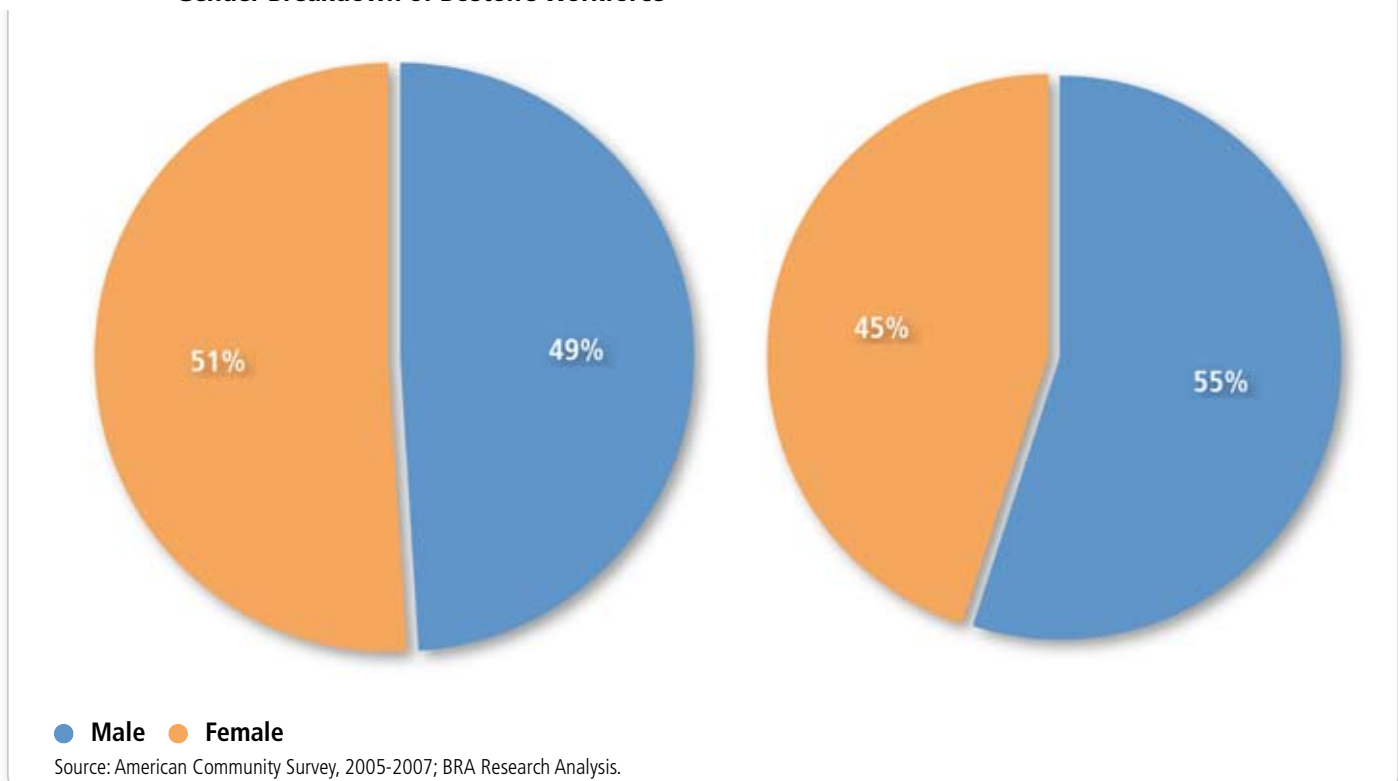
[1] We defined Boston's workforce as the collection of individuals who reside in the City of Boston and either currently have a job or are seeking work. This definition is consistent with the way the U.S. Department of Labor defines a "workforce." data referring to educational attainment levels are for Boston residents 25 years of age or older.

Overall, men makeup slightly less than half of the native-born workforce. Comparatively, men make up 56% of the foreign-born workforce. Given that marriage rates in the foreign-born population are much higher than in the native-born population (41% to 24% respectively), the gender makeup of Boston's foreign-born workforce may speak to traditionalized notion of gender roles inside nuclear families within Boston's foreign-born communities.

Race and Boston's Native and Foreign-Born Workforces

As one would expect, the racial composition of the native-born and foreign-born workforces in Boston are quite different.

Figure 2:

Racial Breakdown of Boston's Workforce

Source: American Community Survey 2005-2007; BRA Research Division Analysis.
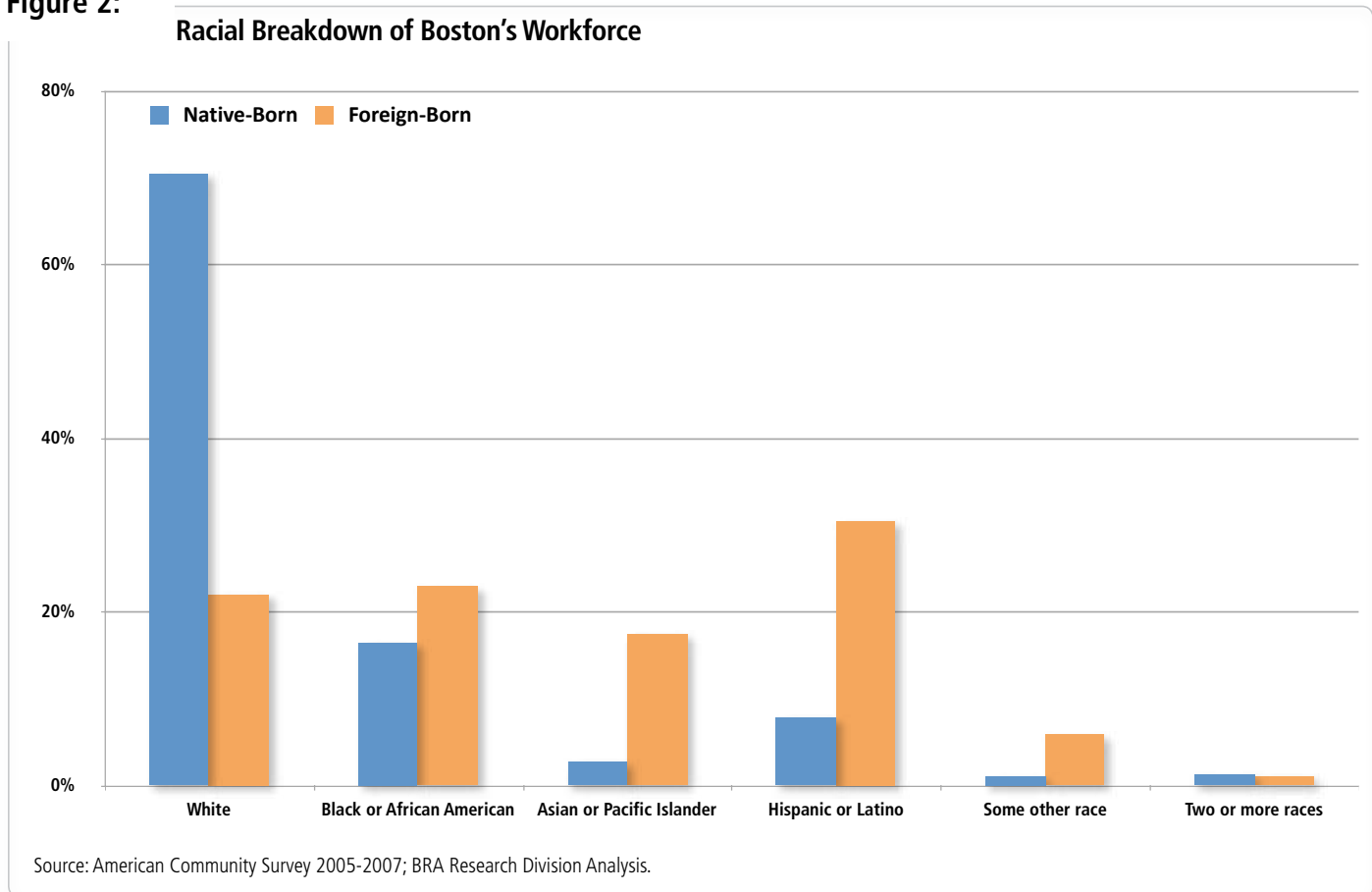
As, **Figure 2** shows, the foreign-born workforce is much more racially diverse than the native- born workforce. The vast majority of the native-born workforce is White (70%), while the foreign-born workforce is made up of almost equal portions of Hispanics/Latinos (30%), Black/African Americans[2] (23%), and Whites (22%). Asian/Pacific Islanders also make up a significant portion of the foreign-born workforce (17%).

Differences in Labor Force Outcomes and Participation in Boston's Native-Born and Foreign-Born Workforces

In this section, we focus on how the labor force outcomes and participation patterns differ between Boston's native-born and foreign-born workforces. Of particular interest will be how salary, occupational structure, and industrial makeup vary between the two groups.

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[2] This is the category name on the Census. In reality, most "African Americans" are not foreign-born. As a result, the majority of these individuals are "Black".

Occupational Structure of Boston's Native-Born and Foreign-Born Workforces

One possible explanation for why the native-born and the foreign-born workforces earn different salaries, even at the same level of education, are the types of jobs each population holds. Obviously, some occupations make more money than others, even if they require similar levels of education. As a result, it is important to consider the types of occupations typically held by Boston's native-born and foreign-born workforces.

Figure 3:

Boston's Labor Force by Occupational Category

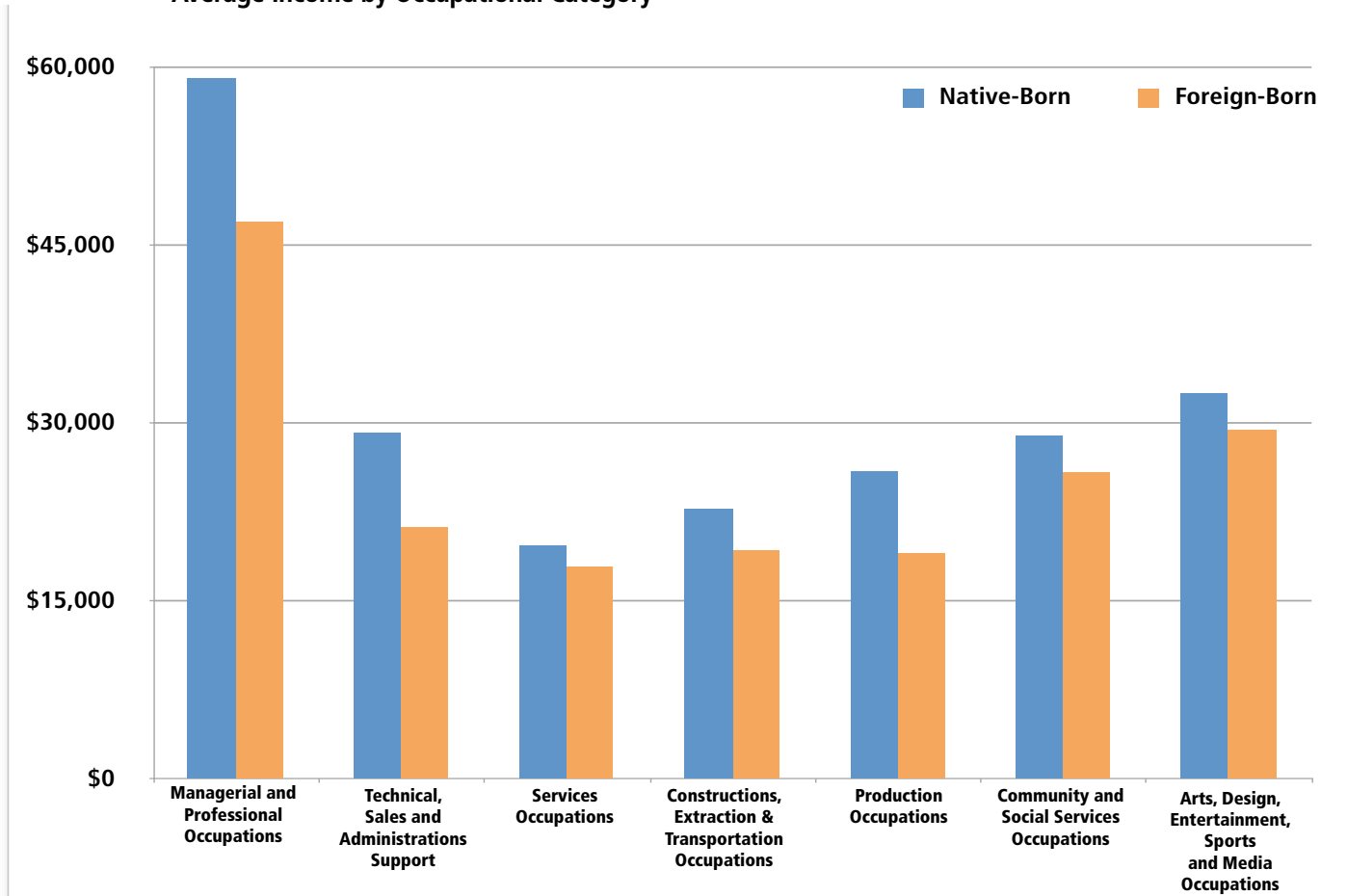Source: American Community Survey; 2005-2007; BRA Research Analysis[3]
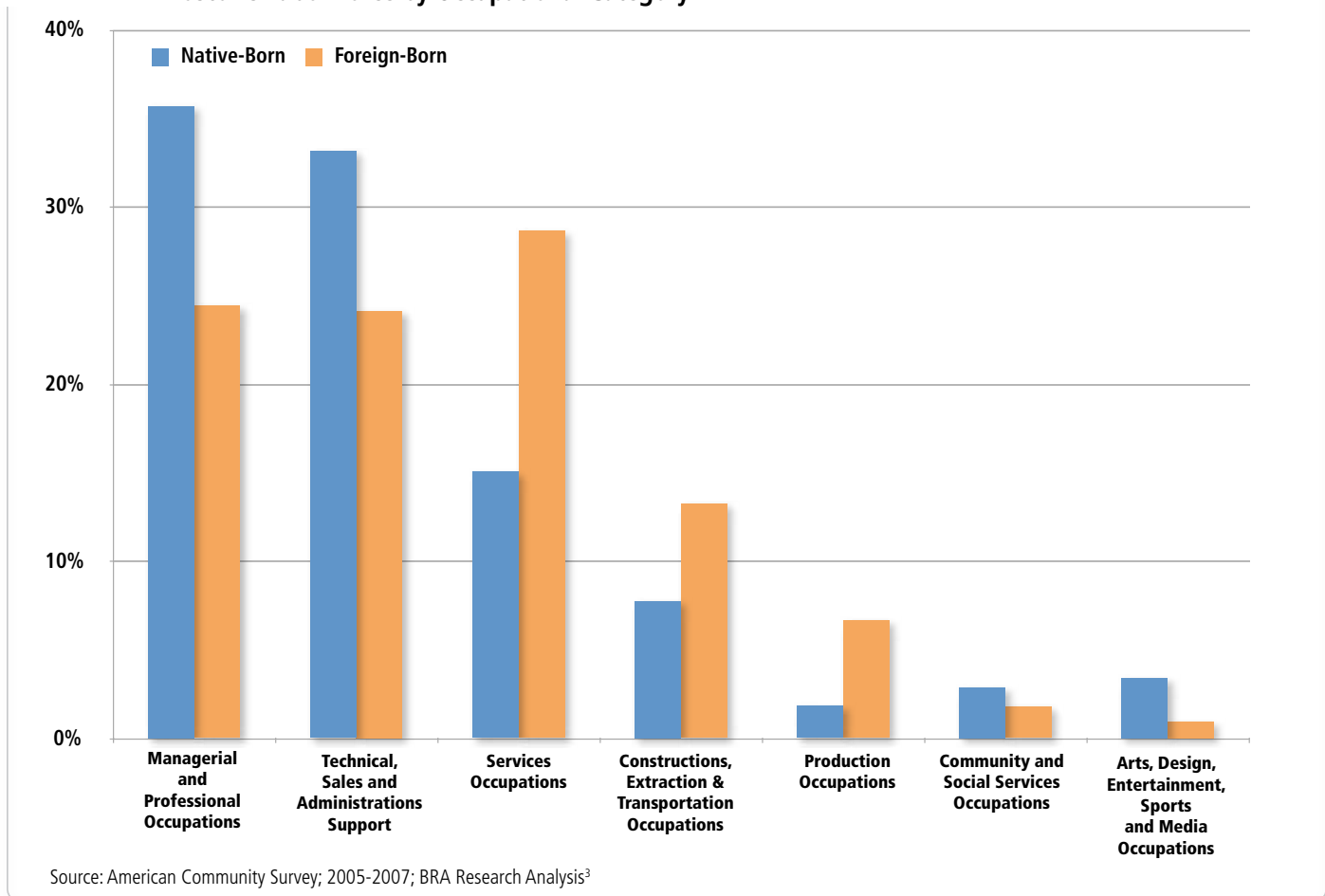
As **Figure 3** shows, Boston's native-born workforce is over-represented in *managerial and professional occupations* and *technical, sales, and administrative occupations.* Conversely, the foreign-born workforce tends to be employed in *service occupations, constructions, extraction, and transportation occupations,* and *production occupations.* In short, we see that Boston's native-born workforce is much more likely to be employed in white-collar jobs than the foreign- born workforce. On the other hand, the foreign-born workforce is much more likely to be working blue-collar and service related jobs than the native-born workforce.

While working in different types of occupations can help to explain the relative income inequality between the native-born and foreign-born workforces in Boston, closer inspection of the data shows that members of the foreign-born workforce tend to be paid less than members of the native-born workforce, even within the same occupational classifications. As **Figure 4** demonstrates, foreign-born workers earn less than native-born workers within each occupational classification.

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[3] This set of occupational groupings was developed by the Boston Redevelopment Authority Research Division, collapsing the 23 major occupational grouping established by the Bureau of Labor Statistics into eight categories.

The most notable income differences within occupational groups exist in the technical sales and administrative support and the production occupations. Within both occupational classifications, foreign-born workers earn less than 74% of what native-born workers earn (72.8% and 73.5%, respectively).

Figure 4:

Average Income by Occupational Category

Source: American Community Survey, 2005-2007; BRA Research Analysis.

Characteristics of Metro Boston's Labor Market

Researchers and analysts often point to the reduced role of the manufacturing sector, the increased importance of the service and knowledge sectors, advancements in technology, and the spread of globalization as evidence that the ways in which we "do work" have fundamentally changed. With this is a change in the educational and skill requirements necessary for holding jobs in the economy. When discussing the human capital characteristics of a community, it is important to consider the educational and skill requirements for occupations and the role these factors play in the financial returns to education.

Characteristics of Metro Boston's Current Labor Market

Greater Boston's labor market is made up of a diverse set of industries; from financial services to manufacturing. Overall, though, a few key industries stand out as being particularly important players in our local economy.

Figure 5:

Employment by Major Industrial Grouping: Metro Boston-2008

NAICS	Industry	2008 Employment	% of Total Employment
11	Agriculture, Forestry, Fishing and Hunting	2,257	0.1%
21	Mining	510	0.0%
22	Utilities	66,113	4.0%
23	Construction	102,770	6.2%
31-33	Manufacturing	5,999	0.4%
42	Wholesale Trade	63,094	3.8%
44-45	Retail Trade	147,661	8.9%
48-49	Transportation and Warehousing	53,161	3.2%
51	Information	59,503	3.6%
52	Finance and Insurance	129,942	7.8%
53	Real Estate and Rental and Leasing	26,579	1.6%
54	Professional, Scientific, and Technical Services	186,344	11.2%
55	Management of Companies and Enterprises	34,810	2.1%
56	Administrative and Support and Waste Management and Remediation Services	98,392	5.9%
61	Educational Services	164,438	9.9%
62	Health Care and Social Assistance	254,301	15.2%
71	Arts, Entertainment, and Recreation	27,954	1.7%
72	Accommodation and Food Services	127,208	7.6%
81	Other Services (except Public Administration)	52,664	3.2%
91	Federal Government	8,441	0.5%
92	State Government, exc. Education and Hospitals	22,105	1.3%
93	Local Governments, exe. Education and Hospitals	33,937	2.0%
		1,668,183	100.0%

Source: Massachusetts Department of Labor and Workforce Development, ES-202 Data[4].

As demonstrated in **Figure 5**, the *Health Care and Social Assistance Industry*, the *Professional, Scientific, and Technical Services Industry*, and *Educational Services* are the largest types of industries in the region.

On average, the yearly salary for jobs in Metro Boston is just under $51,500. As one would expect, the average yearly salary varies from industry to industry.

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[4] The current ES-202 data did not have employment for local and federal government. We estimate this employment by comparing Bureau of Economic Analysis (BEA) data for 2007 in the region and scale the employment in those two sectors according to the employment trends seen in the current 2008 ES-202 data.

As **Figure 6** demonstrates, there is a great deal of variability in the average wage by industry in our region. Overall, the highest paying industrial sectors in Metro Boston are *Professional, Scientific, and Technical Services,* the *Finance and Insurance,* and the *Information Industry* ($77,622, $70,004, and $67,996 respectively). The lowest paying industrial sectors in our region include *Accommodation and Food Services* and *Retail Trade* ($25,181 and $31,520 respectively).

Figure 6:

Employment and Average Salary by Sector: Metro Boston 2008

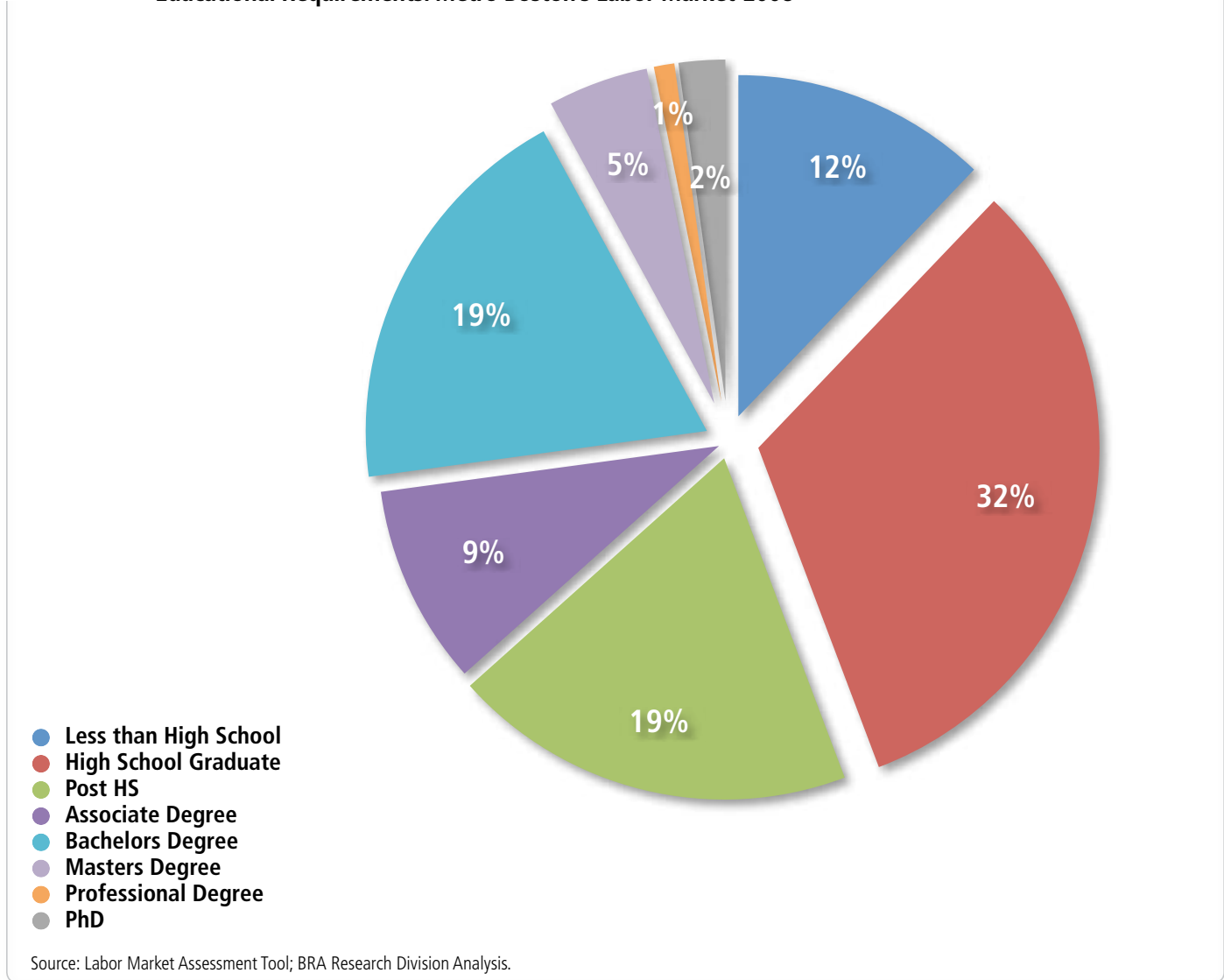Source: Labor Market Assessment Tool; BRA Research Division Analysis.
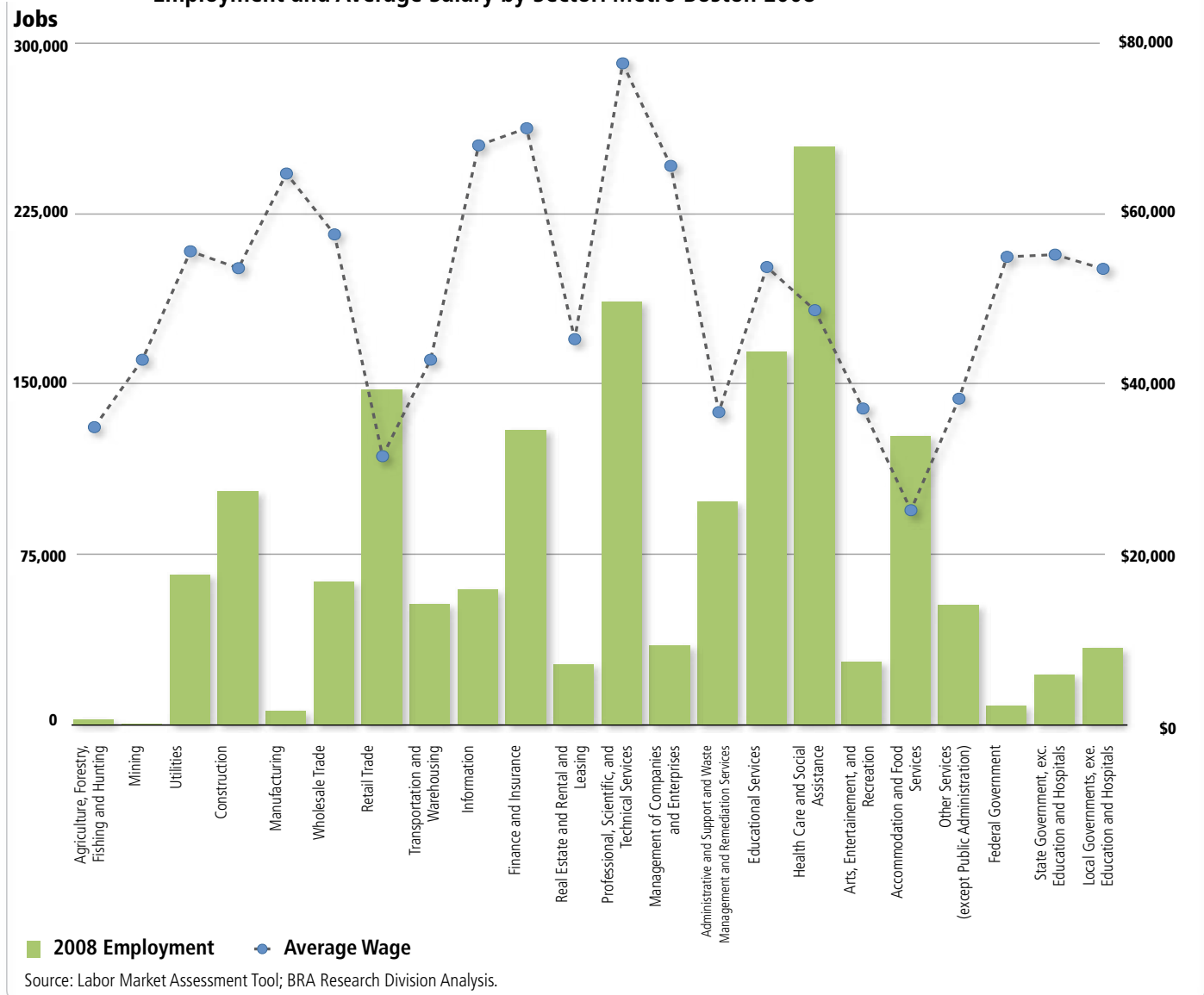
Other important dimensions to consider when examining the characteristics of the labor market are education and skill requirements. Within all of these different industrial classifications are hundreds of occupational titles, each requiring differing levels of education and skill. As mentioned previously, a great deal of attention has been paid in recent years to the changing nature of the economy, with the argument that work requires more education and skill than at other times in the past. While this may be true, a close inspection of Greater Boston's labor market shows there are jobs available for people at a variety of levels of educational attainment.

As **Figure 7** shows, 28% of Metro Boston's labor market requires a bachelor's degree or higher[5]. While this is a significant number of jobs, a large proportion of overall jobs in the Greater Boston region require no more than an associate's degree (72%).

Of course, the number of jobs available at each education level is only one aspect to consider when examining the relationship between educational requirements and the labor market. It is also extremely important to consider the economic return to education. As one would expect, there is a close relationship between the education required for an occupation and the average salary of those jobs.

Figure 7:

Educational Requirements: Metro Boston's Labor Market-2008

- ● **Less than High School**
- ● **High School Graduate**
- ● **Post HS**
- ● **Associate Degree**
- ● **Bachelors Degree**
- ● **Masters Degree**
- ● **Professional Degree**
- ● **PhD**

Source: Labor Market Assessment Tool; BRA Research Division Analysis.

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[5] In order to determine this, we used the *Labor Market Assessment Tool* (LMAT). For this analysis we used the industrial makeup and corresponding employment levels of the Metro Boston labor market. From there, we applied an industry/occupation matrix for the Commonwealth of Massachusetts to get the occupational titles and employment distribution within each industry. Next, LMAT accesses data on occupational characteristics based on incumbent surveys on the education and skill required to work in that job. Aggregated, these data can show us the education and skills needed within specific industries, as well as the labor market at large. For more information on LMAT, please see: Melnik, M.; Lima, A.; *Introducing the Labor Market Assessment Tool;* Boston Redevelopment Authority, Research Division, November 2007.

Figure 8 clearly demonstrates the close relationship between educational requirements and wages. We see that there is a wide pay differential as educational requirement increases. For example, the average salary for occupations requiring a high school diploma in the Metro Boston region is slightly more than $37,000. For occupations that require just two more years of schooling the average salary increases to over $50,000. Occupations requiring a bachelor's degree pay just under $73,000 on average.

When discussing labor market participation for immigrants, perhaps no specific skill receives more attention than the ability to speak English. Numerous recent research reports have focused on the increased role immigrants are expected to take in the labor market as the Baby Boom generation moves towards retirement[6]. As a result, English language ability of the workforce is an integral part of the human capital. Moreover, language skill requirement is a key characteristic in understanding the relationship between immigration and labor market participation.
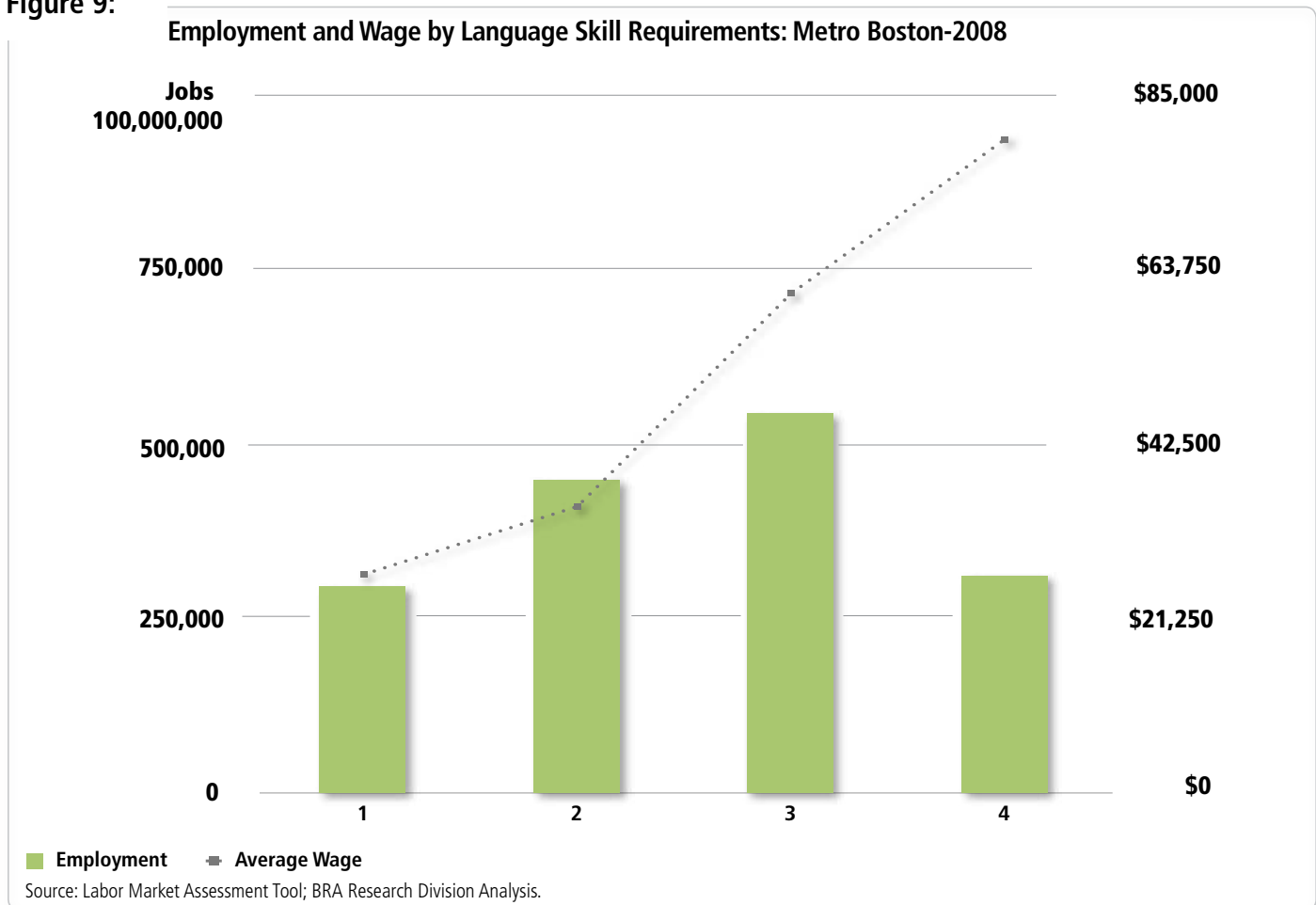
Figure 8:

Employment and Wage by Educational Attainment: Metro Boston, 2008
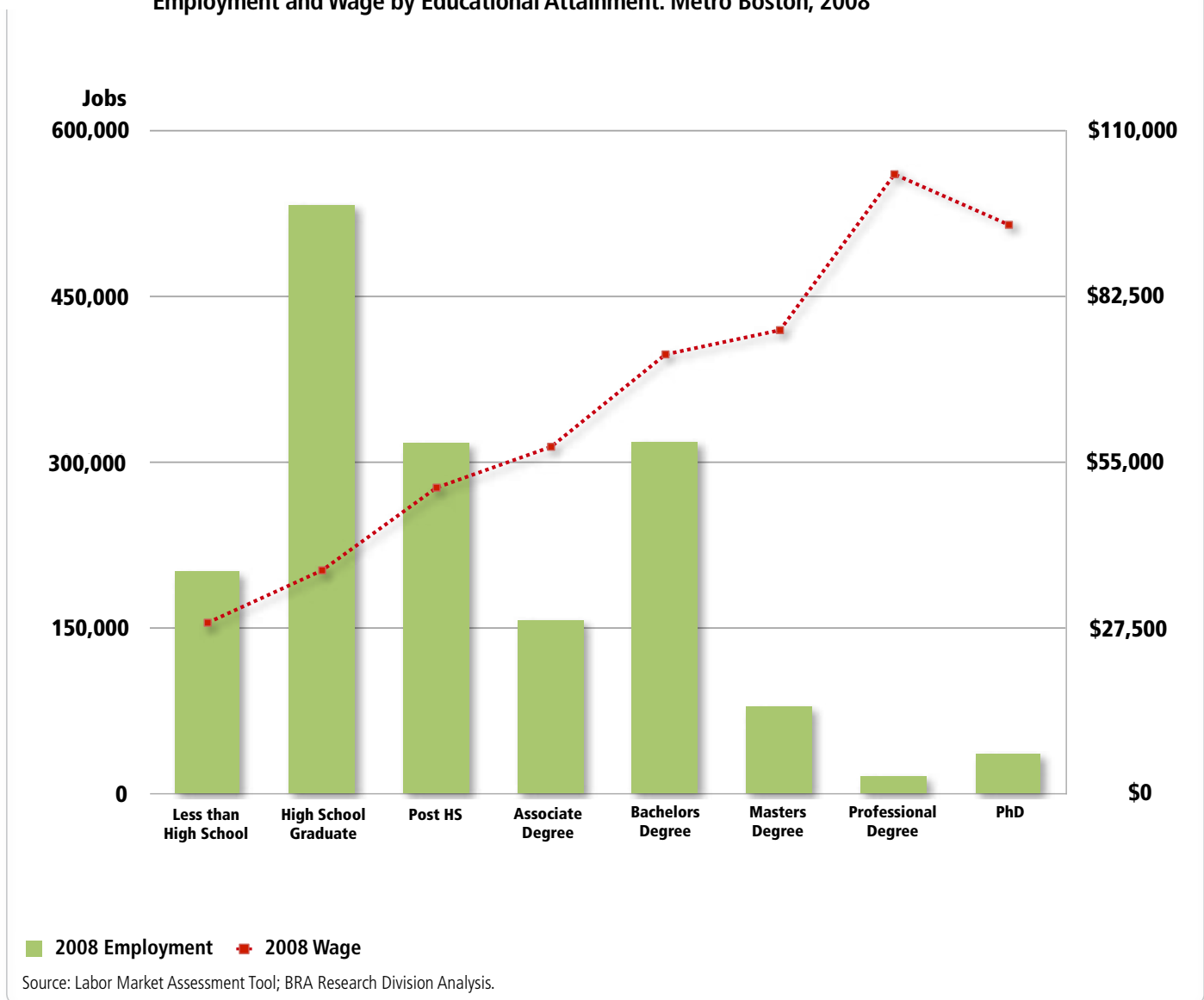
Legend: ■ 2008 Employment ▪▪▪ 2008 Wage

Source: Labor Market Assessment Tool; BRA Research Division Analysis.

In order to understand language skill requirements in the labor market, we used the Labor Market Assessment Tool (LMAT)[7]. We selected three language-based variables: speaking, writing, and reading comprehension[8] and aggregated the scores into a *language skill scale*. The higher the score on the variable, the more important language proficiency is in performing the job. Next, we split occupations into four categories, or quartiles, of language skill: *Low, Medium-low, Medium-high,* and *High*. The occupations scoring in the lowest 25% of language skill requirements were placed in the *Low* category, occupations scoring between 26% and 50% were placed in the *Medium-low* category, jobs scoring between 51% and 75% were placed in the *Medium-high* category, and jobs scoring in the top 25% were placed in the *High* category. Using this taxonomy, we examined the proportion of total jobs in the labor market and the average wages in each of the language skill categories[9].

Figure 9:

Employment and Wage by Language Skill Requirements: Metro Boston-2008

Source: Labor Market Assessment Tool; BRA Research Division Analysis.

As **Figure 9** shows, approximately 62% of all jobs in Metro Boston's labor market fall in the medium-low or the medium-high language skill categories. In short, the vast majority of jobs in Metro Boston's labor market require at least medium-low language skill (approximately 82%). As expected, there is a clear connection between language skill requirements and salary. Occupations in the highest language skill category pay over three times more than occupations in the lowest language skill category. So, while there are jobs available to people with very limited language skill, there are significant social and economic issues to consider. Jobs that require low levels of language skill pay dramatically less than jobs that require high levels of language skill. This can be a significant quality of life issue for immigrants living in the Greater Boston region and speaks to the importance of ESOL training.

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[7] As discussed in footnote 4, LMAT employs a number of secondary data sources, including the *Occupational Employment Statistics* (OES) and *the Occupational Information Network* (O*NET), and makes it possible to examine the educational and skill requirements for various occupations.

[8] These variables are measured on two separate Likert scales. Workers are asked to rate how important a particular skill is in doing their current job on a 1-5 scale, as well as what level of that skill is needed in doing their current job on a 1-7 scale. The higher the score on the scale, the more important language skills are in performing jobs tasks within the selected occupation. We tested the reliability within and between each language skill.

[9] The steps in this research process are the same as the ones undertaken during the BRA Research Division report on *Language Skill Requirements in the Labor Market piece*.

Characteristics of Projected New Jobs Created in Metro Boston- 2008-2018

Of course, most discussions about the economy today focus on the current high unemployment rate and with the belief that jobs continually require more education, training, and skills. In this section we will examine the projected employment change by major industrial grouping in Greater Boston between 2008 and 2018. In addition, we will look at educational and language skill requirements for new jobs expected to be created in our region.

Figure 10:

Job Change by Major Industrial Grouping: Metro Boston-2008 to 2018

Job Change by Major Industrial Grouping-Metro Boston-2008 to 2018		
NAICS	**Industry**	**Projected Change: 2008-2018**
11	Agriculture, Forestry, Fishing and Hunting	-84
21	Mining	-74
22	Utilities	12,251
23	Construction	-9,248
31-33	Manufacturing	-643
42	Wholesale Trade	2,708
44-45	Retail Trade	6,198
48-49	Transportation and Warehousing	5,252
51	Information	2,343
52	Finance and Insurance	7,377
53	Real Estate and Rental and Leasing	309
54	Professional, Scientific, and Technical Services	25,611
55	Management of Companies and Enterprises	894
56	Administrative and Support and Waste Management and Remediation Services	7,140
61	Educational Services	43,586
62	Health Care and Social Assistance	64,255
71	Arts, Entertainement, and Recreation	413
72	Accommodation and Food Services	8,547
81	Other Services (except Public Administration)	6,728
91	Federal Government	169
92	State Government, exc. Education and Hospitals	442
93	Local Governments, exe. Education and Hospitals	678
		184,852

Source: Massachusetts Department of Labor and Workforce Development, ES-202 Data; New England Economic Partnership 10-year projections; BRA Research Division Analysis.

Figure 10 shows the expected job change in Greater Boston[10] for each of the major industrial groupings between 2008 and 2018. The industries expected to create the largest number of new jobs include *Health Care and Social Assistance and Educational Services*. The industry expected to suffer the greatest amount of job loss in our region is the Construction Industry.

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[10] These numbers were estimated by applying the New England Economic Partnership's (NEEP) 10-year projections to the 2008 employment estimates for the Metro Boston region.
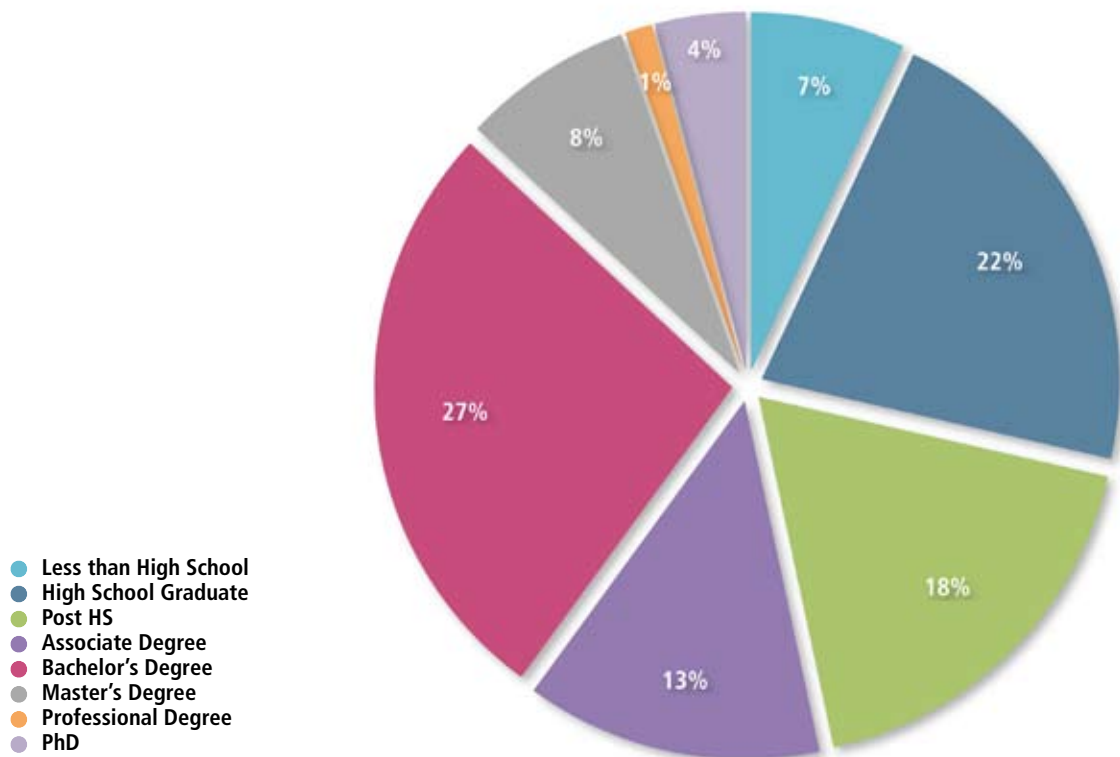
Characteristics of Projected New Jobs

To understand how the labor market is changing, it is important to focus our attention on those new jobs projected for the local economy by 2018. In Figure 11 we see two prevailing themes. First, the educational requirement for new jobs created in Greater Boston is higher on average than the current labor market. Approximately 37% of the jobs in the region's current labor require an associate's degree or higher. However, of new jobs expected to be created in the region by 2018, over half of them (53%) will require at least an associate's degree. This speaks to the notion of the economy fundamentally shifting towards jobs requiring more education and skills in the future. That said, there are still a substantial number of projected new jobs in the labor market that require limited educational attainment.

In looking at the relationship between educational requirements and wages for projected new jobs in Greater Boston, we see similar trends to those observed in **Figure 7**.

Figure 11:

Educational Requirements for New Jobs: Metro Boston's Labor Market-2008 to 2018

Legend:
- Less than High School
- High School Graduate
- Post HS
- Associate Degree
- Bachelor's Degree
- Master's Degree
- Professional Degree
- PhD

Source: Labor Market Assessment Tool; BRA Research Division Analysis.

In **Figure 12**, we see a strong positive relationship between educational requirements and the wages earned. Notably, of projected new jobs in our region, occupations requiring a bachelor's degree pay more than twice as much on average than jobs requiring a high school diploma ($71,528 to $39,851, respectively)[11]. Jobs requiring an associate's degree pay over $15,000 more a year than jobs requiring a high school diploma. This is a substantial jump up in average wage, particulary with what amounts to roughly two additional years of training.

Of particular importance for Boston's immigrant communities, though, is the role English language skill is likely to play with new jobs created in the region. While we saw in **Figure 9** that the vast majority of jobs in Greater Boston require at least medium-low language skill, the importance of language skill appears to be even greater for projected new jobs in the region.
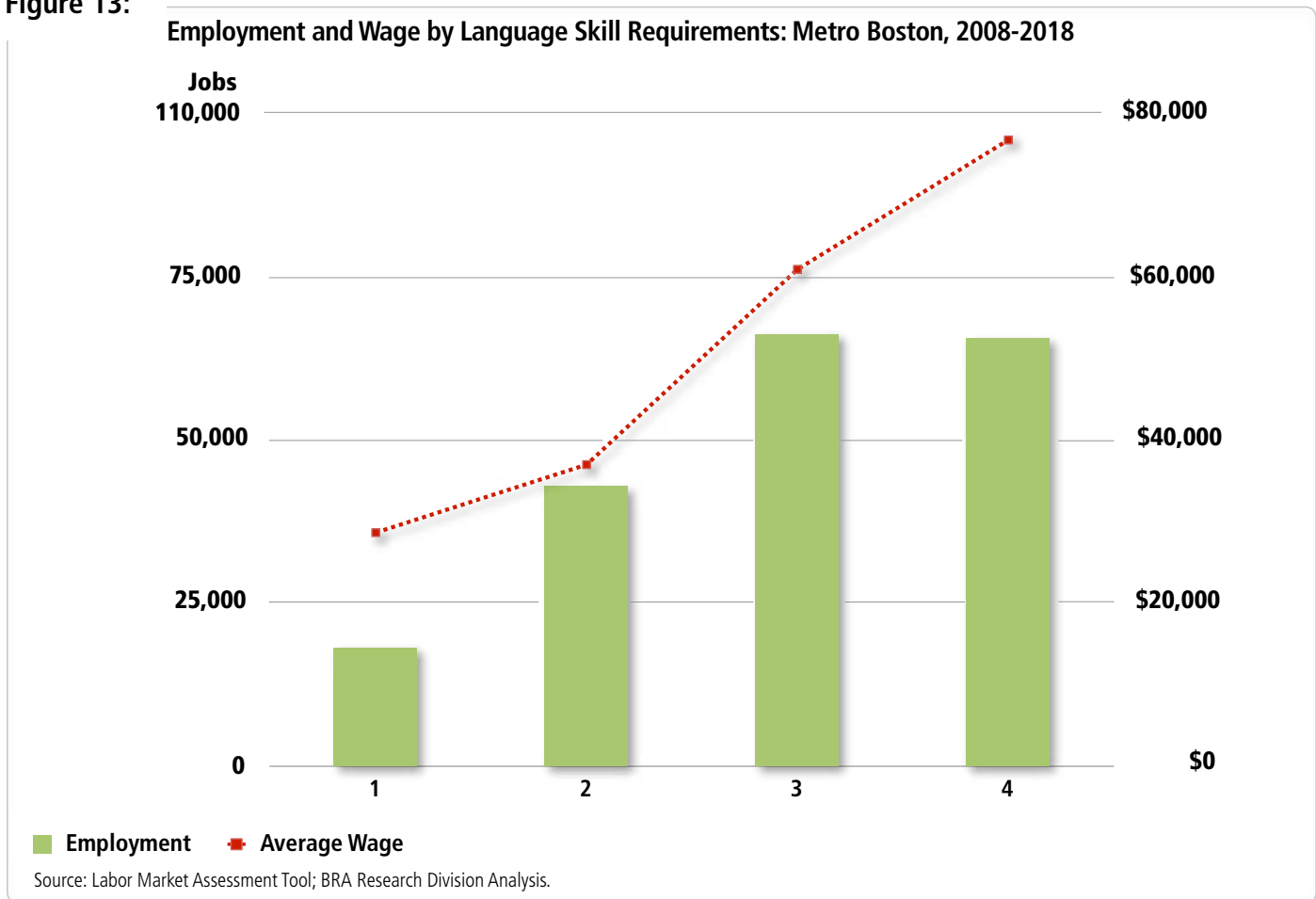
Figure 12:

Employment and Wage by Educational Attainment: Metro Boston, 2008-2018
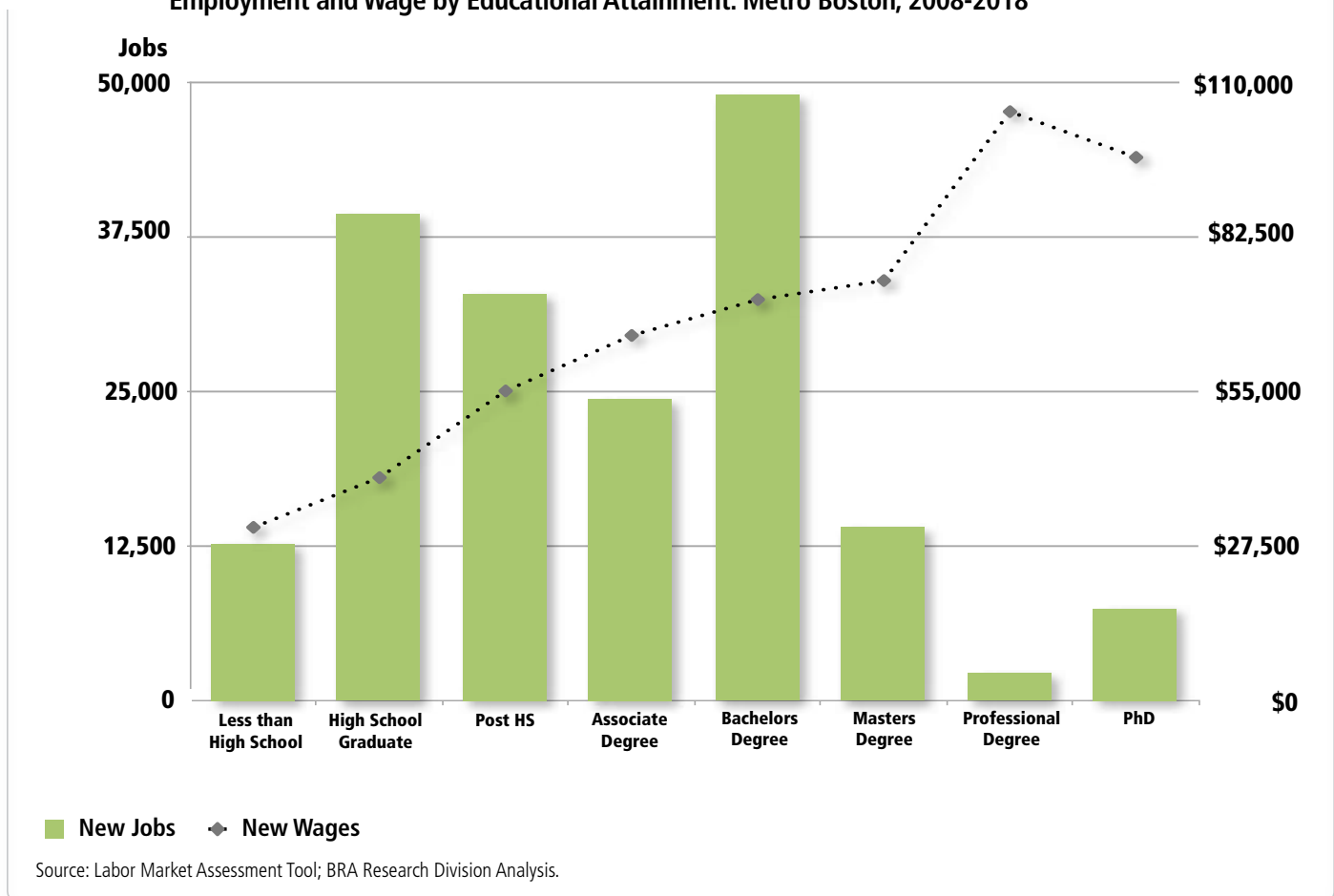
Source: Labor Market Assessment Tool; BRA Research Division Analysis.

As discussed earlier, approximately 82% of all jobs in Metro Boston require at least medium-low language skill. However, close to 91% of projected new jobs in the region for 2018 require at least medium-low language skill. Interestingly, the proportion of expected new jobs requiring high language skill is significantly higher than the proportion of jobs requiring high language skill in the current labor market (34% versus 19.5%, respectively). Again, we see a strong link between language skill requirements and wages. Projected new jobs requiring high language skill pay almost four times more than projected new jobs requiring low language skill.

Figure 13:

Employment and Wage by Language Skill Requirements: Metro Boston, 2008-2018

Source: Labor Market Assessment Tool; BRA Research Division Analysis.

These data further underscore the importance of ESOL training both for Boston's immigrant communities, as well as the long term economic health of the region. First, projected new jobs in the region appear to require more education and language skill than is required in the current labor. In addition, there is a strong link between education and language skill requirements and average wages. This has obvious quality of life implications for members of Boston's immigrant communities—specifically their ability to earn sufficient wages to care for their families. In terms of the economic health of Metro Boston, with the Baby Boomer generation approaching retirement age and the foreign-born accounting for most, if not all, of the population growth in the region, immigrants are expected to play an important role in filling critical job vacancies. As a result, the human capital of the foreign-born population, specifically educational attainment and English language proficiency, is an important economic development issue. New jobs in the region will require advanced education and at least moderate English language skill. If the workforce expected to fill these positions lacks the human capital necessary to hold these jobs, the labor market may be faced with significant skills gap issues.

Conclusions

In this brief, we focused on Boston's native-born and foreign-born workforces, examining some of the key attributes of these two populations, including demographic composition and economic outcomes. In addition, we examined key characteristics of Metro Boston's current labor market and how our labor market is likely to change in the future.

Overall, Boston's native-born and foreign-born workforces are quite different. Boston's native-born workforce is more educated on average. Boston's foreign-born workforce is much more racially diverse.

In terms of workforce participation outcomes, Boston's native-born workforce earns higher salaries on average than Boston's foreign-born workforce. In addition, Boston's native-born workforce tends to work in white-collar industries and occupations, while Boston's foreign-born workforces typically work in blue-collar and service industries and occupations. While both of these factors are likely related to educational attainment to some degree, close inspection of the data shows that Boston's foreign-born workforce typically earns less money on average than Boston's native-born workforce at the same levels of education. In fact, income inequality between the native-born and foreign-born workforces increases with educational attainment. In addition, Boston's foreign-born workforce also earns less money on average than Boston's native-born workforce within the same occupational classifications. Possible explanations as to why income disparities exist between the native-born and foreign-born workforces with the same level of education and within the same occupational classification include English language proficiency, social networks, and discrimination in the job market.

Lastly, we looked at Greater Boston's labor market in terms of industrial characteristics and educational and language skill requirements. Overall, we saw that there is a close connection between educational and language skill requirements and how much those jobs pay on average. While there are, and will continue to be, a number of jobs available for people with limited educational attainment and skills, it appears that occupations requiring advanced education and language skill are the jobs that are expected to grow the most in our region in the coming years. This has the potential to be a serious economic problem for our region. As noted throughout this report, there are segments of Boston's foreign-born population with serious human capital deficiencies related to educational attainment and English language proficiency. As the Baby Boomer generation moves closer to retirement, it is often stated that immigrants will play an important role in filling critical job vacancies in our region. As a result, it is essential that members of both Boston's public and private sector recognize the importance of improving the human capital characteristics of Boston's foreign-born workforce, not just for improving the income and quality of life of our region's immigration population, but also ensuring the long term economic viability of our region.

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