LMAT
LABOR MARKET ASSESSMENT TOOL

ESTIMATES EDUCATIONAL, TRAINING & SKILLS REQUIREMENTS • ESTIMATES WAGES • PROJECTS FUTURE LABOR MARKET TRENDS • ESTIMATES HUMAN CAPITAL IN THE LABOR FORCE

REVISITING LANGUAGE SKILL REQUIREMENTS IN THE LABOR MARKET

INTRODUCTION In recent years, numerous research reports have focused on the changing structure of the U.S. economy, specifically how the increased importance of the service and knowledge sectors, advancements in technology, and the spread of globalization are leading to a greater need for more advanced education and skills in the workforce. These shifts in the labor market take on greater significance in our region when considering that without the recent surge in the number of foreign-born residents, the population in both the Commonwealth and the City of Boston would have decreased at the time of the 2000 Census[1]. With the Baby Boom Generation approaching retirement age the foreign-born population in our region will need to play a significant role in filling critical job vacancies. However, there are large segments of this population with serious human capital deficiencies related to educational attainment and English language proficiency. These skill issues could play an important role in both the quality of life for members of Greater Boston's foreign-born communities, as well as the region's long term economic health.

In this report, we will re-visit previous research conducted by the Boston Redevelopment Authority Research Division examining the characteristics of Metro Boston's workforce with limited English language skills and the importance of language skills in the labor market[2]. In our previous work we found that the vast majority of the Metro Boston workforce with limited English language skills is foreign-born. In addition, the previous report revealed the importance of language skills in the current labor market, particularly in terms of the proportion of total jobs requiring at least modest English language skills and the wage premium associated with those occupations. The current report will look at the newest available demographic data on the Metro Boston workforce, as well as updated data[3] for estimating the importance of language skills in the current labor market. In short, we discovered that the Metro Boston workforce with limited English language skill appears to be significantly larger than it was in 2000. Moreover, the disparity in pay and the potential growth rates between occupations requiring low language skills and jobs requiring at least modest language skills stands out even more in our region than previously reported.

THE LIMITED ENGLISH PROFICIENT WORKFORCE IN GREATER BOSTON For this report, we use the 2006 American Community Survey (ACS) to examine the workforce in Greater Boston with limited English proficiency[4]. Consistent with previous research using Census data, we define those individuals reporting that they speak English "not well" or "not at all" as Limited English Proficient (LEP). Conversely, we classify those who identify themselves as speaking English "only", "very well", or "well" as English Proficient (EP)[5].
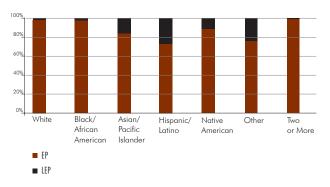
In 2000, the Metro Boston's workforce was made up of more than 1.8 million people, over 16% of which were foreign-born. Close to 55,000 members of Metro Boston's total workforce, or approximately 3%, would be classified as LEP. Between 2000 and 2006, Metro Boston's workforce grew approximately 3.3%, to close to 1.9 million people. However, the proportion of the foreign-born and LEP workforces has increased at a much faster rate. Today, over 20% of Metro Boston's workforce is foreign-born, an absolute increase of close to 32% from 2000. Notably, Metro Boston's LEP workforce increased 37% between 2000 and 2006. Today, close to 88,000[6] workers

in Metro Boston have limited English language skills, or 4.7% of the total workforce. While it is expected that the foreign-born make up a larger proportion of the total Metro Boston workforce today than they did in 2000, it is very surprising to see the degree to which the population grew in just a short period of time. Moreover, the growth of the LEP workforce continues to underscore the potential skills mismatch issues our region may face in the coming years.

Not surprisingly, English language proficiency is a significant issue among immigrants in Metro Boston. Close to 21% of the total foreign-born workforce reported having limited English language skills[7]. When we examine language skill by race, we continue to see a close connection between English language skills and the immigrant population.
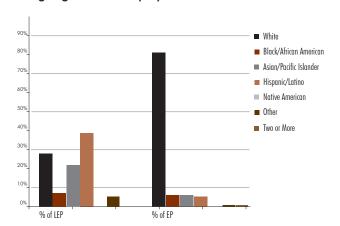
CHART 1

Race by Language Proficiency

- EP
- LEP

As the chart above shows, English language proficiency impacts certain racial and ethnic categories more than others. Specifically, we see a significant proportion of LEP workers among Hispanics/ Latinos (26%), Asians/Pacific Islanders (16%), and those who identified their racial or ethnic background as "other" (24%)[8]. In all three cases, the proportion of LEP workers is larger today than in 2000 (21%, 14%, and 23% in 2000, respectively). As one might expect, English language proficiency is not a significant issue in the white and black/African American groups (2% and 5%, respectively).

CHART 2

Language Proficiency by Race

- White
- Black/African American
- Asian/Pacific Islander
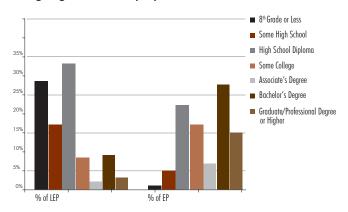- Hispanic/Latino
- Native American
- Other
- Two or More

COMPARING THE LEP AND THE EP WORKFORCES

Next, we examine the demographic characteristics of Metro Boston's LEP and EP workforces. In short, striking differences arise between these two populations in terms of racial and ethnic make-up and educational attainment.

Similar to 2000, the vast majority of the EP workforce in 2006 is white (81%); whereas the racial and ethnic background of the LEP workforce is much more diverse. Over 59% of Metro Boston's LEP workforce is either Hispanic/Latino or Asian. Interestingly, there are a large number of whites in the LEP group. The majority of these are foreign-born[9], hailing from European countries.

CHART 3

Language Proficiency by Education

- 8th Grade or Less
- Some High School
- High School Diploma
- Some College
- Associate's Degree
- Bachelor's Degree
- Graduate/Professional Degree or Higher

As observed in the 2000 data, there are large educational disparities between the LEP and EP workforces in Metro Boston. Specifically, over 45% of the LEP workforce has earned less than a high school diploma, compared with less than 7% of the EP workforce[10]. Conversely, 48% of the EP workforce has earned a Bachelor's Degree or higher, compared with less than 12% of the LEP workforce. Interestingly, the proportion of the LEP workforce with a college education was higher in 2000 than in 2006. It appears that the population with limited educational attainment within the LEP workforce is growing at a faster rate than the population with advanced education within the LEP workforce[11]. Regardless, there are still a number of people with college education in the LEP group. These are likely to be individuals who earned degrees in their home country. These data indicate that there are significant human capital assets in the LEP workforce. Improving the English language skills of this group could lead to these individuals qualifying for a range of high-skill occupations.

LANGUAGE SKILL REQUIREMENTS

In order to estimate language skill requirements for individual occupations we first used employment data from the Bureau of Economic Analysis (BEA) for the Boston-Cambridge-Quincy MA-NH Metropolitan Statistical Area (MSA) to get a sense of the industrial and occupational makeup of the region[12]. Consistent with our previous research, we selected three language-based variables: speaking, writing, and reading comprehension and aggregated the scores into a language skill scale[13]. 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 and the average wages in each of the language skill categories in the Metro Boston labor market. We looked at these data for the labor market in 2004, as well as for projected new jobs in Metro Boston's for 2014.

CHART 4

TOTAL JOBS BY REQUIRED LANGUAGE SKILL- 2004[14]

Language Skill	Low	Med-Low	Med-High	High
Employment	19%	30%	34%	17%
Average Wage	$25,043	$33,145	$53,680	$71,117

Overall, 64% of all jobs in the labor market fall in the medium-low or the medium-high language skill categories. As expected, there is a clear connection between language skill requirements and salary. For example, occupations in the highest language skill category pay almost 3 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 only limited language skill pay dramatically less than jobs that require high levels of language skill.

Next, we applied the Massachusetts Department of Unemployment Assistance (DUA) 2004-2014 Industry/Occupation employment projections to the base 2004 employment levels for Metro Boston[15]. We examined projected new jobs for the region, as well as the average salary for new jobs in each of the language skill categories.

CHART 5

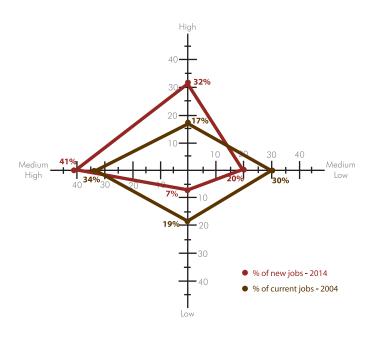### TOTAL NEW JOBS BY REQUIRED LANGUAGE SKILL - 2004-2014[16]

Language Skill	Low	Med-Low	Med-High	High
Growth	3%	6%	11%	16%
% New Jobs	7%	20%	41%	32%
Average Wage	$17,998	$29,079	$57,930	$74,109

As these data indicate, the number of new jobs available in Metro Boston to individuals with low English language skills is limited today and will be more limited by 2014. In addition, new jobs requiring low language skill tend to be extremely low paying. Again, this suggests that individuals with limited English language skills will have a very difficult time finding employment in occupations that pay an adequate wage.

CONCLUSIONS In this report we revisited our previous work related to English language skills and Greater Boston's workforce with limited English language proficiency using the most updated demographic and labor market data available for our region. We found that between 2000 and 2006, Metro Boston's foreign-born and LEP workforces grew substantially (32% and 37%, respectively). While seeing growth in these populations is expected given the rise in the immigrant population in our region over the last 30 years, it is surprising to see this amount of change in such a short period of time.

In terms of language skill requirements in the Greater Boston's labor market, the current research uncovered some differences from our previous work. In particular, the current research found that disparities between the proportion, pay, and growth rates of occupations requiring low language skills and jobs requiring at least modest language skills stand out even more in our region than previously reported. As the chart below demonstrates, 81% of jobs in Metro Boston's current labor market require at least medium-low language skill. Occupations requiring the highest language skills pay almost 3 times more than occupations requiring the lowest language skills. In addition, nearly all of the new jobs expected to be created in Greater Boston over the next 10 years (93%) will require at least modest language skills, with the average pay differential continuing to increase.

CHART 6

SUMMARY: LANGUAGE SKILLS IN METRO BOSTON'S LABOR MARKET

Language Skill	Low	Med-Low	Med-High	High
Wages - Current Jobs	$25,043	$33,145	$53,680	$71,117
Wages - New Jobs	$17,998	$29,079	$57,930	$74,109

As for projected employment trends for our region related to occupational language requirements, we see three main themes. First, as the previous chart shows, projected growth in occupations requiring low and medium-low language skill is much smaller than in the medium-high and high categories. Second, the vast majority of projected new jobs in the region (93%) require at least medium-low language skill. Interestingly, the proportion of expected new jobs requiring high language skill is much larger than the proportion of jobs requiring high language skill in the current labor market (32% versus 17%, respectively). Again, we see a strong link between language skill requirements and wages. Projected new jobs requiring high language skill pay over 4 times more than projected new jobs requiring low language skill. These data indicate that the highest paying jobs are the ones projected to grow the most in the higher language skill quartiles, while the lowest paying jobs are the ones projected to grow the most in the lower language skill quartiles.

These data further underscore the importance of English to Speakers of Other Languages (ESOL) courses both for Greater Boston's immigrant communities, as well as the long term economic health of the region. As stated earlier, it is commonly held that work today requires more education, technical, and social skills than in the past and that this trend is likely to continue in the future. 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.

In the current analysis, we continue to see dramatic differences in the average wages between the four language skill categories. Overall, low language skill occupations pay far less than occupations in each of the other language skill categories. This is obviously a significant quality of life issue for individuals holding these jobs. As the data above show, new jobs in the lowest language skill category pay less than $18,000 a year on average.

While the Greater Boston region features a highly educated workforce overall, the retirement of the Baby Boomer Generation makes improving the human capital characteristics of Greater Boston's low-skilled workforce an important issue. There is a connection between educational attainment and language proficiency that is somewhat difficult to disentangle. That said, as we have argued in previous research and the data above indicate, even limited improvement in language skill could open the door to more occupations and higher wages to Greater Boston's Limited English Proficient workforce. Enhancing the language skills of the LEP workforce through training programs, including ESOL courses, needs to be a focal point for the region. This issue not only affects economic development in Greater Boston, but also the quality of life for a growing segment of the region's population.

END NOTES

1 MassINC's *The Changing Face of Massachusetts* and Peirce and Johnson's *Boston Unbound*.
2 Melnik, M.; Lima, A.; Toponarski, M.; *Language Skill Requirements in the Labor Market*; Boston Redevelopment Authority, Research Division, publication 613-1, November 2007.
3 The November 2007 report used a national industry/occupation (I/O) matrix for both the distribution of occupations and average wages. Since then, a new version of LMAT has been developed that includes both a Massachusetts level I/O matrix and wage I/O matrices for Massachusetts and Metro Boston.
4 The ACS is a yearly survey conducted by the U.S. Census Bureau. The ACS is based on a sample of the population. While the data in this document are reported as specific numbers and percentages, all results from the ACS are subject to sampling error. For more information on the ACS, please see: http://www.census.gov/acs/www/index.html
5 This is the same technique we used in the *Language Skills in the Labor Market* report from November 2007.
6 As mentioned earlier, ACS data is subject to sampling error. While the 2006 ACS Public Use Microdata Sample (PUMS) for Metro Boston reports that there are 87,548 *Limited English Proficient* members of Metro Boston workforce, the standard error for this statistic at the 90% confidence interval is ± 7,092. Meaning, the actual population size of *LEP* workers in Metro Boston is likely to be between 80,456 and 94,640. For the foreign-born workforce, ACS PUMS reports 390,113 individuals. The standard error for this statistic at the 90% confidence interval is ± 20,076. Meaning, the actual population size of the foreign-born workforce in Metro Boston is likely to be between 370,037 and 410,189. Throughout this report we will report the population estimates provided by the ACS PUMS for Metro Boston's workforce. These population counts are estimates, however.
7 Comparatively, less than 0.5% of the native-born workforce reported having limited English language skills.
8 Only 19% of those people in Metro Boston who identified themselves as "other" are native-born.
9 83% of *LEP* whites in Metro Boston are foreign-born.
10 As an encouraging side note to these data, the proportion of people with less than a high school diploma is smaller now than in 2000 in both the LEP and EP workforces (50% to 45% for the LEP workforce and 9% to 7% for the EP workforce, respectively).
11 Approximately 15% of the LEP workforce in Metro Boston in 2000 had at least a Bachelor's Degree. The actual number of LEP workers with at least a Bachelor's Degree actually grew between 2000 and 2006, however, the rate of change was much slower than at the lower educational attainment levels. For example, LEP workers with a college degree grew approximately 26% between 2000 and 2006. Comparatively, LEP workers with less than a high school diploma grew over 44% between 2000 and 2006
12 For employment data please see: http://www.bea.gov/regional/reis/CA25Nfn.cfm. To get the make up of occupational titles within each industry, we applied the Massachusetts Industry/Occupation matrix supplied by the Massachusetts Department of Unemployment Assistance (DUA) to the BEA employment data.
13 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.
14 There are 98 occupational titles in O*NET without language skill data. These occupations make up approximately 7% of the labor market. We normalized the percentages, so the sum of the individual category percentages equal 100%.
15 The DUA projections for 2014 are for the Commonwealth. We applied these percentages to Metro Boston employment.
16 All wages are in 2004 dollars.

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