

Needed Skills versus



An Assessment Tool Is Launched

The conventional wisdom holds that as the U.S. economy shifts toward high-skill industries based on information and knowledge, individuals with limited formal education and skill will increasingly fail to find jobs that pay an adequate wage—or may not be able to secure employment at all. It is a particular concern in large urban areas, where many emerging industries are located and where numerous workers have not gone beyond high school. Embedded in the conventional wisdom is the assumption that an overwhelming number of the available jobs in these new industries are skewed toward the high-skill end of the labor force.

A New Labor Market Tool

Testing the conventional wisdom requires an analysis of two sets of labor market data that are seldom linked: the occupational dis-

tribution of specific industries, and the education and skill distribution of occupations in each industry. Combining information on these two distributions was the objective of a project that the Center for Urban and Regional Policy (CURP) at Northeastern University designed in collaboration with the Boston Redevelopment Authority (BRA) Research Division.¹ The result is the Labor Market Assessment Tool (LMAT), a data-rich computer program designed to estimate the education and skill requirements of any industry in the United States and match them to the labor force characteristics of any city, any region, or the nation as a whole.

LMAT combines in one software application a variety of data sources. It permits a labor market analysis that, first, aggregates employment in a specific industry (or a set

of industries); second, translates the data into a complete distribution of employment by detailed occupation; third, describes the specific human capital requirements for each detailed occupation; and finally, aggregates all the data into education and skill requirements for all the jobs in a specific industry.² LMAT lets workforce development policymakers improve their decision making significantly.

LMAT has been tested in Massachusetts. The U.S. Occupational Employment Statistics (OES) and the Massachusetts Department of Unemployment Assistance (DUA) provide the data that LMAT uses to estimate the employment distribution by occupation for each industry. The Occupational Information Network (O*NET), a survey-based data system, includes information on the education, skill, and language

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Available Skills

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requirements of the current workforce in each occupation. The U.S. Census provides data on the educational attainment of the workforce for any particular locality. Forecasts from the U.S. Bureau of Labor Statistics and DUA provide information on the likely aggregate employment levels for particular industries over the next decade.

Matching People with Industries

Broadly, the goals of the LMAT program are to:

1. Estimate the number of jobs by education and skill level in a new company on the basis of the typical occupational distribution of its industry.
2. Approximate the number of workers in the surrounding community who could qualify for jobs in companies that expand

operations or establish a new facility in a neighborhood or city.

3. Determine the additional schooling or training needed to increase the size of the qualified pool of workers.
4. Assess the difference between the educational attainment of the current labor force and the expected educational requirements for future labor markets.
5. Isolate the prevalence of a key skill needed or a set of skills, such as math, science, or language, in selected industries.
6. Estimate the wage distribution for future labor market scenarios by education and skill requirements.

Although the LMAT computer program is new, its potential is clear. For example, it can simulate labor market scenarios on the basis of a metropolitan region's abil-

ity to attract various industries. Or it can be used to analyze whether there is a mismatch between an industry's human capital needs and an area's labor-supply characteristics. It can also help to isolate future education and training requirements for projected new jobs.

A Boston Example

One example of how LMAT has been used is a report the BRA Research Division produced regarding the current and future value of English skills in Greater Boston's labor market.³

The topic has important implications. Recent immigration helped the region avoid a net population loss at the time of the last census.⁴ Moreover, as baby boomers approach retirement, immigrant workers will be needed to fill critical job vacancies.

Expected Annual Wages by Language Proficiency 2004 vs. 2014

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

Source: Boston Redevelopment Authority, LMAT Analysis for Greater Boston

The BRA research using LMAT found that the most likely industry/occupation distribution in 2014 will require greater English language proficiency. Additionally, the few jobs expected to grow that require only limited English language skill are among the lowest paying in the current labor market.

The study looked at the language skills required for the jobs likely to be created between 2004 and 2014. (See “Language Requirements for Greater Boston Jobs, 2004 vs. 2014.”) The researchers predicted that although only 17 percent of the jobs in 2004 required a high level of English skill, by 2014, 32 percent would. The share of jobs for which the lowest level of language proficiency was sufficient would shrink from 19 percent of 2004 jobs to 3 percent of the new jobs.

Moreover, new jobs requiring only minimum language proficiency would pay about \$18,000 a year, well below

the \$25,000 for comparable 2004 jobs.⁵ (See “Expected Annual Wages by Language Proficiency, 2004 vs. 2014.”) New jobs requiring the highest language proficiency were predicted to pay an average of \$4,000 more than the 2004 set of such jobs.

This indicates that among the jobs requiring advanced English skills, the highest paying jobs are the ones expected to grow the most. However, among the jobs requiring limited English skills, the lowest-paying jobs are the ones expected to grow the most. According to LMAT, 93 percent of jobs expected to be created in Greater Boston over the next 10 years will require at least modest English language skills.

The LMAT information points to two key policy concerns. First, Greater Boston faces a potential skills mismatch between the language skill requirements for expected new jobs in the labor market and the growing immigrant population. Second, the increasing pay disparity between workers of different language ability suggests one reason why wage inequality is increasing in the region. Taken together, the data underscore the importance of language training both for Greater Boston’s immigrants and for the long-term health of the economy.

Implications

Information regarding industry needs today and in the near future can be vital in guiding the curriculum at community colleges and elsewhere. Specifically, LMAT can identify the main skills needed in growth industries and isolate those skills by projected job growth, educational requirements, and estimated training time. LMAT can

be used to examine nearly 140 different measures of job requirements.⁶

Armed with LMAT information, government and schools can tailor workforce training programs by, for example, identifying skills needed for occupations that require an associate’s degree or less in the growing life sciences industry. Data regarding occupations available to modestly skilled workers in emerging industries would be invaluable to community leaders, elected officials, social service providers, and academics, and could help prepare our workforce for the economy of the future.

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Endnotes

¹ The BRA Research Division analyzes contemporary, historical, and comparative data related to Boston’s economy, population, and markets. It plays a critical role in informing public policy for the City of Boston related to community and economic development, and planning. It also is a resource for Boston residents, private-sector groups, academic institutions, community-based organizations, and other governmental agencies. CURP is a “think and do tank” that brings together Northeastern faculty, staff, and students to research a range of topics related to urban areas, focusing primarily on Greater Boston. CURP often works with community groups, nonprofits, and government agencies to collect and analyze data and inform public policy decisions.

² Mark Melnik and Alvaro Lima, *Introducing the Labor Market Assessment Tool* (Boston: Boston Redevelopment Authority Research Division, November 2008).

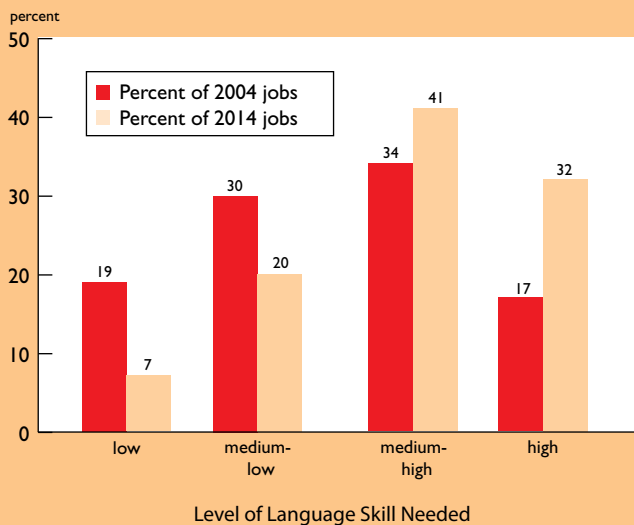
³ Mark Melnik, Alvaro Lima, and Jeremy B. Thompson, *Revisiting Language Skill Requirements in the Labor Market* (Boston: Boston Redevelopment Authority Research Division, April 2008).

⁴ For example, see Andy Sum et al., *The Changing Face of Massachusetts* (Boston: MassINC, June 2005).

⁵ All wages in the BRA report are in 2006 dollars.

⁶ LMAT uses O*NET data regarding Skill and Knowledge requirements. O*NET collects data on 35 different skill categories and 33 different knowledge categories, each measured on two different scales. Additionally, LMAT uses O*NET data related to educational and training requirements. See: <http://online.onetcenter.org/>.

Language Requirements for Greater Boston Jobs, 2004 vs. 2014



Source: Boston Redevelopment Authority, LMAT Analysis for Greater Boston