

# THROUGH AN IMMIGRANT LENS

## PIAAC ASSESSMENT OF THE COMPETENCIES OF ADULTS IN THE UNITED STATES



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## Executive Summary

The ability to understand, evaluate, and use written information (literacy), process and communicate mathematical information (numeracy), and access and use digital technology are foundational to full participation in today's global, knowledge-based societies. This report describes English literacy and numeracy among U.S. immigrant adults and explores how their cognitive skills—which are tested in English—relate to key immigrant integration outcomes such as employment, income, access to training, and health. The report does so by analyzing data from the 2012 Program for the International Assessment of Adult Competencies (PIAAC), which assessed the cognitive skills of adults (ages 16 to 65) in 24 of the countries that are members of the Organization for Economic Cooperation and Development (OECD),<sup>1</sup> including the United States.

PIAAC represents the largest and most innovative direct assessment of working-age adults' literacy and numeracy undertaken to date, and permits detailed analysis of the U.S. population, including the foreign born, in ways not available with other U.S. surveys, which rely on self-reporting of English proficiency and other aptitudes.

Detailed analysis of the U.S. PIAAC data by the Migration Policy Institute (MPI) reveals a number of interesting findings regarding immigrants and their U.S.-born adult children, including:

***Immigrant adults lagged their U.S.-born peers in the tested areas of proficiency and accounted for a large share of low-skilled adults in the United States.*** The results are significant because research finds that literacy and other cognitive skills are strong predictors of income, employment, education, and health, and because differences in skill levels are an important source of widening income inequality.

Immigrants were over-represented among low-skilled adults: While the foreign born made up 15 percent of the total U.S. adult (ages 16-65) population in the PIAAC survey, they accounted for 33 percent of adults with low literacy skills and 24 percent of those with low numeracy skills.

Overall, the PIAAC results indicate that U.S. adults (native and foreign-born) fared worse than most of their counterparts across the participating countries in all tested areas of proficiency. Nonetheless, even with lagging results, immigrants' impact on the U.S. overall scores and international standing is minimal. When immigrants' scores on literacy or numeracy proficiency were excluded, national test scores rose only 5 points on a 500-point scale, and remained below the relatively low bar of "proficiency."

***Literacy and numeracy skills varied across key demographic and social characteristics.*** The MPI analysis showed that age, race/ethnicity, time of arrival, education, place of education, and other characteristics were linked to immigrants' skills. Among the findings:

- Younger immigrants had stronger skills than older immigrants, while younger natives only barely outperformed their older counterparts.
- Higher shares of Hispanic immigrants and native- and foreign-born blacks performed at low levels on both literacy and numeracy tests.
- Skills of immigrants who arrived between 2007 and 2011 were essentially the same as those of previous immigrant cohorts, suggesting that the more recent (recession and post-recession) cohort included smaller shares of the less educated, and a greater share of skilled immigrants.

<sup>1</sup> The following 24 countries from the Organization for Economic Cooperation and Development (OECD) participated in the 2012 Program for the International Assessment of Adult Competencies (PIAAC): Australia, Austria, Belgium, Canada, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Poland, Russia, Slovak Republic, South Korea, Spain, Sweden, United Kingdom, and the United States.



- For both immigrant and native-born adults, higher educational attainment was associated with higher literacy and numeracy scores. Nonetheless, educational attainment did not fully explain adults' cognitive skills. Among the college educated, 22 percent of natives and 54 percent of immigrants scored below proficient in literacy.
- Foreign-educated immigrants lagged U.S.-educated immigrants in both literacy and numeracy skills; the skills of U.S.-educated immigrants were essentially equivalent to those of U.S.-born adults.
- For U.S.-born adults, learning a foreign language as a child did not appear to be an obstacle to English language literacy and numeracy.
- English literacy and numeracy varied widely across the immigrant subgroup that had been classified as Limited English Proficient (LEP), highlighting the need to address the diverse English language proficiency, educational attainment, and other characteristics of adults who are defined as LEP for funding and instructional purposes.
- Self-reported data on how well respondents speak English were closely correlated with PIAAC's directly tested literacy and numeracy skills, a finding that seems to validate the use of spoken English proficiency in the U.S. Census Bureau's American Community Survey (ACS) to describe immigrants' English literacy.

***While the cognitive skills of first-generation<sup>2</sup> immigrants lagged those of U.S.-born cohorts, the second generation (i.e., the U.S. born with at least one immigrant parent) appeared to draw even with the third generation (i.e., U.S.-born adults without immigrant parentage).*** Even though this progress offers somewhat good news from an integration perspective, the average overall proficiencies of both second- and third-generation adults were relatively low by OECD standards.

***Immigrants at low tested cognitive proficiency levels were significantly more likely to be employed than natives with the same skill levels.*** While immigrants were able to obtain jobs regardless of their English literacy and numeracy skills, they needed higher levels of English competencies to be paid well—and on a par with natives. Low-skilled immigrants and natives alike were much less likely to participate in training programs than those with higher literacy and numeracy skills.

***Both immigrants and natives with low literacy scores were more likely to report poor health.*** The finding is consistent with prior research suggesting poor outcomes for those with an inability to communicate with providers and limited ability to process complex health-related information.

***Compared to adults in most other OECD countries, U.S. adults scored low on literacy, numeracy, and problem solving.*** Viewed from the U.S. perspective, PIAAC outcomes, like those of earlier international comparative adult skills surveys, are sobering. U.S. adults' numeracy skills—the best predictor of workforce performance—ranked above only those of Italy and Spain. U.S. adults' problem-solving skills ranked somewhat higher, but still fell well below international averages despite the United States' leading role in creating and expanding the high-tech industry. PIAAC data show that U.S. adults with bachelor's degrees trailed the international average for degree holders,<sup>3</sup> and the prospects for rapid change are dim given the fact that young people entering the U.S. labor market have only marginally better skills than older workers who are near retirement. PIAAC also reveals that U.S. adults' scores in literacy and numeracy (both assessed only in English) have not improved over time.<sup>4</sup>

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2 Following the OECD definition, this report defines *immigrants* (also referred to as the *foreign born* or the *first generation*) as persons born abroad regardless of their citizenship. The *second generation* refers to persons born in the United States with one or more foreign-born parents. The *third-plus* generation refers to adults with both U.S.-born parents. The terms *U.S. born*, *native born*, and *native* are used interchangeably to refer to those who were born in the United States.

3 Authors' analysis. See also Kevin Carey, "Americans Think We Have the World's Best Colleges. We Don't," *The New York Times*, June 28, 2014, [www.nytimes.com/2014/06/29/upshot/americans-think-we-have-the-worlds-best-colleges-we-dont.html?\\_r=0](http://www.nytimes.com/2014/06/29/upshot/americans-think-we-have-the-worlds-best-colleges-we-dont.html?_r=0).

4 Irwin Kirsch, "PIAAC: Overview and Selected Results," presentation to PIAAC Expert Group, Educational Testing Service, Washington, DC, August 14, 2014.



## PIAAC in Perspective

The PIAAC results underscore deep U.S. social inequalities, which already are the subject of significant political and economic debate. While the share of U.S. adults who scored at the highest levels was similar to international averages, the share that scored at the lowest levels was among the largest of all countries represented.<sup>5</sup> Racial and ethnic gaps in scoring are very wide: Hispanics who comprised 14 percent of those surveyed made up 53 percent of respondents scoring at the lowest level in English literacy; blacks, who were 13 percent of the sample, made up 32 percent of those scoring at the lowest level in numeracy. Immigrants (15 percent of the sample) represented one-third of the low-skilled adults.

In sum, PIAAC provides a rather disheartening portrait of the skills of the current U.S. labor force in which between half and two-thirds of working-age adults were not proficient in literacy and numeracy. While the findings seem somewhat dissonant with the reality that the U.S. economy is a global leader in innovation and productivity, it is hard to see how the low level of skills and competencies of the current and incoming generations of U.S. workers will sustain that comparative advantage in a future that will increasingly demand higher-skilled workers.<sup>6</sup>

That said, immigrants' high levels of employment, the rising skills of new entrants, and patterns of inter-generational progress may offer levers for future action.

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## I. Introduction

Developed and organized by the Organization for Economic Cooperation and Development (OECD), the Program for the International Assessment of Adult Competencies (PIAAC) is the largest and most innovative direct and comparative assessment of the cognitive skills of working-age adults undertaken to date. Approximately 166,000 adults (ages 16 to 65), including 5,010 in the United States, participated in the survey across 24 countries.<sup>7</sup> The survey tests respondents' literacy, numeracy, and problem-solving skills in technology-rich environments (here referred to as "problem-solving" skills) to provide rich data on what adults know and how well they can use their skills at work and in everyday life.<sup>8</sup> *Literacy* refers to adults' ability to understand and use written text in print and electronic formats; *numeracy* to evaluate,

<sup>5</sup> American Institutes for Research (AIR), "What the Data Say about the Skills of U.S. Adults," undated brochure, accessed October 1, 2014, [http://static.squarespace.com/static/51bb74b8e4b0139570ddf020/t/535fdfdbe4b032825e56cbf8/1398792155103/PIAAC%20Results%20Summary%20Brochure\\_Final\\_041814.pdf](http://static.squarespace.com/static/51bb74b8e4b0139570ddf020/t/535fdfdbe4b032825e56cbf8/1398792155103/PIAAC%20Results%20Summary%20Brochure_Final_041814.pdf).

<sup>6</sup> Anthony P. Carnevale, Nicole Smith, and Jeff Strohl, *Help Wanted: Projections of Jobs and Education Requirements through 2018* (Washington, DC: Georgetown University, Center on Education and the Workforce, 2010), <https://cew.georgetown.edu/wp-content/uploads/2014/12/fullreport.pdf>.

<sup>7</sup> Noninstitutionalized adults in U.S. households or group quarters—regardless of their citizenship, legal status, or language status—were interviewed and assessed in the period between August 25, 2011 and April 3, 2012. See Madeline Goodman, Robert Finnegan, Leyla Mohadjer, Tom Krenzke, and Jacquie Hogan, *Literacy, Numeracy, and Problem Solving in Technology-Rich Environments Among U.S. Adults: Results from the Program for the International Assessment of Adult Competencies 2012: First Look*, NCES 2014-008 (Washington, DC: U.S. Department of Education, National Center for Education Statistics, 2014), <http://nces.ed.gov/pubs2014/2014008.pdf>.

<sup>8</sup> PIAAC administered four types of assessments: literacy, numeracy, problem solving in technology-rich environments, and reading components (for adults with very low literacy skills). All countries were required to conduct the literacy and numeracy assessments, while the other two were optional. The United States participated in all four core competency domains of adult cognitive skills. Adults with very low literacy skills took the reading component part that assessed their vocabulary knowledge, sentence processing, and passage comprehension. Their scores were included in literacy scores. See, generally Goodman et al., *Literacy, Numeracy, and Problem Solving*.



use, and communicate numerical and mathematical concepts; and *problem solving* to access and interpret information in digital environments such as websites and e-mails.<sup>9</sup> The assessed tasks in each domain are meant to be culturally appropriate and drawn from everyday social and work contexts. In so doing, the survey reveals the complex interconnections between formal education and credentials and the use of particular skills in work, home, and community settings.<sup>10</sup> The results follow somewhat similar international comparative tests of adults' skills conducted between 1994 and 2008,<sup>11</sup> and the widely reported results of the OECD's Program for International Student Assessment (PISA)<sup>12</sup> test of academic skills of 15-year-old students.

PIAAC is notable not just for the light it sheds on the skills of different nations' adult populations; the survey also provides rich data on the skill distribution of differing subpopulations, including immigrants and their U.S.-born children.<sup>13</sup> Fifteen percent of the U.S. total survey sample of 5,010 persons was foreign born; 9 percent of adults interviewed were the U.S.-born children of immigrants (or members of the second generation).<sup>14</sup> PIAAC thus uniquely permits development of a multigenerational understanding of skills acquisition among immigrant-origin populations, potentially answering larger questions that bear on trends in immigrant integration in the United States outlined earlier.

This report begins with the key research questions explored using PIAAC data. It next discusses the PIAAC survey's methodology and its strengths and limitations, before describing how cognitive skills vary by race/ethnicity, education, immigrant generation, language abilities, and other important characteristics. The report also explores the relationship between literacy and numeracy and economic and health outcomes. It concludes with a discussion of findings and their policy implications for immigrant integration.

## II. Research Questions

This largely descriptive report is animated by, and organized around, a number of research questions that lie at the intersection of immigrant integration, labor force participation, and education literature:

- What is the size of the populations (immigrant and U.S.-born) that have low levels of English literacy, numeracy, and problem-solving skills?
- What are the key sociodemographic, family, linguistic, and labor market characteristics of immigrant and native-born adults in the United States? The report focuses especially on variables featured in the PIAAC survey such as English language skills and their interplay with

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9 OECD, *Time for the U.S. to Reskill? What the Survey of Adult Skills Says* (Paris: OECD Publishing, 2013), [http://skills.oecd.org/documents/Survey\\_of\\_Adult\\_Skills\\_US.pdf](http://skills.oecd.org/documents/Survey_of_Adult_Skills_US.pdf)

10 Louis Soares and Laura W. Perna, *Readiness for the Learning Economy: Insights from the OECD's Survey of Adult Skills on Workplace Readiness and Preparation* (Washington, DC: American Council on Education, 2014), [www.ahead-penn.org/sites/ahead-penn.org/files/PIAAC\\_report\\_v1.pdf](http://www.ahead-penn.org/sites/ahead-penn.org/files/PIAAC_report_v1.pdf).

11 The International Adult Literacy Survey (IALS), with the U.S. survey conducted by the U.S. Department of Education National Center for Education Statistics (NCES), was implemented between 1994 and 1998 and the Adult Literacy and Life Skills Survey (ALL) was conducted between 2003 and 2008. PIAAC includes certain items from both earlier surveys to allow for analysis over time.

12 The Program for International Student Assessment (PISA) is an international assessment of 15-year-old students' academic performance on math, reading, and science in 65 OECD member and non-member countries. For more on PISA, see OECD, "PISA: What's New," accessed January 27, 2015, [www.oecd.org/pisa/](http://www.oecd.org/pisa/).

13 Following the OECD definition, we define *immigrants* (or *foreign born*) as persons born abroad regardless of their citizenship (thus, persons born abroad to American parents are considered to be foreign born for the purposes of this report). The *second generation* refers to persons born in the United States with one or more foreign-born parents. The *third-plus* generation refers to adults with both parents born in the United States.

14 The analyses presented here are based on the restricted-use license PIAAC sample. This dataset contains more detailed information, such as continuous (instead of grouped) age and earnings, than information available in the public-use license data. All differences described in this report were tested for statistical significance at the 0.05 level.





immigrant status, time in the United States, generational status, participation in language and workforce development training and degree-level programs, attachment to the labor market, and incomes.

- How do the skills of immigrants compare to those of the native born?
- How do the skills of the recently arrived compare to those of more established immigrants? How do the literacy skills of youth ages 16-26 differ from those of the older generation (ages 55-65) for immigrants versus the U.S. born? Is the performance gap by age generation larger among immigrants or natives?
- How do skill levels change across generations: from the first, to the 1.5 (entered the United States before age 13), to the second and third-plus generations?
- To what degree are the low overall scores of U.S. adults attributable to the depressing effects of the lower achievement of the foreign born?
- How do the skills of immigrants whose highest education level was earned abroad compare to those whose highest level of education was in the United States?
- How do immigrants' first languages and self-reported English language proficiency relate to English literacy skills?
- How are labor market access and incomes related to skill levels, and how do they differ between immigrant and native populations?
- How representative does the PIAAC sample of first- and second-generation adults appear to be when compared to the U.S. Census Bureau's larger American Community Survey (ACS) and Current Population Survey (CPS)?

### III. PIAAC Data and Methodology

PIAAC's measurement strategies have been amply and well documented.<sup>15</sup> The survey is notable in several ways. First, PIAAC's background questionnaire is more extensive than either earlier U.S. national and international adult skill assessments or the standard population surveys such as those undertaken by the U.S. Census Bureau as PIAAC probed respondents':

- formal and informal education and training (both already obtained and ongoing);
- work history, work status, and economic outcomes;
- health and family structure;
- parent nativity;
- language first spoken, language used at home, and language classes taken; and
- skills used at work.

Second, along with these detailed background data, the survey used advanced psychometric tests to directly assess and provide reliable estimates of adults' proficiency in English literacy, numeracy, and

<sup>15</sup> See NCES, "PIAAC: A New Strategy to Assess Adult Competencies and Their Social and Economic Impact in the United States and Internationally," (undated brochure, accessed November 1, 2014), [http://static.squarespace.com/static/51bb74b8e4b0139570ddf020/t/53c02debe4b011307db8c442/1405103595531/Introduction%20to%20PIAAC\\_063014.pdf](http://static.squarespace.com/static/51bb74b8e4b0139570ddf020/t/53c02debe4b011307db8c442/1405103595531/Introduction%20to%20PIAAC_063014.pdf).



problem solving in technology-rich environments. PIAAC data provide a unique lens for understanding how skills relate to social and economic outcomes. While other surveys frequently used in immigration research also collect data on human-capital characteristics (such as educational attainment and spoken English proficiency), they are more limited in scope and are based on self-reported data. In contrast, PIAAC offers results from the direct assessment of participants’ literacy, numeracy, and problem-solving skills, in addition to a broader set of self-reported human-capital characteristics.

PIAAC test scores range from 0 to 500 in each domain, corresponding to six proficiency levels for literacy and numeracy, and four levels for problem solving.<sup>16</sup> Each additional year of education can be associated with approximately 7 score points.<sup>17</sup> With regard to proficiency levels, one proficiency *level* translates roughly into seven years of education or 50 score points.<sup>18</sup> Full proficiency in general requires scoring at Levels 3, 4, or 5 in literacy and numeracy and 3 in problem-solving proficiency. In general, a score of 276 represents the cut-off point for being classified as Level 3 proficient on literacy and numeracy, and 341 on problem solving. This report adopted the language and guidelines from OECD reports<sup>19</sup> and grouped the skill levels on each of the three skill assessments into the following three categories (see Table 1):

**Table 1. Definitions of Proficiency Levels and Corresponding Scoring Range for PIAAC 2012**

Population Group by Proficiency	Levels on Literacy and Numeracy Assessment	Levels on Problem-Solving Assessment
Low proficiency (poor or low skills)	Level 1 and Below Level 1 Scoring range: 0-225	Level 1 and Below Level 1 Scoring range: 0-290
Basic proficiency	Level 2 Scoring range: 226-275	Level 2 Scoring range: 291-340
Proficient (including “high performers”)	Level 3: Proficient skills Levels 4 and 5: “High performers” Scoring range: 276-500	Level 3: Proficient or better Scoring range: 341-500

PIAAC is also notable because data collection for the background questionnaire and assessments were done primarily on laptops. The tests were designed to be computer-adaptive assessments, i.e., respondents were provided with tasks targeted to their performance levels. Adults who had no computer experience or were unwilling to take the test on the computer were provided a paper-and-pencil version (on literacy and numeracy)—and were excluded from taking the “problem-solving in the technology-rich environments” assessment. In the United States, about 80 percent of the PIAAC respondents took the tests via computer.<sup>20</sup>

16 Each proficiency level is represented by a range of tasks. Each score denotes a point at which a respondent has a 67 percent chance of successfully completing tasks that are associated with a similar level of difficulty. See OECD, *OECD Skills Outlook 2013: First Results from the Survey of Adult Skills* (Paris: OECD Publishing, 2013), [www.insidehighered.com/sites/default/server\\_files/files/Skills%20volume%201%20\(eng\)--full%20v8--eBook%20\(01%2010%202013\).pdf](http://www.insidehighered.com/sites/default/server_files/files/Skills%20volume%201%20(eng)--full%20v8--eBook%20(01%2010%202013).pdf).

17 OECD and European Commission, Directorate-General for Education and Culture, *The Survey of Adult Skills (PIAAC): Implications for education and training policies in Europe* (Paris and Brussels: OECD Publishing and European Commission, Directorate-General for Education and Culture, 2013), [www.oecd.org/site/piaac/PIAAC%20EU%20Analysis%2008%2010%202013%20-%20WEB%20version.pdf](http://www.oecd.org/site/piaac/PIAAC%20EU%20Analysis%2008%2010%202013%20-%20WEB%20version.pdf).

18 Ibid.

19 OECD, *Time for the U.S. to Reskill?*; OECD and European Commission, *The Survey of Adult Skills (PIAAC)*.

20 An additional 15 percent took the paper-and-pencil test, about 4 percent could not complete the questionnaire because of language difficulties or learning or mental disabilities, and 1 percent could not complete it for other reasons. See Goodman et al., *Literacy, Numeracy, and Problem Solving*.



The U.S. background questionnaire was administered in both English and Spanish.<sup>21</sup> However, all proficiency assessments of literacy, numeracy, and problem-solving skills were carried out exclusively in English. One could expect, then, that immigrant subpopulations made up of those with little to no English skills and those speaking a language other than Spanish or English would be excluded at higher rates from the PIAAC assessment phase. Our analysis suggests however, that these exclusions did not significantly reduce the overall representativeness of the immigrant-origin samples—at least when compared to the ACS or CPS (see Appendix Tables A-1 and A-2).

### PIAAC Sample Data Limitations

The overall sample of U.S. respondents with available English literacy and numeracy scores was 4,898,<sup>22</sup> including 636 immigrants. Although the PIAAC survey sample was drawn to provide a nationally representative profile of the U.S. population, the sample size of 636 immigrants does not allow for a very detailed analysis of the foreign-born subpopulations.

In addition, while problem solving in technology rich-environments is an innovative and policy-relevant PIAAC variable, analyses of immigrants' scores are limited by non-random exclusion and small sample size. Because PIAAC is a test of English literacy, some Limited English Proficient (LEP) immigrant adults were not able to participate fully. Also, some took the paper-and-pencil test, which automatically excluded them from taking the PIAAC's problem-solving component. This exclusion—in combination with some immigrant respondents' decision to only take the paper-and-pencil version—meant that the immigrant sample of respondents tested on computer skills was smaller and likely not fully representative of the overall PIAAC immigrant sample. As a result, we have chosen to present here the results of the problem-solving assessment only for overall immigrant and native populations, not by more detailed population characteristics.

## IV. Key Findings

Citizens of knowledge-based societies need strong literacy, numeracy, and problem-solving skills to succeed in school, build a career, obtain health and social services, and engage in their communities.<sup>23</sup> Key PIAAC findings regarding the distribution of skills of adults in the United States are discussed below, focusing on the immigrant population and the relationship between adult competencies and labor market participation, income, access to training, and health status.<sup>24</sup>

21 According to our analysis of the U.S. Census Bureau's 2012 American Community Survey (ACS), close to 62 percent of U.S. adults (ages 16-65) who reported speaking a language other than English at home were Spanish speakers. The next two most commonly spoken languages were Chinese languages (reported by 5 percent) and Hindi and related languages (4 percent).

22 Of the 6,100 U.S. respondents, 4,898 completed the background questionnaire; 112 were not able to do so for literacy-related reasons (i.e., lack of English or Spanish skills, or due to a learning or mental disability). It is likely that many of the 112 people who did not complete the questionnaire for literacy-related reasons were immigrants who spoke a language other than English or Spanish. Note that the final sample (5,010) included people who completed the background questionnaire (4,898) and those who did not complete the questionnaire for literacy-related reasons (112). For more details, see Appendix C in Goodman et al., *Literacy, Numeracy, and Problem Solving*.

23 Soares and Perna, *Readiness for the Learning Economy*.

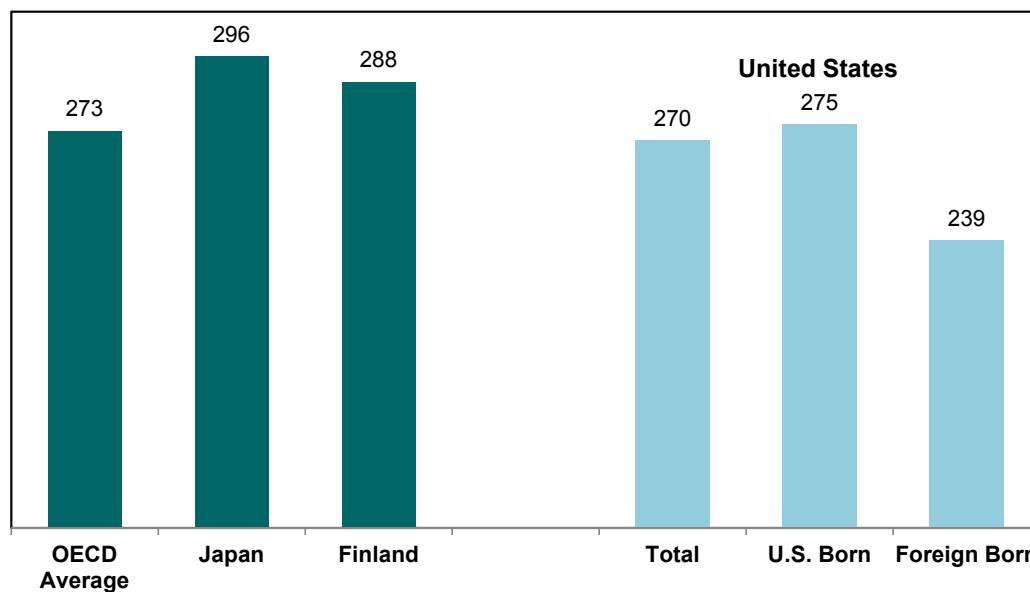
24 PIAAC is a sophisticated survey with a four-stage stratified area probability sample. It also has a complex assessment design: Respondents did not have to answer all test questions (some of their scores were imputed) and the level of question difficulty depended on the respondents' skills. The complexity of both sample and assessment design had implications for how the scores were generated. To account for these features of the PIAAC survey, our results were generated using SAS statistical software macros and procedures provided by the OECD that employed ten plausible values on each of the three skill domains. PIAAC sampling weights were used to produce population estimates. For more regarding PIAAC sampling, assessment strategies, and plausible values, see OECD, *Technical Report of the Survey of Adult Skills (PIAAC)* (Paris: OECD Publishing, 2013), [www.oecd.org/site/piaac/Technical%20Report\\_17OCT13.pdf](http://www.oecd.org/site/piaac/Technical%20Report_17OCT13.pdf).



**Compared to adults in most other OECD countries, U.S. adults scored low on literacy, numeracy, and problem solving.** While the importance of skills is rising, PIAAC data indicate that only small shares of American adults possessed strong English literacy (12 percent scored at Level 4 or 5), numeracy (9 percent), and problem-solving skills (6 percent). More than half (52 percent) of adults in the United States struggled with basic literacy, scoring at Level 2 or below; the share with below-proficient numeracy skills was even greater (64 percent).

In terms of international ranking, U.S. adults scored significantly lower than most OECD countries, both for average scores and proficiency levels. The U.S. average literacy score (270) ranked 16th out of 24, behind top-performing countries such as Japan (296) and Finland (288) (see Figure 1).<sup>25</sup> The OECD average literacy score was 273 and the numeracy score was 269; both were higher (and statistically significant) from the U.S. average literacy (270) and numeracy scores (253).<sup>26</sup>

**Figure 1. Average Literacy Scores of Adults (Ages 16-65) by Country and Nativity in the United States, 2012**



Source: Migration Policy Institute (MPI) analysis of 2012 PIAAC data.

Moreover, the skills of U.S. adults have not improved over time. In 2003<sup>27</sup> their average score on literacy on the Adult Literacy and Life Skills Survey (ALL) was 268—not meaningfully different from that on the 2012 PIAAC (270); the average 2003 score on numeracy was 262, higher (and statistically different) than the score of 253 on the 2012 PIAAC.<sup>28</sup>

**Immigrants had substantially lower proficiency scores than the U.S. born in all three domains. Nativity disparities were widest in English literacy; they were somewhat narrower in problem-solving skills.** A 2013 OECD report cited poor education preparation in U.S. schools, little improvement in educational

<sup>25</sup> Ibid.

<sup>26</sup> OECD, *Skills Outlook 2013*.

<sup>27</sup> ALL also assessed literacy (prose and document) and numeracy domains with scores similarly ranging from 0 to 500. Kirsch, "PIAAC: Overview and Selected Results."

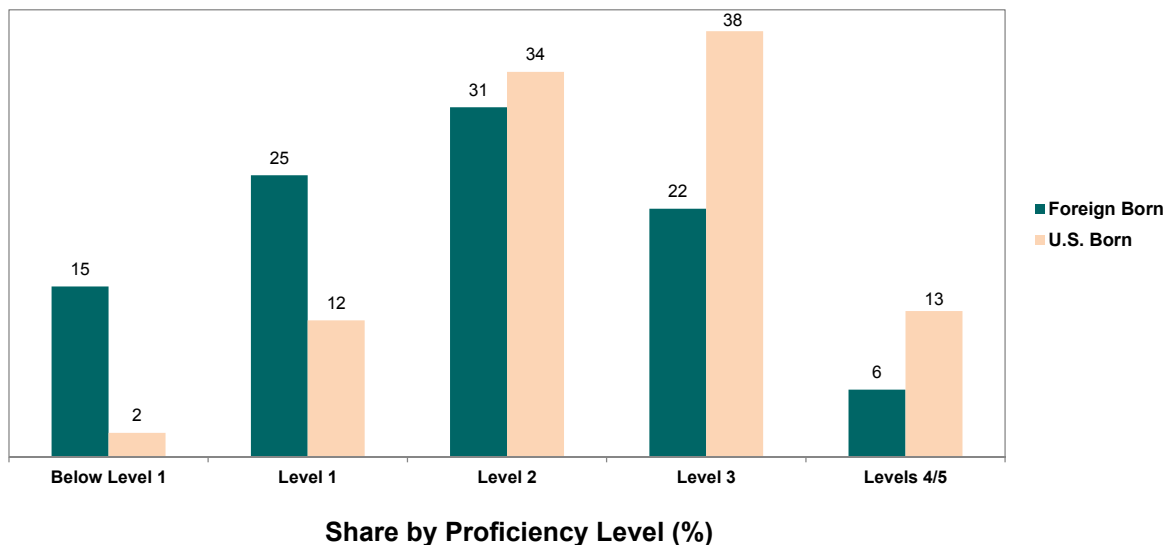
<sup>28</sup> Jaleh Soroui, "Highlights from the Program for the International Assessment of Adult Competencies (PIAAC), 2012," (presentation at AIR meeting, Washington, DC, October 23, 2013). Presentation slides on file with the authors.



attainment over time, and low literacy and numeracy skills among subpopulations including immigrants as potential explanations for the country's lackluster results.<sup>29</sup> As in other PIAAC participating countries, which also reported a gap in immigrant achievement compared to the native born,<sup>30</sup> the skills and competencies of U.S.-born adults were higher than those of immigrants, reflecting the fact that immigrants have lower skills in English because for many English is a second language.<sup>31</sup> In the United States, the native-immigrant difference on English literacy was 36 points (275 versus 239, see Figure 1). Translated into years of education, the 36-point gap suggested that immigrants lagged natives by at least five years of education.

**English Literacy and Numeracy Skills by Nativity.** Adults who scored at the lowest levels (Level 1 and below) are most at risk as they have very limited ability to evaluate and use written material in English and work with numbers in English.<sup>32</sup> Close to 24 million (or 14 percent) of the U.S.-born adults and 11.5 million (or 40 percent) of immigrant adults are at Level 1 or below on English literacy (see Figure 2).

**Figure 2. Share of U.S.-Born and Foreign-Born Adults (Ages 16-65) at Each Proficiency Level in English Literacy (%), 2012**



Source: MPI analysis of 2012 PIAAC data.

In terms of literacy, about one-third of immigrants and natives scored at Level 2, which roughly corresponds to the skills of those with high school education. The OECD defines performers at Levels 3 or higher as adults who have the skills needed to function well in modern society. In the United States, 51 percent of natives but only 28 percent of immigrant adults had Level 3 or higher literacy skills.

The size of the low-proficient population in numeracy was even greater: 44.3 million U.S.-born adults (or 27 percent of the native adult population) and nearly 14 million immigrants (48 percent of the adult

<sup>29</sup> OECD, *Time for the U.S. to Reskill?*

<sup>30</sup> Sara Bonfati and Theodora Xenogiani, "Migrants' Skills: Use, Mismatch and Labour Market Outcomes. A First Exploration of the Survey of Adult Skills (PIAAC)," in *Matching Economic Migration with Labour Market Needs* (Paris: OECD Publishing, 2014).

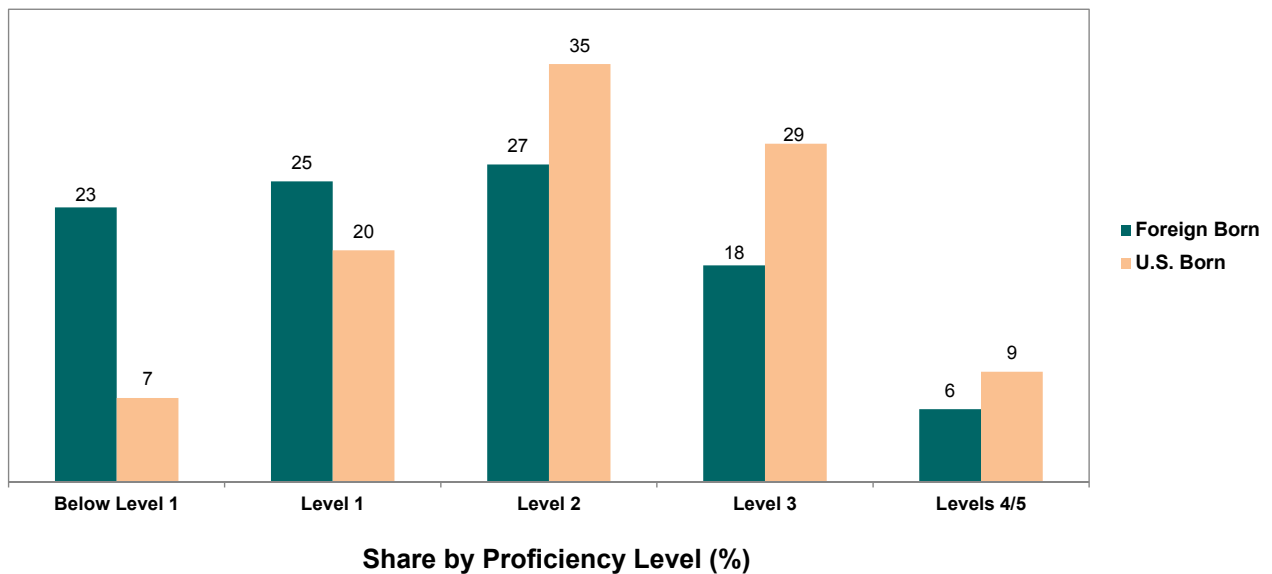
<sup>31</sup> OECD, *Skills Outlook 2013*.

<sup>32</sup> About 4 percent of U.S. adults (in the PIAAC weighted sample) were not able to provide enough background information to impute proficiency scores due to literacy-related reasons. See OECD, *Skilled for Life? Key Findings from the Survey of Adult Skills* (Paris: OECD Publishing, 2013), [www.oecd.org/site/piaac/SkillsOutlook\\_2013\\_ebook.pdf](http://www.oecd.org/site/piaac/SkillsOutlook_2013_ebook.pdf).



foreign-born population) (see Figure 3). Put differently, about 36 million adults in the United States are unlikely to be able to read a newspaper article in English and compare two different points of view discussed in the article. Similarly, 58 million adults are unlikely to be able to identify the year with the lowest birth rate on a graph showing birth rates over time.

**Figure 3. Share of U.S.-Born and Foreign-Born Adults (Ages 16-65) at Each Proficiency Level in Numeracy (%), 2012**



Source: MPI analysis of the 2012 PIAAC data.

While immigrants represented 15 percent of the U.S. adult (ages 16-65) population, they accounted for twice that share (33 percent) of U.S. adults with low English literacy skills, and 24 percent of those with low numeracy skills. Immigrants represented just 7 percent of the high performers on literacy (Levels 4 and 5) and 10 percent on numeracy.

**Problem-Solving Skills by Nativity.** Close to 60 percent of natives and 76 percent of immigrants struggle with using digital technology and other communications tools to access, use, and communicate information online (i.e., they scored below Level 2). In absolute numbers, these results meant that almost 100 million U.S. adults are unlikely to be able to organize their emails into folders.<sup>33</sup> Moreover these results probably understate how limited U.S. adults' digital proficiency is, as about 16 percent of PIAAC participants were excluded from the problem-solving assessment due to lack of computer skills.<sup>34</sup>

**U.S. average scores overall are only marginally affected by immigrants' low scores.** One question these results raise is to what extent the low scores of U.S. immigrants contribute to low proficiency outcomes among all U.S. adults. In other words, are immigrants dragging down the nation's overall PIAAC scores? As Figure 1 indicates, the average literacy score for the overall U.S. adult population was 270, while the average score for U.S.-born adults was 275. Immigrants, then, could be viewed as reducing overall scores by 5 points. Even if immigrant scores were excluded altogether, natives' score of 275 would still fall below the "proficient" cut-off point of 276 to be considered "proficient" (i.e. at Level 3). Along similar lines, the inclusion of the immigrant sample decreases the overall U.S. adult sample by 5 points on numeracy (from 258 for U.S.-born adults to 253 for all U.S. adults).

<sup>33</sup> AIR, "What the Data Say."

<sup>34</sup> Kirsch, "PIAAC: Overview and Selected Results."

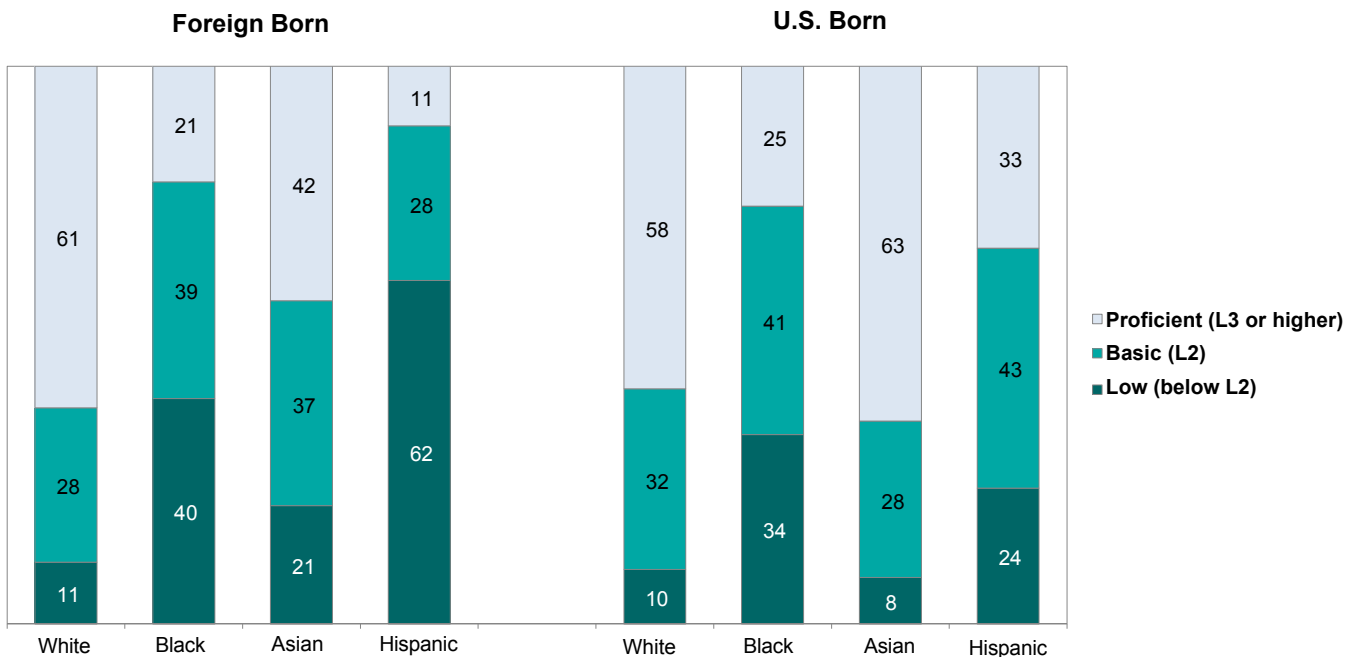


## A. Immigrant-Native Skill Differences by Key Demographic Characteristics

Prior research shows that race/ethnicity, age, and other characteristics are linked to adults' skills.<sup>35</sup> Here we take a closer look at how literacy and numeracy skills vary by these characteristics for immigrants and natives.

**Skill gaps vary by race and ethnicity: close to 90 percent of Hispanic immigrants were not proficient in English literacy compared to 39 percent of non-Hispanic white immigrants; U.S.-born Hispanics outperformed their immigrant counterparts.** PIAAC data also show that skill gaps vary widely by race and ethnicity with white and Asian immigrants and natives outscoring their black and Hispanic counterparts (see Figure 4).<sup>36</sup> The distribution of proficiency scores for white and blacks are roughly similar for both immigrants and natives. This pattern did not hold for Asians and Hispanics, as the scores for natives were substantially higher than for immigrants. Thus, while 62 percent of Hispanic immigrants scored at very low levels, only 24 percent of U.S.-born Hispanics posted equally low scores. Along similar lines, while 42 percent of Asian immigrants were proficient in literacy, the number rose to 63 percent for the U.S. born of Asian origin. These patterns suggest a kind of intergenerational progress among Hispanics and Asians that is discussed later in this report.

**Figure 4. English Literacy Proficiency by Race/Ethnicity for U.S.-Born and Foreign-Born Adults (Ages 16-65), 2012**



Source: MPI analysis of 2012 PIAAC data.

**Younger immigrants had stronger skills than older immigrants, while younger natives barely outperformed their older counterparts.** The future of the U.S. economy will depend in large measure on the skills of the incoming generations. A comparison of the literacy skills of the age 16-26 population (new workers) and those on the verge of retirement (ages 55-65) shows that the literacy skills of young U.S.-born adults were only marginally better than the cohort they will replace. Forty-nine percent of new

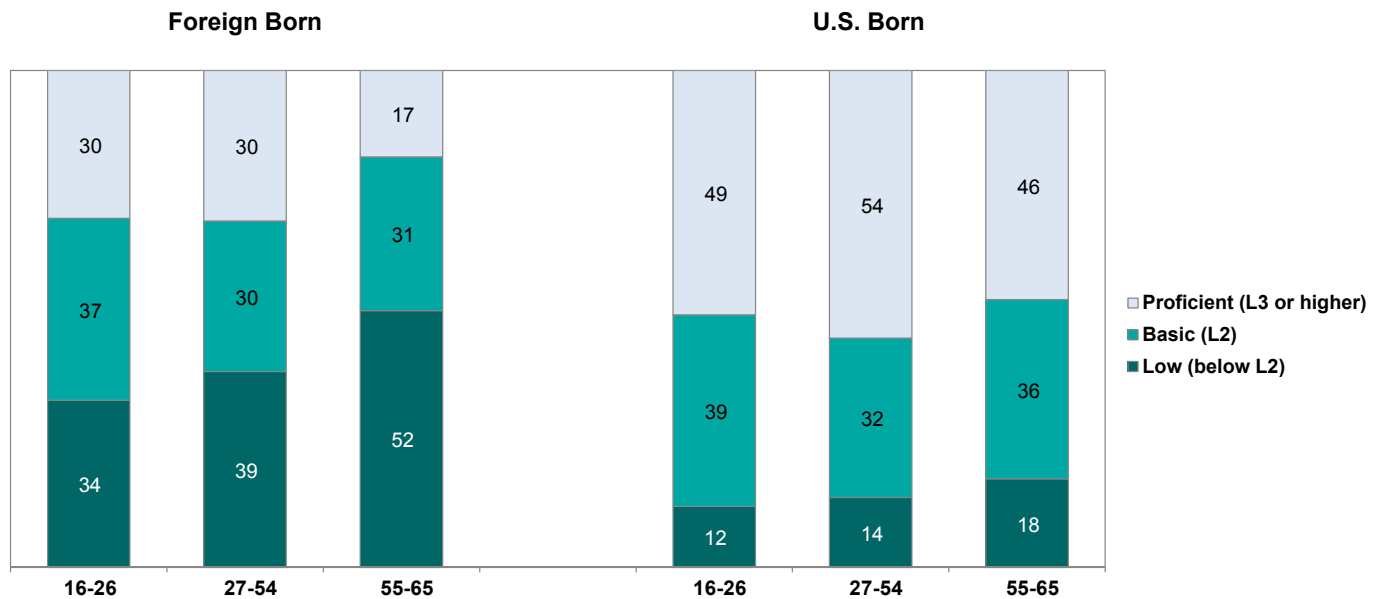
<sup>35</sup> See Bonfati and Xenogiani, "Migrants' Skills;" Jeanne Batalova and Michael Fix, "Profile of Limited English Proficient Immigrants," *Peabody Journal of Education* 85 no. (2010): 511-34.

<sup>36</sup> In this report, we refer to non-Hispanic whites as "whites," non-Hispanic blacks as "blacks," and non-Hispanic Asians as "Asians."



native workers scored proficient or above on the literacy assessment versus 46 percent of the soon-to- retire native workers (see Figure 5). The skill difference between younger and older immigrants was wider: 30 percent of young immigrant adults were proficient in literacy compared to 17 percent of their older counterparts, suggesting some improvement in the skills of the labor force replacement population among immigrants.

**Figure 5. English Literacy Proficiency by Age Group for U.S.-Born and Foreign-Born Adults (Ages 16-65), 2012**



Source: MPI analysis of 2012 PIAAC data.

*On average, there was little difference in the English literacy of men and women within native and immigrant populations.* While men and women often differ in terms of their educational and employment outcomes, their English literacy skills were similar (and did not differ statistically) (see Figure 6). We find this for both immigrant and native populations. However, women’s average numeracy scores were somewhat lower, with the difference being statistically significant for U.S.-born adults.

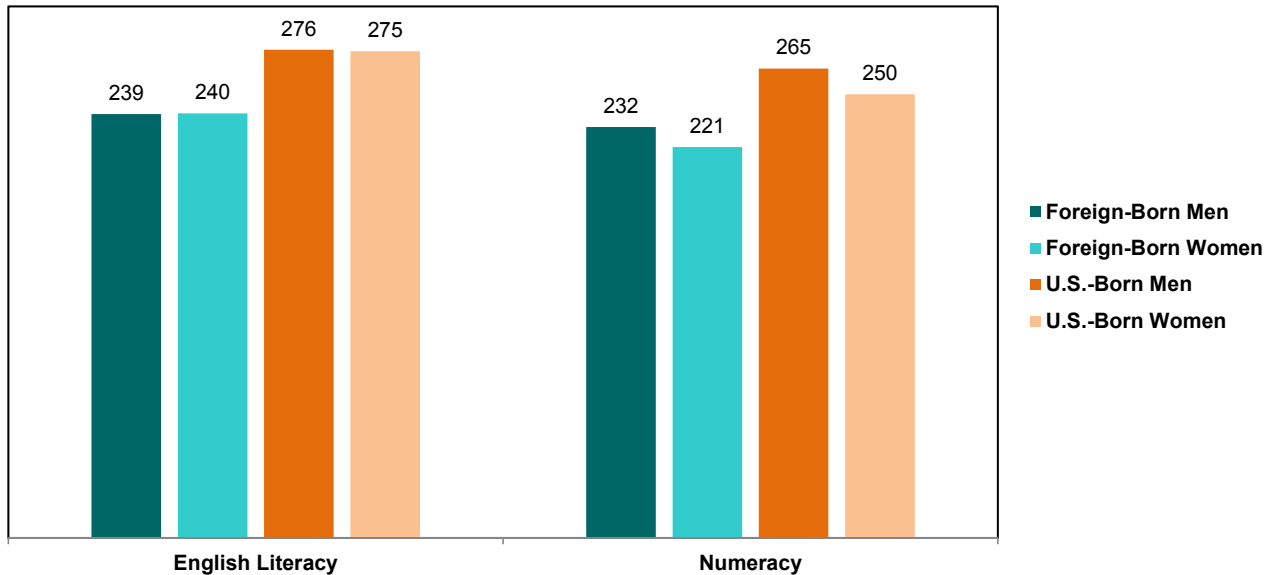
*Immigrants arriving in the United States between 2007 and 2011 appear to have similar English literacy and numeracy skills as those who entered earlier.* Since the PIAAC assessment is essentially a test of literacy and numeracy skills in English, one might predict that recently arrived immigrants would have lower skills than those who have lived in the country for some time and have presumably had greater exposure to English. However, the average literacy and numeracy scores of immigrants who arrived in 2007 or later—the period that coincided with the 2007-09 Great Recession and early post-recession recovery—did not differ significantly from those of earlier immigrants (see Figure 7).

One possible explanation is the higher share of advanced-degree college graduates (24 percent) among those who arrived since 2007. In contrast, the share of adults with advanced degrees among immigrants arriving in earlier periods was lower: 12-13 percent among immigrants arriving in the 2000-06 period and in the 1990s, and 17 percent among immigrants arriving prior to 1990. Thus, factors such as a tighter U.S. labor market, an improving Mexican economy, and a related decline in illegal immigration likely contributed to a rise in the human capital of post-recession migration flows to the United States.



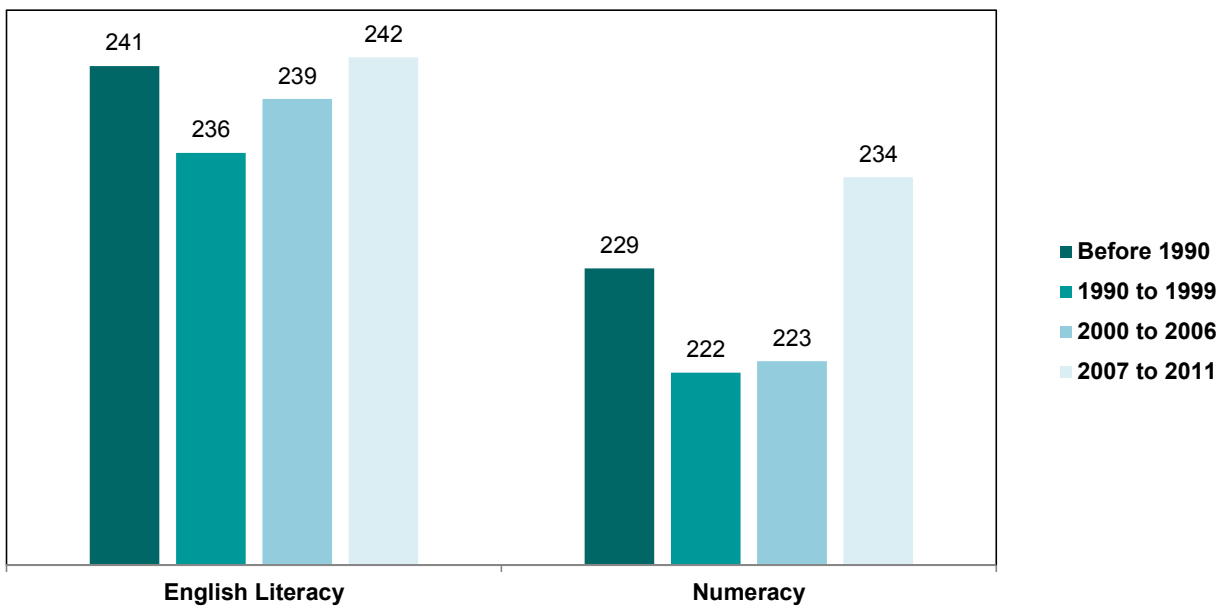


**Figure 6. Average English Literacy and Numeracy Scores of U.S.-Born and Foreign-Born Adults (Ages 16-65) by Gender, 2012**



*Note:* Gender differences in average scores were not statistically significant for immigrant adults on both domains and for native-born adults on literacy. The observed skill gap between U.S.-born men and women on numeracy (265 points versus 250 points) was statistically significant at the 0.05 level.  
*Source:* MPI analysis of 2012 PIAAC data.

**Figure 7. Average English Literacy and Numeracy Scores of Immigrant Adults (Ages 16-65) by Period of Arrival in the United States**



*Note:* Average English literacy and numeracy scores of immigrants who arrived in each of the three periods prior to 2007 were not statistically different (at the 0.05 level) from the average scores of immigrants who arrived between 2007 and 2011.  
*Source:* MPI analysis of 2012 PIAAC data.



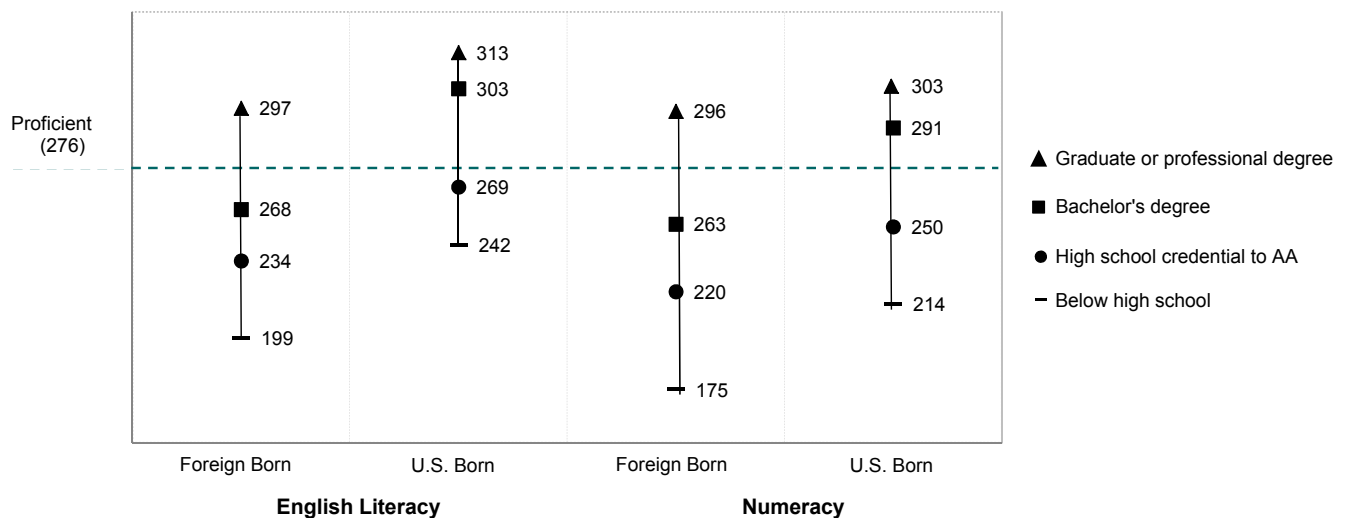
## B. Educational Attainment and Place of Education

PIAAC data revealed interesting correlations between immigrant and native adults' cognitive skills, on the one hand, and their level and place of education, on the other.

**More highly educated immigrants (and natives) had stronger English literacy and numeracy.** In the United States, as in many other OECD countries, immigrants are over-represented at both the lower and higher ends of the education continuum. Twenty-seven percent of immigrant adults in the United States had less than a high school degree, and 30 percent were college graduates in 2012 (versus 13 percent and 26 percent of the native born, respectively).

Education and competencies are strongly correlated, as Figure 8 demonstrates. On literacy and numeracy assessments, the greater the educational attainment, the higher the average scores (with the differences being statistically significant for both immigrant and native adults). We find that the gap between literacy and numeracy averages of lower- and more highly educated adults was wider for immigrants than for natives. Immigrants' proficiency generally lagged that of the U.S. born at the same educational levels. However, this skill gap narrowed for immigrants with advanced degrees.

**Figure 8. Average English Literacy and Numeracy Scores of U.S.-Born and Foreign-Born Adults (Ages 16-65) by Educational Attainment, 2012**



AA = associate's degree.

*Notes:* Nativity gaps in average scores within each educational level are statistically significant (at the 0.05 level) on both English literacy and numeracy. The only nativity difference that is not statistically significant is in numeracy scores for those with advanced degrees (296 points versus 303 points). Regardless of nativity, adults scored higher on literacy and numeracy as their educational attainment increased. In each case the results are statistically significant.

*Source:* MPI analysis of 2012 PIAAC data.

However, our analysis of PIAAC data shows that educational attainment did not fully explain adults' skills.<sup>37</sup> For instance, even among the native population, 13 percent of advanced degree holders and 22 percent of bachelor's degree holders scored below proficient on literacy, and even higher shares scored below proficient on numeracy (24 percent and 33 percent, respectively). Twenty-eight percent of immigrants with graduate degrees and 54 percent of those with bachelor's degrees scored below proficient

<sup>37</sup> See also Bonfati and Xenogiani, "Migrants' Skills;" Harry J. Holzer and Robert I. Lerman, "Cognitive Skills in the U.S. Labor Market: For Whom Do They Matter?" presentation at "Taking the Next Step with PIAAC: A Research-to-Action" conference, AIR, Arlington, VA, December 11-12, 2014.

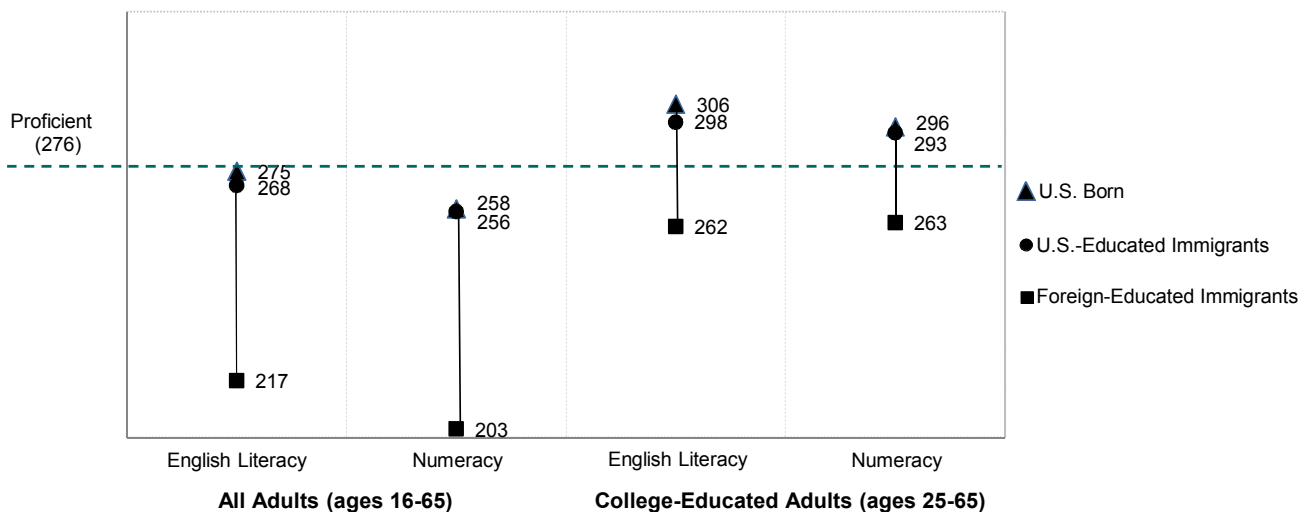


on both English literacy and numeracy in English; a result that may partially explain comparatively high levels of underemployment among college-educated immigrants in the United States versus their U.S.-born counterparts.

**Immigrants with U.S.-earned education had English literacy and numeracy scores similar to their U.S.-born counterparts.** We find that 44 percent of all immigrants (ages 16-65) earned their highest educational qualification in the United States.<sup>38</sup> The share among college-educated adults ages 25 and older was even higher: 59 percent. Research by MPI and others demonstrates that having a U.S.-earned degree boosts immigrants' opportunities for better employment and higher wages.<sup>39</sup> PIAAC data also show that immigrants with U.S. degrees scored significantly higher than foreign-educated immigrants (see Figure 9).

In the case of college-educated immigrants, differences related to the place of education (in the United States or abroad) were especially wide in English literacy (26 points) and numeracy (30 points). At the same time, U.S.-educated immigrants' average scores approximated those of their U.S.-born counterparts on both literacy and numeracy assessments.

**Figure 9. Average English Literacy and Numeracy Scores of All U.S.-Born and Foreign-Born Adults (Ages 16-65) and College-Educated Adults (Ages 25-65) by Place of Education, 2012**



*Notes:* The differences in literacy and numeracy between foreign-educated immigrants and U.S.-born adults are statistically significant at the 0.05 level for both total and college-educated adults. The differences in scores between the U.S. born and U.S.-educated immigrants are not statistically significant, except those for literacy of the college-educated group (306 points versus 298 points).

*Source:* MPI analysis of 2012 PIAAC data.

<sup>38</sup> Although the PIAAC background survey included a question about place of education, the results revealed many missing data. Following an OECD approach as outlined in Bonfati and Xenogiani's "Migrants' Skills" chapter, we created a "foreign-earned" qualification by comparing the year when immigrant respondents obtained their highest degree to the year of their arrival in the United States. If the difference was at least one year, then we assumed that the degree was earned in the United States. One limitation of this approach is that it may misclassify immigrants who obtained a degree in the United States, left for a while, and then returned while reporting only the last year as their date of immigration. Another limitation is that we cannot estimate the number of U.S.-born adults who earned their degrees abroad, a number that remains small but is on the rise.

<sup>39</sup> Jeanne Batalova and Michael Fix (with Peter Creticos), *Uneven Progress: The Employment Pathways of Skilled Immigrants in the United States* (Washington, DC: Migration Policy Institute, 2008), <http://migrationpolicy.org/research/uneven-progress-employment-pathways-skilled-immigrants-united-states>; Neeta P. Fogg and Paul E. Harrington, *Labor Market Underutilization Problems among College-Educated Immigrants in the United States* (Philadelphia, PA: Drexel University, Center for Labor Markets and Policy, 2013), [www.drexel.edu/provost/clmp/docs/clmpimmigrant\\_underutilization\\_summary\\_paper\\_final.pdf](http://www.drexel.edu/provost/clmp/docs/clmpimmigrant_underutilization_summary_paper_final.pdf).



### C. Immigrant Generation

The analysis above shows that immigrants by and large had lower competencies in English than the native born. This is not a surprising finding given that PIAAC assesses skills in English and that English is not most U.S. immigrants' native language.<sup>40</sup> The expectation is that with time the level of English literacy will rise as immigrants make strides in their social, economic, and linguistic integration. One marker of successful integration is how well immigrants' U.S.-born children are doing.<sup>41</sup> By asking the birth country of respondents' parents, the PIAAC data allow researchers to explore the progress of the second generation. Put differently, the survey's results can be used to probe whether having an immigrant background represents a risk factor for developing core proficiencies.

***English literacy and numeracy skills of U.S.-born adults from immigrant families were similar—and, by extension, similarly mediocre—as those from U.S.-born families.*** There is a broad sociological literature demonstrating that significant differences in educational and economic outcomes exist not only between immigrants and their U.S.-born children (first versus second generation), but also *within* the first generation.<sup>42</sup> Research shows that immigrants who arrive before age 13 (referred as the 1.5 generation) are more likely to graduate from high school, have stronger English skills, and pursue postsecondary education than those who arrive as adults.<sup>43</sup> Taking into account the complexity of immigrant generation, Figure 8 arrays English literacy levels for four groups of adults:

- Immigrants who arrived when they were 13 or older (the first generation)
- Immigrants who arrived before age 13 (the 1.5 generation)
- U.S.-born adults with at least one immigrant parent (the second generation)
- U.S.-born adults with native-born parents (the third-plus generation).

The PIAAC data confirm that there are marked generational differences in literacy (see Figure 10, left panel) and numeracy (Figure 10, right panel), and reveal clear patterns of intergenerational progress.

There is a steady progression in proficiency from the first generation (24 percent) to the 1.5 generation (37 percent) to the second generation (51 percent). Moreover, the literacy levels of the second generation were nearly identical to those of the third-plus generations. The data also highlight the fact that while the second generation may draw even with third-plus generations, both groups' proficiency levels remain relatively low.

40 According to our analysis of the 2012 ACS, only 14 percent of immigrant adults in the United States reported speaking no other language but English at home.

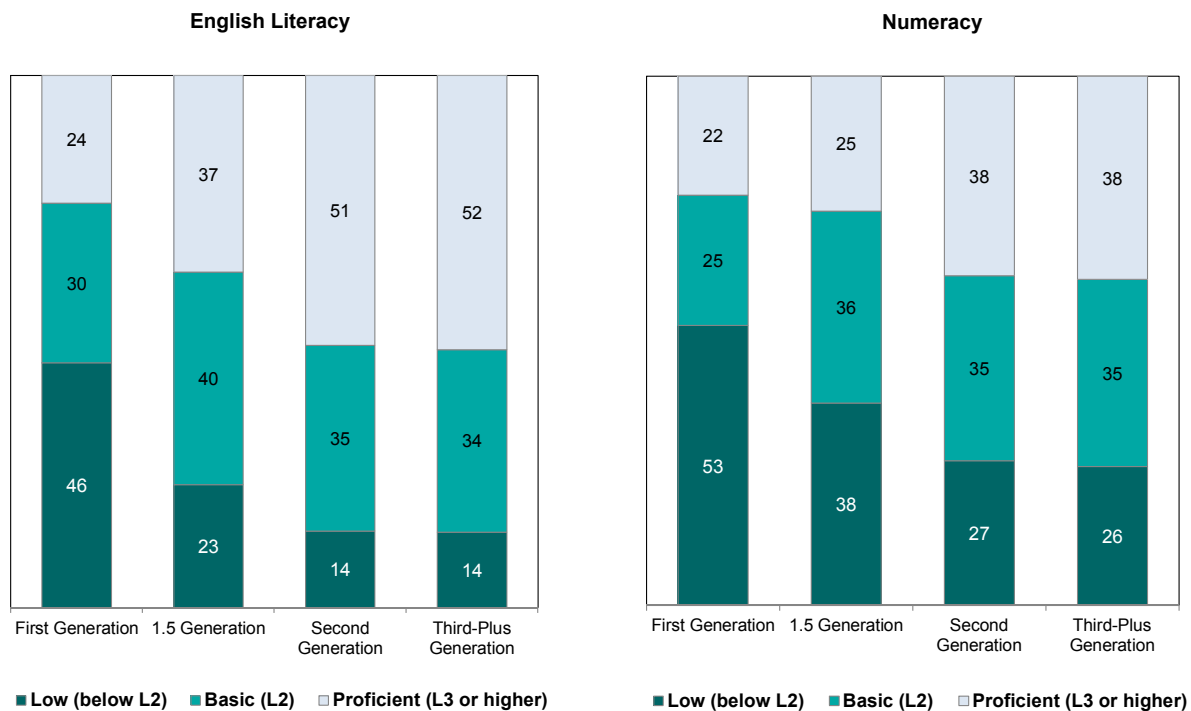
41 Michael Fix, ed., *Securing the Future: U.S. Immigrant Integration Policy, A Reader* (Washington, DC: Migration Policy Institute, 2007), <http://migrationpolicy.org/research/securing-future-us-immigrant-integration-policy-reader>.

42 Rubén G. Rumbaut, "Ages, Life Stages, and Generational Cohorts: Decomposing the Immigrant First and Second Generations in the United States," *International Migration Review* 38 (3) (2004): 1160-1205.

43 Rubén G. Rumbaut, "Generation 1.5, Educational Experiences," in *Encyclopedia of Diversity in Education*, ed. James A. Banks (New York: Sage Publications, 2012).



**Figure 10. Proficiency Level of Adults (ages 16-65) in English Literacy and Numeracy by Generational Status, 2012**



Source: MPI analysis of 2012 PIAAC data.

**Parental education is a better predictor of immigrants' proficiency than that of natives, though it has an effect on both cohorts.** Earlier research using PIAAC showed that adults from disadvantaged backgrounds (defined as having less-educated parents) had very low literacy and numeracy skills across all OECD countries,<sup>44</sup> with socioeconomic background being more highly correlated with proficiency levels in the United States than other developed countries.

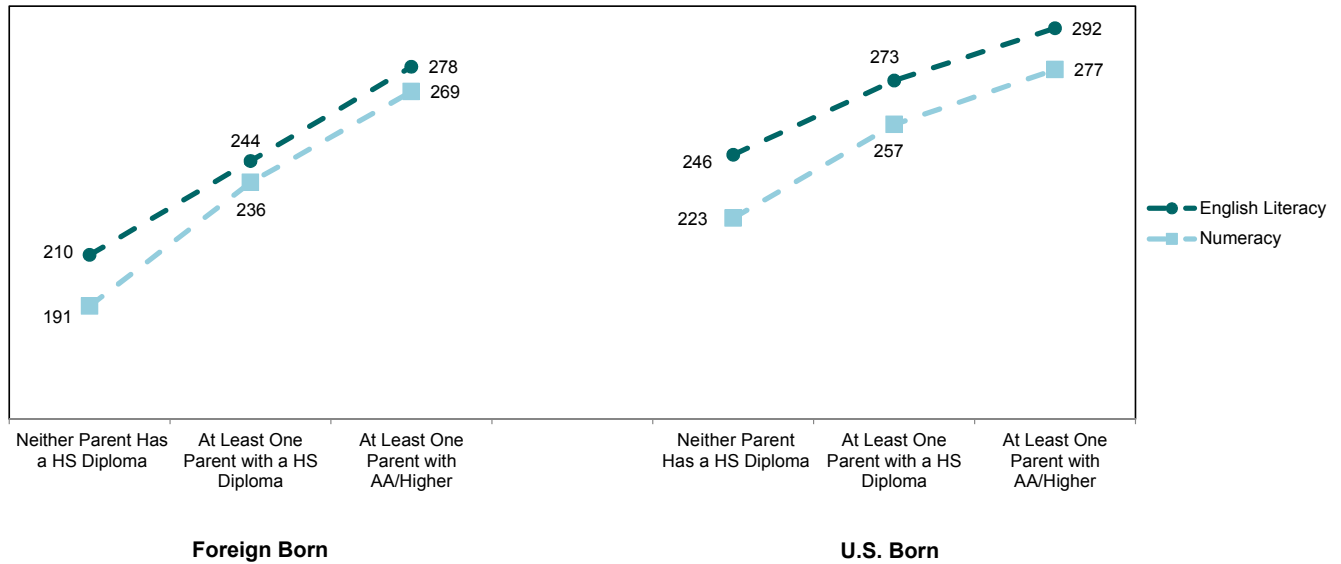
We find that this strong correlation between parent education and adult literacy and numeracy holds for both immigrants and natives (see Figure 11). Having at least one parent with an associate's degree or more degree meant that both immigrants (on literacy) and natives (literacy and numeracy) reached the 276-point level, which is the threshold for proficiency.

Figure 11 indicates that there was a wider range in proficiency scores between immigrants with low- and highly educated parents than for natives, suggesting that parent education may have an even greater impact on English skill development for immigrants than for the U.S. born.

<sup>44</sup> OECD, *Country Note: Survey of Adult Skills: First Results, United States* (Paris: OECD Publishing, 2013).



**Figure 11. Average English Literacy and Numeracy Scores of U.S.-Born and Foreign-Born Adults (Ages 16-65) by Parental Education, 2012**



*Note:* Within both immigrant and native populations, average scores were higher and statistically significant as the education of their parents increased.

*Source:* MPI analysis of 2012 PIAAC data.

#### D. Languages Spoken and Language Abilities

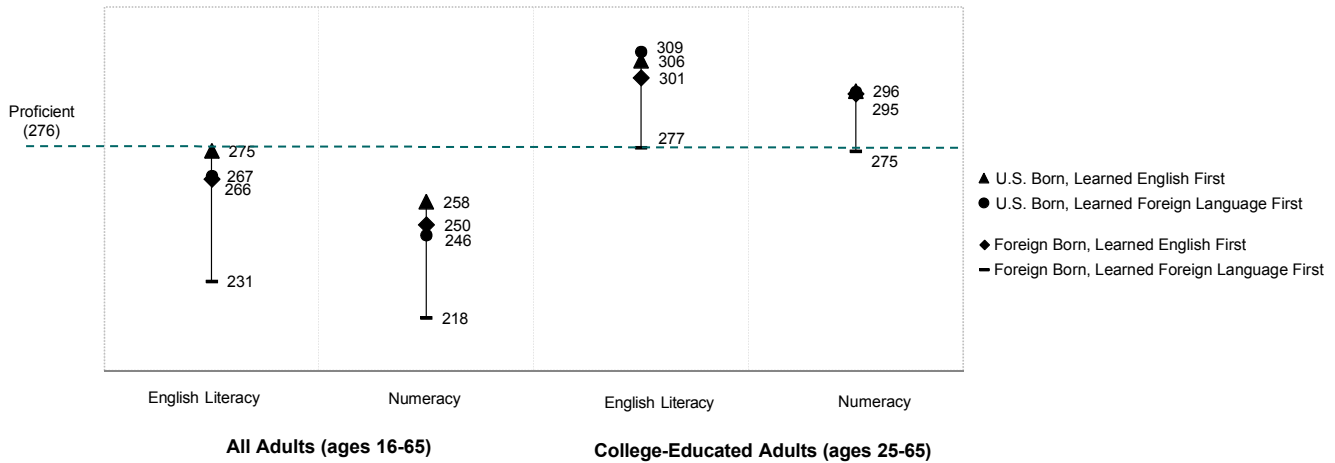
In addition to generational status, PIAAC asked survey participants a series of language-related questions, including the languages they learned as children and English literacy and numeracy skills when they are adults—the relationship explored next.

***For U.S.-born adults, learning a foreign language as a child does not appear to be an obstacle to English language literacy and numeracy.*** About 25 percent of immigrants learned English as children; 75 percent learned a foreign language. Keeping in mind that the PIAAC assessed English competency, we find that immigrants who learned a foreign language as children had the lowest average scores on literacy and numeracy (see Figure 12, left panel). However, the scores of U.S.-born adults who learned a foreign language as children approximated the scores of their English-only U.S.-born peers, as did those of immigrants who learned English as children.

Among college-educated adults, the average scores on literacy and numeracy went up by 20-30 score points for all four groups (see Figure 12, right panel). Also, the average scores evened out for both U.S.-born groups and immigrants who learned English as children. Taken together, this set of results suggests that learning a foreign language first is not a barrier to becoming proficient in the domains tested by PIAAC among U.S.-born adults.



**Figure 12. Average English Literacy and Numeracy Scores for All U.S.-Born and Foreign-Born Adults (Ages 16-65) and for College-Educated Adults (Ages 25-65) by English/Foreign Language Learned as a Child, 2012**



*Notes:* The average scores on literacy and numeracy were not statistically different between U.S.-born adults who learned English first and those who learned a foreign language first; except on numeracy among total adults (258 points versus 250 points). Among the college educated, the scores of immigrants who learned English first as children were not statistically different from those of U.S.-born adults who learned English first. In contrast, all English literacy and numeracy scores of immigrants who learned a foreign language first as children were lower than, and statistically different from, those of the U.S.-born adults.

*Source:* MPI analysis of 2012 PIAAC data.

**Self-reported data on how well respondents speak English correlated closely with PIAAC's directly tested literacy and numeracy skills. There was wide variation in the tested proficiency levels of respondents who have been classified as Limited English Proficient.** The PIAAC background questionnaire asks respondents to report how well they speak, read, write, and understand English. Like the U.S. Census Bureau's ACS (which is widely used in immigration research), respondents' options on PIAAC fall along a continuum that includes: "speak only English," speak English "very well," "well," "not well," and "not at all." Respondents answering "well," "not well," and "not at all" are classified by the Census Bureau as being Limited English Proficient (LEP), a classification that has powerful implications for how federal funds are distributed for language instruction and language access. The question is *how valid is this definition?*

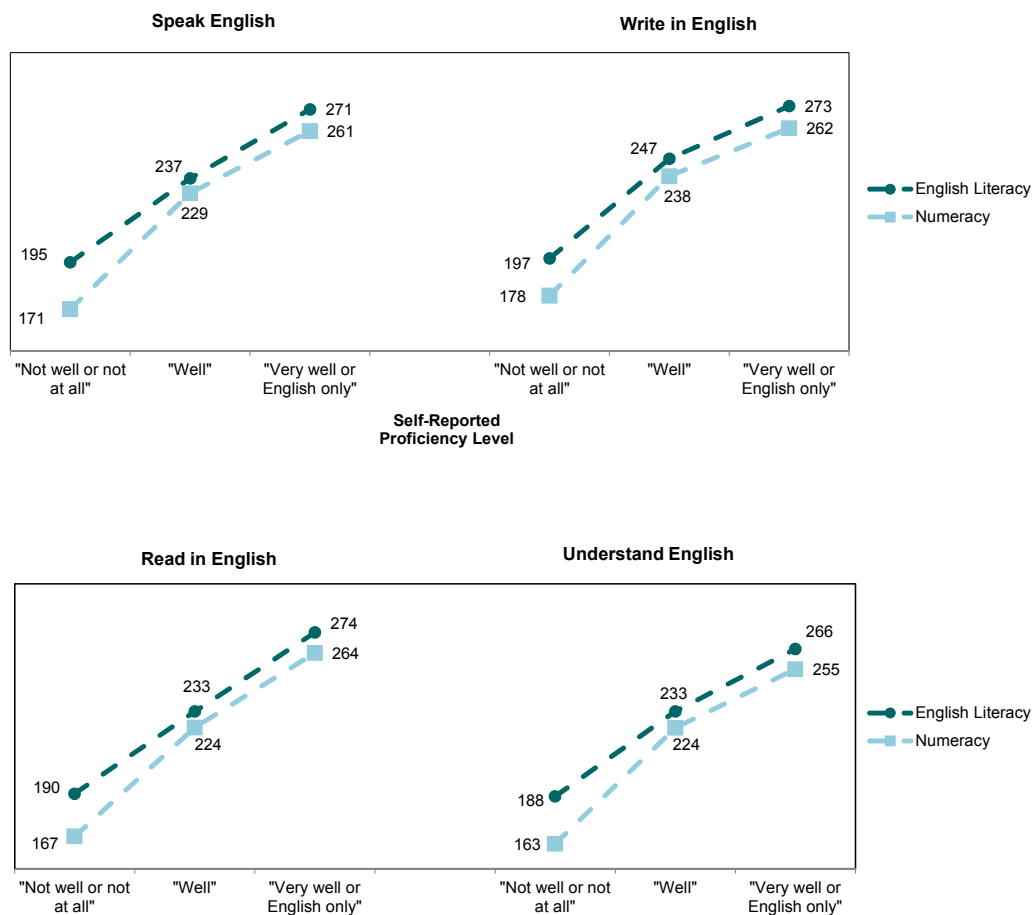
The PIAAC survey provides an opportunity to examine the actual proficiency of respondents who reported that they were LEP. It also offers an opportunity to revisit the results of earlier work in which we found that respondents who reported speaking English "not well" or "not at all" (low proficiency) differed significantly from those reporting they spoke English "well" (moderate proficiency) in terms of their educational attainment, naturalization levels, occupational distribution, and poverty rates.<sup>45</sup> According to PIAAC data, between one-quarter and one-third of immigrant adults reported writing, understanding, reading, and speaking English "well," or at this moderate level.

Figure 13 indicates that the tested literacy and numeracy proficiency levels rise in parallel with the self-reported English language skills of respondents: a result that could be seen to validate other surveys (such as the Census Bureau's ACS) use of *spoken* English ability to test English literacy. In addition, the tested results for respondents' spoken English abilities largely mirror those for reading, speaking, and understanding English, suggesting that speaking ability may be a good proxy for proficiency in these other domains.

<sup>45</sup> Batalova and Fix, *Profile of Limited English Proficient Immigrants*.



**Figure 13. Average English Literacy and Numeracy Scores of Foreign-Born Adults (Ages 16-65) by Proficiency in Speaking, Reading, Writing, and Understanding English, 2012**



*Notes:* Proficiency in English refers to how well PIAAC’s immigrant respondents reported that they speak, write, read, and understand English. Immigrants with low proficiency are those who reported that they speak, write, read, and understand English “not well” or “not at all;” those with moderate proficiency speak, write, read, and understand English “well;” those with high proficiency speak, read, write, and understand English “very well” or “English only.” All differences by proficiency on both literacy and numeracy were statistically significant at the 0.05 level.  
*Source:* MPI analysis of 2012 PIAAC data.

Further, as Figure 13 indicates, there is a wider gap in both numeracy and literacy between respondents who report speaking English “not well” or “not at all” (low proficiency) and those reporting that they speak English “well” (moderate proficiency) than between those with moderate and high self-reported English skills. These results reinforce our earlier analyses that suggested that immigrants with low levels of English proficiency need more intensive and perhaps differing language and education support than those who report speaking English “well,” despite the fact that all are classified as LEP for purposes of federal policy. According to PIAAC data, roughly 7.8 million or one-quarter of immigrant adults reported speaking or reading English “not well” or “not at all;” about one-third (10.1 million) reported that they write in English at the same low level.<sup>46</sup>

<sup>46</sup> A smaller share of immigrant adults (about 22 percent or 6.3 million) reported they understand English less than “well.”





## E. Labor Force and Economic Outcomes

Using PIAAC data, we examine the employment rates and average monthly wages of immigrant and native workers taking into account their literacy and numeracy skills and education.

***Immigrants with low English literacy and numeracy proficiency were more likely to be employed than their native counterparts with similar skill levels.*** Previous research has demonstrated a strong correlation between skills and education and economic outcomes. It has also showed that immigrants often had higher rates of employment than their native-born counterparts.

Using PIAAC data, we find that while higher literacy and numeracy skills meant higher rates of employment for natives (see Table 2), employment among immigrants did not differ statistically by proficiency level. In fact, immigrants with the lowest levels of proficiency on literacy and numeracy were employed at a significantly higher rate (75 percent) than their native counterparts with similar skill levels (59 percent).

Unlike employment, literacy and numeracy skills were strongly associated with differences in income among both immigrants and natives. We find that, on average, as adults' proficiency increased, so did their monthly wages.<sup>47</sup> Immigrant and native full-time workers who were proficient in literacy and numeracy earned double the wages of their respective counterparts with low skills (about \$6,000 versus \$3,000 per month) (see Table 2, below Level 2). Adults who were proficient earned on average \$36,000 more per year than their low-skilled counterparts.

Although immigrants on average earned less than natives (about \$4,000 versus \$4,600 per month), once we took into account workers' literacy and numeracy levels, the differences become statistically insignificant for the most part. The findings regarding the relationship between skills and labor market outcomes highlight the fact that while immigrants are able to find employment regardless of their proficiency, they need higher levels of English competency to be paid well—and on a par with natives—for their work in the U.S. labor market.

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<sup>47</sup> For the purposes of analysis of the relationship between skills and education and wages, the sample was limited to full-time workers ages 16-65 who earned at least \$500 but no more than \$20,000 per month, including bonuses.

**Table 2. Employment and Average Monthly Wages of U.S.-Born and Foreign-Born Workers (Ages 16-65) by Skills and by Educational Attainment, 2012**

	Share Employed of the Total Adult (ages 16-65) Population					Average Monthly Wages (\$)*				
				Statistically Significant from Lower Proficiency/Educational Level?					Statistically Significant from Lower Proficiency/Educational Level?	
	Foreign Born	U.S. Born	Statistically Significant from U.S. Born?	Foreign Born	U.S. Born	Foreign Born	U.S. Born	Statistically Significant from U.S. Born?	Foreign Born	U.S. Born
<b>Estimate</b>	76%	73%	no			4,075	4,596	yes		
<b>English Literacy</b>										
Low (below L2)	75%	59%	yes			2,834	3,054	no		
Basic (L2)	74%	68%	no	no	yes	4,082	3,587	no	yes	yes
Proficient (L3 or higher)	79%	80%	no	no	yes	5,900	5,408	no	yes	yes
<b>Numeracy</b>										
Low (below L2)	74%	59%	yes			2,990	3,060	no		
Basic (L2)	74%	72%	no	no	yes	3,969	3,844	no	no	yes
Proficient (L3 or higher)	83%	84%	no	no	yes	6,086	5,827	no	yes	yes
<b>Education</b>										
Less than high school	71%	45%	yes			2,055	2,499	yes		
High school degree	75%	72%	no	no	yes	3,606	3,536	no	yes	yes
Associate	-	79%	-	-	yes	4,429	4,429	-	-	yes
Bachelor	76%	86%	yes	-	yes	4,826	5,883	yes	-	yes
Graduate	87%	89%	no	yes	no	7,408	7,350	no	yes	yes

\*Average gross monthly earnings (including bonuses) of full-time workers ages 16-65 who earned between \$500 and \$20,000 per month in their current job, including bonuses.

"-" the sample size was too small to produce reliable estimates.

Source: MPI analysis of 2012 PIAAC data.

The bottom section of Table 2 shows the relationship between educational attainment and employment and wages. The results are essentially the same as observed earlier for both immigrant and native populations, except for the following: Immigrants with less than a high school education were much more likely to be employed than natives (71 percent versus 45 percent), but they earned about \$440 less per month. Immigrants with a bachelor's degree were less likely than their native counterparts to be employed (76 percent versus 86 percent), and they earned \$1,000 less per month. In contrast, immigrants and natives with advanced degrees had similar employment rates and monthly wages. It appears then, that for immigrants a bachelor's degree alone provides a lower return on investment in terms of employment or wages than an advanced degree.

***Regardless of nativity, adults with lower literacy were less likely to participate in ongoing learning.***

PIAAC asked respondents to answer a number of questions related to their learning activities, including whether they studied for any formal degree or certificate part- or full-time, or participated in any other organized learning activities during the past 12 months. Overall 38 percent of immigrant adults and 50 percent of natives reported that they engaged either in formal education or other organized learning within the past year (see Table 3). Natives then were significantly more likely to continue their learning than immigrants.



**Table 3. Share of U.S.-Born and Foreign-Born Adults (Ages 16-65) Participating in Formal Education or Other Organized Learning Activities During Past 12 Months by English Literacy Proficiency Level, 2012**

	Share Participating in Learning Activities During Past 12 Months				
				Statistically Significant from Lower Proficiency Level?	
	Foreign Born	U.S. Born	Statistically Significant from U.S. Born?	Foreign Born	U.S. Born
<b>Estimate</b>	38%	50%	yes		
<b>English Literacy</b>					
Low (below L2)	24%	29%	no		
Basic (L2)	41%	43%	no	yes	yes
Proficient (L3 or higher)	55%	61%	no	yes	yes

*Notes:* Formal education referred to programs that lead to a degree or certificate; other organized learning activities include courses conducted through open or distance education, organized sessions for on-the-job training or training by supervisors or coworkers, seminars and workshops, and other kinds of private lessons.

*Source:* MPI analysis of 2012 PIAAC data.

Once adults' literacy proficiency were taken into account, however, nativity differences became statistically insignificant. Both natives and immigrants who scored at Level 3 or above were twice as likely to participate in additional learning compared to low-skilled adults (below L2), reinforcing the axiom that learning begets learning.

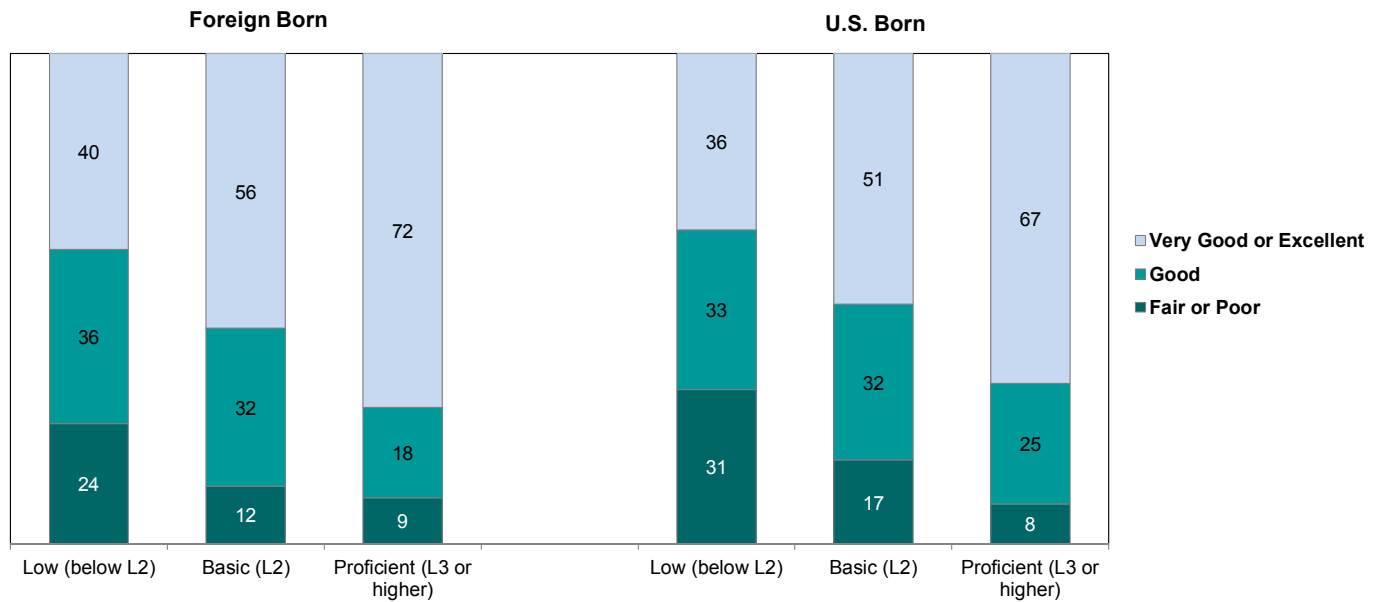
## F. Health Outcomes

Consistent with previous PIAAC research, we find that both immigrants and natives with lower literacy scores were more likely to report poor health (see Figure 14). Earlier studies have found that low English proficiency inhibits interactions between patients and health-care providers, as well as comprehension of complex medical and health-related information.<sup>48</sup> Immigrants who scored at Level 1 or below were nearly three times more likely to say that their health was poor or fair than those who scored at Level 3 or higher (24 percent versus 9 percent). Native adults were even more likely to report poor or fair health (31 percent) if they scored at Level 1 or below.

<sup>48</sup> Iris Feinberg, Daphne Greenberg, and Jan C. Frijters, "Understanding Health Information Seeking Behaviors of Adults with Low Literacy, Numeracy, and Problem Solving Skills," (presentation at "Taking the Next Step with PIAAC: A Research-to-Action" conference, AIR, Arlington, VA, December 11-12, 2014).



**Figure 14. Self-Reported Health Status of U.S.-Born and Foreign-Born Adults (Ages 16-65) by English Literacy Proficiency Level, 2012**



Source: MPI analysis of 2012 PIAAC data.

## V. Comparing PIAAC to U.S. Census Survey Data

PIAAC provides recent, rich data about the directly assessed skills of U.S. adults. Together with its extensive background questionnaire—which includes nativity, language proficiency, generation status, and other immigration-related questions—the survey represents an important analytical resource for the field of immigration and immigrant integration research. As discussed earlier in the data and methodology section, PIAAC is likely to exclude certain immigrants and LEP adults non-randomly as a result of its survey design and implementation. These exclusions raise questions, then, about the degree to which the PIAAC sample is representative of the U.S. immigrant adult population. Our analysis finds substantial comparability between PIAAC and the U.S. Census Bureau’s American Community Survey (ACS) and Current Population Survey (CPS), the two data sources often used in research about immigrants and their children in the United States. Specifically, we find that respondents’ age distribution, race and Hispanic origins, and gender were largely similar in the PIAAC and U.S. surveys (see Appendix Tables A-1 and A-2 for comparative results).<sup>49</sup>

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*PIAAC provides recent, rich data about the directly assessed skills of U.S. adults.*

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There is, however, some variation across the three surveys. PIAAC participants appear to be somewhat less likely to report being born outside of the United States (15 percent in the PIAAC survey versus 18

<sup>49</sup> This report uses both the ACS and the Current Population Survey (CPS) because while ACS does not collect data by immigrant generation, CPS does.



percent in the ACS). Foreign-born respondents to the PIAAC survey were somewhat *more* likely to report having a graduate-level degree than in the ACS (16 percent versus 11 percent) but *less* likely to report having arrived in the United States during the 2000-12 period (29 percent versus 36 percent). Immigrant respondents to the PIAAC were more likely to report living with a spouse or partner than in the ACS (74 percent versus 58 percent), and somewhat more likely to report being employed (76 percent) than immigrants surveyed by either ACS (69 percent) or CPS (67 percent.) In sum, when compared to the ACS, the PIAAC immigrant sample appears to be somewhat *less* likely to have arrived in the United States recently and *more* likely to have an advanced degree and be employed. Thus, the PIAAC results reported here may slightly overstate the proficiency levels of the U.S. immigrant adult population overall. The same can be said—but to a somewhat lesser degree—when it comes to the second generation.

## VI. Conclusions and Policy Implications

This report profiles first- and second-generation adult respondents to the PIAAC survey, and examines key trends in their integration into U.S. society. Our findings are consistent with earlier reported results on immigrant proficiency levels in the domains tested by the PIAAC: that is, scores for the foreign born lagged those of the U.S. born, which are themselves low by international standards. We also find high levels of racial and ethnic differences with immigrants and natives who are Hispanic and/or black performing at low levels. Our results, however, do not establish that the low overall U.S. results can be laid at the doorstep of the nation's foreign-born adults. When immigrants' scores on literacy or numeracy proficiency in the PIAAC survey were excluded, national test scores rose only 5 points on a 500-point scale, and remained below the relatively low bar of "proficiency."

Viewing our results through an immigrant integration lens, several findings stand out. First, the most recent cohort of immigrants (i.e., those arriving between 2007 and 2011) had proficiency levels in English literacy and numeracy similar to those who arrived in earlier periods. This finding suggests that the recent recession and post-recession cohort included smaller shares of immigrants who are less educated, and a greater share of those who are highly skilled.

This analysis also finds that while young natives (ages 16-26) had proficiency levels that were only marginally higher than the older natives (ages 55-64) they would be replacing in the labor market, the same was not true for younger immigrants whose proficiency levels were higher than their older peers. Both of these findings suggest that there has been some improvement in immigrants' human capital over time. Further, we find that while the first generation lagged U.S.-born adults across all domains of proficiency, the second generation's literacy and numeracy skills were similar to those of the third-plus generation. It needs to be emphasized, though, that this intergenerational ascent represents a climb to a low level of proficiency by international standards.

Natives' employment and earnings rose with proficiency. But this pattern did not hold for immigrants with low skill levels, who were much more likely to be employed than their low-proficient native counterparts—signaling immigrants' concentration in low-skill jobs. At the same time, the high levels of participation of these low-skill immigrant workers in the U.S. labor market (versus many other OECD countries) means that many are likely to participate in training and education if offered by employers, potentially providing an avenue to mobility. While immigrant adults were in general less likely to have participated in training programs in the past 12 months than natives, there was no statistically significant difference between the participation rates of native and immigrant adults within literacy proficiency levels.

Our results also confirm other studies that find that immigrants with foreign-earned academic credentials had lower English literacy and numeracy scores than those with U.S.-earned credentials. However, the average literacy and numeracy scores of immigrants with U.S.-earned credentials approximated those of



their U.S.-born counterparts. Still, the fact that over half of immigrants with bachelor's degrees are not proficient in literacy or numeracy remains worrying.

These patterns are consistent with the larger, sobering trends revealed by the U.S. PIAAC data: low general levels of proficiency, deepening societal inequalities reflected by racial and ethnic differences, and the powerful effects of parental education (especially on immigrants); and much higher levels of poor self-reported health among respondents with low proficiency levels. That said, immigrants' exposure to the workplace, the rising skills of new entrants, and patterns of intergenerational progress may offer levers for future action.

Finally, a threshold issue that this study explored is whether the PIAAC sample of adult immigrants resembled those used by the U.S. Census Bureau's American Community Survey and Current Population Survey. Overall, we find that the immigrant populations sampled across the OECD and U.S. surveys were in large part similar, at least with regard to key demographic variables such as age, gender, and race and Hispanic origin. These findings are significant because PIAAC excludes those with very low English language abilities from taking the psychometric tests in literacy, numeracy, and problem solving, raising questions about the PIAAC sample's representativeness for the U.S. immigrant population.

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*Immigrants' exposure to the workplace, the rising skills of new entrants, and patterns of intergenerational progress may offer levers for future action.*

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### Select Policy Implications

Although not a central focus of this descriptive paper, the PIAAC results hold several policy implications for immigrant integration.

#### **Higher English literacy and numeracy skills improve low-proficient immigrant adults' earnings.**

According to this analysis of PIAAC data, roughly 40 percent of immigrant adults lacked basic English literacy skills and 48 percent lacked basic numeracy skills. Our study also identifies the severe wage penalty imposed by low education and low English skills as well as a significant immigrant-native wage gap difference in skills. As Smith and Fernandez demonstrate,<sup>50</sup> the differences in wages between natives and immigrants in the United States disappear once education, skills, and occupations are taken into account. Their findings suggest that to close the nativity wage gap, it is essential to raise education and skills of immigrants.

The PIAAC findings also suggest that recession-induced fiscal policies that have led to a 36 percent decline between 2007-08 and 2012-13 in enrollment for federally supported adult English as a Second Language (ESL) classes,<sup>51</sup> need revisiting. The nation's adult basic education (ABE) system, long a key, yet under-recognized element of the nation's limited immigrant integration policies, has been further eroded by state-level cuts. For example, in California, the state with the largest immigrant population in the nation, ESL program enrollment programs fell by 55 percent between 2007-08 and 2012-13.<sup>52</sup>

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50 William Smith and Frank Fernandez, "Education and Wage Gaps: A Comparative Study of Immigrant and Native Employees in the United States and Canada," (presentation at the "Taking the Next Step with PIAAC: A Research-to-Action" conference, AIR, Arlington, VA, December 11-12, 2014).

51 Adult English as a Second Language (ESL) enrollment at the national level declined 36 percent (from 1.1 million to 677,000) during the 2007-08 to 2012-13 period. See U.S. Department of Education, Office of Career, Technical, and Adult Education, National Reporting System, "State Enrollment by Program Type (ABE, ESL, ASE): All States," Program years 2007-12 (50 U.S. states and the District of Columbia), accessed November 5, 2014.

52 ESL enrollment in California declined 55 percent from 2007-08 to 2012-13, dropping from 409,000 to 186,000. Similarly, enrollment in Adult Basic Education (ABE) programs in California dropped by 30 percent, from 123,000 to 85,000 during the same period. See U.S. Department of Education, Office of Career, Technical, and Adult Education, National Reporting System: "State Enrollment by Program Type (ABE, ESL, ASE): California," Program years 2007-12, accessed November 5, 2014.



**Workplace English language instruction improves employment prospects and wages.** Studies show that participation in adult education and training programs significantly improve participants' employment prospects and increase their earnings.<sup>53</sup> However, low-skilled individuals—immigrant and native alike—are less likely to have access to these programs for many reasons, including cost, lack of information, language barriers, and competing family, work, and other demands.<sup>54</sup>

Our finding that immigrants had high employment rates even at low literacy levels suggests that many could be reached by *work-based* language and skill training programs. For one, bringing language instruction to the workplace helps contextualize English language learning so that immigrants can acquire meaningful occupation-specific language skills.<sup>55</sup> Equally important, work-based language instruction and skill training reduce competing pressures such as the need to arrange for child care or to attend classes offered during working hours. Work-based training for immigrants may also improve workers' noncognitive "soft skills."<sup>56</sup>

Getting employers to commit to subsidize programs for low-skilled workers is a challenge because these workers are often viewed as readily replaceable. While Canada and a number of European countries have experimented with offering training subsidies, technical assistance, tax credits, and other incentives to bolster employers' interest in training low-skilled immigrant workers,<sup>57</sup> such programs are relatively rare in the United States.<sup>58</sup>

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*Our finding that immigrants had high employment rates even at low literacy levels suggests that many could be reached by work-based language and skill training programs.*

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**Increased attention to the benefits of addressing the skill underutilization of college-educated immigrants.** In recent years many policymakers have called for stepped-up efforts to recruit immigrants who are highly skilled, investors, or entrepreneurs. However, as our earlier work demonstrates,<sup>59</sup> attracting these highly sought-after people from abroad is often not enough to meet the needs of immigrants or the larger economy as many end up not fully utilizing their skills and potential after arrival. We estimate that today more than 1.6 million college-educated immigrants are either unemployed or employed in low-skilled jobs.<sup>60</sup> Put differently, one in five highly skilled immigrants in the United States is affected by "brain waste." The challenges these immigrants face include difficulties in recognition of their educational and professional credentials earned abroad, acquisition of professional-level English skills, access to profes-

53 Phyllis Cummins, Suzanne Kunkel, and Ryan Walker, "Adult Education and Training Programs for Older Adults in the U.S.: National Results and Cross-National Comparisons Using PIAAC Data," (presentation to the "Taking the Next Step with PIAAC: A Research-to-Action" conference, AIR, Arlington, VA, December 11-12, 2014).

54 OECD and European Commission, *The Survey of Adult Skills (PIAAC)*.

55 Margie McHugh and A.E. Challinor, *Improving Immigrants' Employment Prospects through Work-Focused Language Instruction* (Washington, DC: Migration Policy Institute, 2011), [www.migrationpolicy.org/research/improving-immigrants-employment-prospects-through-work-focused-language-instruction](http://www.migrationpolicy.org/research/improving-immigrants-employment-prospects-through-work-focused-language-instruction).

56 Bonfati and Xenogiani, "Migrants' Skills."

57 Meghan Benton et al., *Aiming Higher: Policies to Get Immigrants into Middle-Skilled Work in Europe* (Washington, DC: Migration Policy Institute, 2014), [www.migrationpolicy.org/research/aiming-higher-policies-get-immigrants-middle-skilled-work-europe](http://www.migrationpolicy.org/research/aiming-higher-policies-get-immigrants-middle-skilled-work-europe).

58 McHugh and Challinor, *Improving Immigrants' Employment Prospects*; OECD, *Time for the U.S. to Reskill?*

59 Batalova and Fix (with Creticos), *Uneven Progress*.

60 Authors' analysis of the U.S. Census Bureau's pooled 2011-2013 American Community Survey data.



sional networks, and in building skills rewarded in the U.S. labor market.<sup>61</sup>

The relatively low English literacy and numeracy skills and poor labor market outcomes of adults with foreign-earned degrees underscore the need for federal, state, and other initiatives that seek to deepen the language skills of highly educated immigrants, and facilitate the recognition of their foreign-earned credentials. The recognition of skills and credentials of highly educated immigrants has been a focus of state commissions seeking to promote immigrant integration.<sup>62</sup> They should logically be of concern to the White House Interagency Task Force on New Americans<sup>63</sup> announced in November 2014, as the issues raised cut across the responsibilities of the Departments of Education, Labor, and Commerce.

***The importance of matching language and literacy services with the needs of immigrants with varying levels of English proficiency.*** This report examines the literacy and numeracy skills of immigrants with low, moderate, and high levels of spoken English proficiency.<sup>64</sup> The U.S. Census Bureau defines the first two groups as Limited English Proficient (LEP). Policymakers rely on the same definition to apportion funding for programs providing English instruction in both K-12 and adult education systems. However, immigrants with moderate levels of English proficiency represent a distinct group whose English literacy and numeracy skills are much higher than those of the low-English proficient immigrant adults. This finding suggests that language and literacy service providers have to take into account the different needs of immigrants with low versus moderate English proficiency levels rather than treating them as one homogeneous group.

***Providing language support at all levels of education.*** There is a need to provide language instruction and workforce training to adults with low levels of education. But our finding that 54 percent of immigrants and 22 percent of natives with a bachelor's degree scored below proficient on English literacy points to the often overlooked fact that language and literacy services are needed at all levels of education.

In conclusion, as our research and that of others demonstrates, literacy and numeracy skills are strongly linked to many individual economic and social well-being indicators (e.g., employment and earnings, health status, and civic participation). Skills of adults who are and will be entering the workforce are central to economic growth and productivity. Raising the skills of millions of immigrant adults and their U.S.-born children with low English literacy and numeracy is a daunting task for those invested in successful immigrant integration. An effective response will require a shared commitment at all levels—from employers, federal and state governments, adult education and immigrant service providers, and adult learners themselves.

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- 61 Jeanne Batalova, Margie McHugh, and Madeleine Morawski, "Brain Waste in the U.S. Workforce: Select Labor Force Characteristics of College-Educated Native-Born and Foreign-Born Adults," (fact sheets, Migration Policy Institute, Washington, DC, May 2014), <http://migrationpolicy.org/research/brain-waste-US-state-workforce-characteristics-college-educated-immigrants>.
- 62 State of Maryland, Division of State Documents, *Executive Order 01.01.2008.18: The Maryland Council for New Americans*, January 1, 2008, [www.dsd.state.md.us/comar/getfile.aspx?file=01.01.2008.18.htm](http://www.dsd.state.md.us/comar/getfile.aspx?file=01.01.2008.18.htm); Massachusetts Executive Office of Health and Human Services, "New Americans Agenda," accessed January 27, 2015, July 9, 2008, [www.mass.gov/eohhs/gov/departments/ori/ori-programs/new-americans-agenda.html](http://www.mass.gov/eohhs/gov/departments/ori/ori-programs/new-americans-agenda.html); State of Illinois, Executive Department, *Executive Order Creating New Americans Immigrant Policy Council* (2005-10), November 19, 2005, [www.illinois.gov/Government/ExecOrders/Documents/2005/execorder2005-10.pdf](http://www.illinois.gov/Government/ExecOrders/Documents/2005/execorder2005-10.pdf).
- 63 White House, Office of the Press Secretary, "Presidential Memorandum: Creating Welcoming Communities and Fully Integrating Immigrants and Refugees," (memorandum, November 21, 2014), [www.whitehouse.gov/the-press-office/2014/11/21/presidential-memorandum-creating-welcoming-communities-and-fully-integra](http://www.whitehouse.gov/the-press-office/2014/11/21/presidential-memorandum-creating-welcoming-communities-and-fully-integra).
- 64 Based on ACS respondents' answers to a question "How well do you speak English," we classified them into three groups: 1) respondents with low spoken English language proficiency: those who reported that they speak English "not well" or "not at all;" 2) respondents with moderate proficiency: those who reported that they speak English "well;" and 3) respondents with high proficiency: those who reported that they speak English "only" or "very well."





## Glossary

Terms	Definitions
<b>Foreign born (or immigrant)</b>	<p>The term refers to people who reported that they were born outside of the United States on the PIAAC questionnaire. The term “immigrants” is used interchangeably with “foreign born” and “first generation” in this report.</p> <p>To be consistent with OECD reports that employ PIAAC data, we used the above definition. Note that this definition is slightly different from that of the U.S. Census Bureau, which defines the foreign born as people who had no U.S. citizenship at birth. In other words, the Census Bureau’s definition excludes children who were born abroad to at least one U.S.-citizen parent from the population of the “foreign born,” whereas the OECD definition—used here—would count them as “foreign born.”</p>
<b>Generation:</b>	
<i>First</i>	Persons who were born outside of the United States.
<i>1.5</i>	A subset of the first generation, the 1.5 generation refers to the foreign-born persons who arrived in the United States before age 13.
<i>Second</i>	U.S.-born persons with at least one foreign-born parent.
<i>Third-Plus</i>	U.S.-born persons with no foreign-born parents.
<b>Limited English Proficient (LEP)</b>	Those who self-reported speaking English “not at all,” “not well,” or “well” on their survey questionnaire. Persons who speak only English or who report speaking English “very well” are considered proficient in English.
<b>Skills assessed on PIAAC:</b>	As defined by PIAAC’s frameworks*
<i>English literacy</i>	Literacy is “understanding, evaluating, using and engaging with written text to participate in the society, to achieve one’s goals and to develop one’s knowledge and potential.” In the context of the U.S. data, literacy refers to English literacy.
<i>Numeracy</i>	Numeracy refers to adults’ ability “to access, use, interpret, and communicate mathematical information and ideas, to engage in and manage mathematical demands of a range of situations in adult life.”
<i>Problem solving</i>	Problem solving in technology-rich environment refers to adults’ ability to use “digital technology, communication tools, and networks to acquire and evaluate information, communicate with others, and perform practical tasks.”
<b>Native (or U.S. born)</b>	The report adopts the definition of “natives” described in OECD reports that use PIAAC data. The term “native” refers to people who stated that they were born in the United States.

\* NCES, “PIAAC Frameworks,” accessed November 1, 2014, <http://nces.ed.gov/surveys/piaac/framework.asp>.



## Appendix

**Table A-1. PIAAC Data Versus ACS Data**

	PIAAC 2012		ACS 2012	
	U.S. Born	Foreign Born	U.S. Born	Foreign Born
<b>Estimate of noninstitutionalized population, ages 16-65 (weighted)</b>	165,791,000	28,636,000	169,674,000	36,737,000
<b>Sample size</b>	4,259	636	1,671,363	308,777
<b>Born in the United States (%)</b>				
Yes	85.3		82.2	
No		14.7		17.8
<b>Gender</b>				
% female	51.1	51.5	50.8	50.8
<b>Age</b>				
Mean	39.9	40.6	39.9	40.7
<b>By category (%)</b>				
16-26	24.6	14.3	24.8	15.6
27-34	14.9	20.3	15.2	18.7
35-44	18.8	26.5	18.1	26.3
45-54	21.6	23.8	20.9	22.3
55-65	20.0	15.2	20.9	17.1
<b>Race and Hispanic Origin (%)</b>				
Non-Hispanic white	73.7	17.7	73.1	18.1
Non-Hispanic black	13.1	10.1	13.9	8.1
Non-Hispanic Asian	1.9	23.8	2.0	25.1
Hispanic	8.6	47.0	9.5	47.9
Other race (non-Hispanic)	2.8	1.3	1.5	0.7
<b>Years of U.S. Residence (%)</b>				
2007-2011		9.7		13.6
2000-2006		18.9		22.4
1990-1999		28.9		28.6
Before 1990		42.5		35.4
U.S. born	100.0		100.0	
<b>Age at Immigration (%)</b>				
Age 0-5		13.9		12.1
Age 6-10		5.2		7.8
Age 11-15		9.1		9.9
Age 16-20		22.4		18.3
Age 21-25		22.2		17.9
Age 26-30		11.7		13.5
Age 31-35		6.6		8.4
Age 36-40		5.3		5.2
Age 41 or older		3.7		6.8
<b>Living with Spouse or Partner (%)</b>				
Yes	65.8	73.7	51.1	57.8
No	34.2	26.3	48.9	42.2



	PIAAC 2012		ACS 2012	
	U.S. Born	Foreign Born	U.S. Born	Foreign Born
<b>Highest Level of Formal Education (%)</b>				
Less than high school	12.6	27.0	12.7	28.3
High school or GED	51.8	37.4	52.5	38.7
Associate's degree	9.6	5.2	8.3	6.0
Bachelor's degree	16.5	14.8	17.6	16.3
Master's degree and above	9.5	15.6	8.9	10.7
<b>Self-Assessed Spoken English proficiency (%)</b>				
Speak English only or very well	92.0	40.9	98.9	52.8
Speak English well	7.5	31.9	0.8	21.0
Speak English not well/not at all	0.5	27.3	0.3	26.2
<b>Employment Status (%)</b>				
Employed	72.9	76.0	66.8	68.6
Unemployed	8.3	5.9	7.1	6.5
Not in the labor force	18.8	18.0	26.1	24.9

Notes: There were 115 missing cases.

Source: Migration Policy Institute analysis of the 2012 PIAAC and 2012 ACS data.

**Table A-2. PIAAC Data Versus CPS Data**

	PIAAC 2012			CPS 2012		
	First Generation	Second Generation	Third-Plus Generation	First Generation	Second Generation	Third-Plus Generation
<b>Estimate of noninstitutionalized population, ages 16-65 (weighted)</b>	27,241,000	17,692,000	149,223,000	36,383,000	17,177,000	151,676,000
<b>Sample Size</b>	604	409	3,879	24,041	10,883	95,653
<b>Immigrant Generation*</b>						
First generation	14.1			17.7		
Second generation		9.2			8.4	
Third-plus generation			76.7			73.9
<b>Gender</b>						
% female	51.4	48.1	51.5	50.0	49.8	51.1
<b>Age</b>						
Mean	40.6	32.8	40.7	40.7	33.2	40.6
<b>By category (%)</b>						
16-26	13.9	43.6	22.2	15.5	42.1	22.8
27-34	20.4	17.7	14.6	18.8	18.6	15.0
35-44	26.1	16.8	19.3	25.8	15.6	18.4
45-54	24.7	13.5	22.5	23.1	12.5	22.0
55-65	14.9	8.3	21.4	16.8	11.2	21.9
<b>Race and Hispanic Origin (%)</b>						
Non-Hispanic white	15.2	39.6	77.7	19.1	32.5	77.8
Non-Hispanic black	10.1	5.4	14.0	7.8	5.7	14.6
Non-Hispanic Asian	24.4	12.1	0.8	24.1	14.0	0.8
Hispanic	49.0	41.3	4.6	48.9	47.3	5.2
Other race (non-Hispanic)	1.3	1.6	2.9	0.2	0.5	1.7
<b>Highest Level of Formal Education (%)</b>						
Less than high school	27.5	18.1	11.7	27.3	18.9	12.4
High school or GED	37.3	47.2	52.3	38.3	46.7	49.6
Associate's degree	5.2	9.9	9.5	6.5	7.6	10.1
Bachelor's degree	14.4	11.7	17.3	17.7	17.8	18.9
Master's degree and above	15.6	13.1	9.2	10.2	9.0	9.0
<b>Employment Status (%)</b>						
Employed	76.2	67.7	73.7	67.1	61.0	66.5
Unemployed	5.4	13.0	7.7	6.4	7.1	6.2
Not in the labor force	18.2	19.3	18.5	26.6	31.9	27.3

Notes: \*There were 32 respondents who reported that they were born in another country but there were classified by OECD as third generation (because they had U.S.-born parents). There were 118 missing cases.

Source: Migration Policy Institute analysis of the 2012 PIAAC and 2012 CPS data.



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## About the Authors



**Jeanne Batalova** is a Senior Policy Analyst at the Migration Policy Institute (MPI) and Manager of the MPI Data Hub, a one-stop, online resource that provides instant access to the latest facts, stats, and maps covering U.S. and global data on immigration and immigrant integration. She is also a Nonresident Fellow with Migration Policy Institute Europe.

Her areas of expertise include the impacts of immigrants on society and labor markets; social and economic mobility of first- and second-generation youth and young adults; and the policies and practices regulating immigration and integration of highly skilled workers and foreign students in the United States and other countries.

Her book, *Skilled Immigrant and Native Workers in the United States*, was published in 2006.

Dr. Batalova earned her PhD in sociology, with a specialization in demography, from the University of California-Irvine; an MBA from Roosevelt University; and bachelor of the arts in economics from the Academy of Economic Studies, Chisinau, Moldova.



**Michael Fix** is President of the Migration Policy Institute, a position he assumed in July 2014 after serving as CEO and Director of Studies. He joined MPI in 2005, and was previously Senior Vice President and Co-Director of MPI's National Center on Immigrant Integration Policy.

Mr. Fix's research focus is on immigrant integration and the education of immigrant children in the United States and Europe, as well as citizenship policy, immigrant children and families, the effect of welfare reform on immigrants, and the impact of immigrants on the U.S. labor force.

Prior to joining MPI, Mr. Fix was Director of Immigration Studies at the Urban Institute in Washington, DC, where his focus was on immigration and integration policy, race and the measurement of discrimination, and federalism.

Mr. Fix serves on the board of MPI Europe and is a Policy Fellow with IZA in Bonn, Germany. In December 2013, he was nominated to be a member of the National Research Council's Committee on the Integration of Immigrants into U.S. Society, which over its two-year life will examine what is known about the integration of immigrants in the United States and identify any major gaps in existing knowledge on this topic.

Previously, he served on the National Academy of Sciences' Committee on the Redesign of U.S. Naturalization Tests and on the Committee on the Health and Adjustment of Immigrant Children. He also served as a member of the Advisory Panel to the Foundation for Child Development's Young Scholars Program. In 2005 he was appointed to the State of Illinois' New Americans Advisory Council, and in 2009 to the State of Maryland's Council for New Americans.

Mr. Fix received a JD from the University of Virginia and a bachelor of the arts degree from Princeton University. He did additional graduate work at the London School of Economics.





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[www.migrationpolicy.org](http://www.migrationpolicy.org)

1400 16<sup>th</sup> Street NW  
Suite 300  
Washington, DC 20036

Tel: 001 202-266-1940  
Fax: 001 202-266-1900

