Executive Summary

Beyond inflation, the U.S. economy faces a formidable challenge, with the number of open jobs—many in middle- or high-skilled occupations—at or above historical levels. While recruiting talented workers from abroad is one way to address these labor shortages, another approach, and one that is less frequently discussed, is to better leverage the skills and credentials of the nation’s resident immigrant population. About 2 million college-educated immigrants nationwide worked in jobs that require no more than a high school degree or were unemployed as of 2019. Tapping these immigrants’ skills and reducing the roadblocks that many face to applying their education credentials and work experience in the U.S. labor market hold significant potential to both meet labor market needs and support immigrant integration.

To better understand the economic integration of immigrant college graduates in the United States, this fact sheet analyzes data from a unique survey of adult skills called the Program for the International Assessment of Adult Competencies (PIAAC). Using the most recent PIAAC data available (from 2012, 2014, and 2017 combined), it is possible to explore the relationships between adults’ economic outcomes and foundational skills such as literacy, numeracy, and digital skills. This fact sheet examines how college-educated immigrant and U.S.-born adults (ages 25–65) compare in these areas. The authors also explore the relationship between literacy, numeracy, and digital skills and employment and job quality outcomes of immigrant and U.S.-born workers.

Among key findings:

► **College-educated immigrants are more likely to have advanced degrees and to major in the science, technology, engineering, and math (STEM) fields.** Sixty percent of immigrant college graduates have at least a master’s degree versus 53 percent of the college-educated U.S. born. Additionally, immigrants’ degrees are more heavily concentrated in the high-demand STEM and health fields than those held by the U.S. born (51 percent versus 36 percent).

► **The literacy, numeracy, and digital skills of immigrant college graduates lag those of the U.S. born.** Fifty-three percent of immigrants scored at a high proficiency level in literacy versus almost 76 percent of the U.S. born: a gap of about 22 percentage points. The nativity gap persists but is narrower (11 percentage points) in numeracy. It should be noted, however, that the PIAAC’s skill assessment was conducted only in English;
this may have put immigrants with limited English proficiency at a disadvantage and contributed to this skills gap.

► **College-educated immigrants’ economic outcomes, such as labor force participation, monthly earnings, skill underutilization, and self-assessed job quality, approximate or even exceed those of U.S.-born graduates.** For instance, immigrant graduates who work full time reported having higher monthly earnings than U.S.-born workers, in large part because immigrants are more likely to have graduate-level degrees and to have majored in STEM or other in-demand fields. At the same time, about one-fifth of both immigrant and U.S.-born working adults with at least a four-year college degree stated that their job only required a high school education or that they were unemployed.

► **College graduates with higher literacy, numeracy, and digital skill levels have better economic outcomes.** Immigrants in particular benefit from having higher literacy, numeracy, and digital skills. For instance, the monthly earnings of foreign-born workers who demonstrated high levels of proficiency in these areas were almost double those of immigrant graduates who scored at low levels. In addition, immigrants with low literacy levels were four times more likely than those with high scores to see their skills underutilized (45 percent versus 11 percent).

The PIAAC survey underscores the impact of strong foundational skills on economic outcomes—even among college graduates. As the number of U.S. adults with college degrees continues to grow, in part due to immigration, helping underutilized workers acquire skills and transition into jobs where they can fully apply them represents an important strategic investment in building the nation’s talent base and competing internationally. And with more than two-thirds of immigrant graduates identifying as racial and ethnic minorities, supporting their economic integration is also an important dimension of advancing racial equity.

## 1 Introduction

Despite COVID-19 related declines in college attendance,¹ adults in the United States have among the highest levels of educational attainment in the world.² The number and share of college-educated adults (that is, those with a bachelor’s degree or higher) have risen steadily since World War II. Between 1990 and 2019 alone, the share of college-educated adults increased from 20 percent to 33 percent.³ It is an often-overlooked fact that immigrants have contributed to this trend. Among recently arrived immigrants, the college-educated share is even higher than in the overall foreign-born population, and it nearly doubled from 27 percent in 1990 to 48 percent in 2019.⁴

Still, immigrants’ rising education levels have not always translated into occupational gains. Indeed, first- and second-generation immigrant workers are more likely to be overeducated for their positions than U.S.-born workers, and nearly 2 million immigrant college graduates hold low-skilled jobs or are unemployed.⁵ Factors that limit their employment opportunities may include lower levels of English proficiency, limited social and professional networks, interrupted career trajectories, lack of legal status, and the complexities of U.S. licensing requirements.⁶ The underutilization of these skills—or “brain waste”—leads to substantial economic and fiscal costs, from forgone wages for immigrant workers to lost government tax revenues.⁷ This failure to tap into the skills and education of immigrants also deprives U.S. communities of valuable assets—such as the estimated 270,000 foreign born with health-related college degrees who were sidelined during the
COVID-19 crisis—and it can play into divisive political narratives and raise doubts about immigrants' integration.

This fact sheet explores the skills that U.S. immigrant college graduates possess and their economic outcomes, and how these differ from their U.S.-born counterparts. To do so, it leverages the most recently available data (i.e., combined 2012, 2014, and 2017 results) from the Program for the International Assessment of Adult Competencies (PIAAC), developed by the Organization for Economic Cooperation and Development (OECD) and conducted in the case of the United States by the U.S. Department of Education's National Center for Education Statistics. Unlike other surveys that rely on respondents' self-assessment of their skills, the PIAAC directly assesses respondents' literacy, numeracy, and digital skills to determine what adults know and how well they use their skills at work, in school, and in their daily lives.

2 Demographic and Educational Characteristics

Immigrants are over-represented among college graduates in the United States. While the foreign born made up 14 percent of the U.S. population according to the combined 2012/2014/2017 PIAAC data, they were 17 percent of college graduates. They are also considerably more racially and ethnically diverse: 81 percent of U.S.-born college graduates were White and no other group comprised more than 9 percent, while immigrant graduates were far more diverse, with Asian American and Pacific Islander, and Latino graduates making up 41 percent and 19 percent, respectively. Asians have long composed a significant portion of the college-educated immigrant population. For instance, Indian immigrants account for most highly skilled

FIGURE 1

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Immigrants</th>
<th>U.S. Born</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Latino</strong></td>
<td>6%</td>
<td>9%</td>
</tr>
<tr>
<td><strong>White</strong></td>
<td>19%</td>
<td>28%</td>
</tr>
<tr>
<td><strong>Black</strong></td>
<td>9%</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Asian American &amp; Pacific Islander</strong></td>
<td>41%</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>2%</td>
<td>2%</td>
</tr>
</tbody>
</table>

Notes: Latinos can be of any race. The other groups in this figure (White, Black, Asian American and Pacific Islander, and Other) refer to non-Latinos. Shares may not add up to the total due to rounding.
Source: Authors' tabulation of pooled 2012/2014/2017 Program for the International Assessment of Adult Competencies (PIAAC) data, provided by the U.S. Department of Education’s National Center for Education Statistics (NCES).
temporary workers with H-1B visas, and China, India, and South Korea are the top sending countries of international students enrolled in U.S. higher education. Black college graduates made up the same share of immigrant and U.S.-born college-educated adults (9 percent).

Two-thirds of immigrant college graduates in the PIAAC sample earned their highest degrees in the United States. Immigrant graduates are more likely than the U.S. born to hold advanced degrees: 60 percent versus 53 percent had at least a master’s degree. Further, immigrant graduates are more likely to have degrees in the high-demand fields of science, technology, engineering, and math (STEM) and health: 51 percent of immigrants had a STEM or health degree versus 36 percent of the U.S. born (see Figure 2).

3 Economic Outcomes and Job Quality

This analysis considered four different economic outcomes: labor force participation, monthly earnings, skill underutilization, and self-assessed job quality. In all instances, immigrant college graduates’ outcomes approximated or even exceeded those of the U.S. born. For example, U.S.-born college graduates had only slightly higher labor force participation rates than immigrant college graduates: 89 percent versus 86 percent (see Table 1).

With regard to earnings, full-time, college-educated immigrant workers had higher monthly earnings ($7,140) than their U.S.-born counterparts ($6,500). The finding that immigrant college graduates earn more may come as a surprise given that, at least in

**FIGURE 2**
Field of Study for the Highest Degree of Adult College Graduates (ages 25–65) in the United States, by Nativity, 2012/2014/2017

- Immigrants
  - Science, mathematics, and computing: 13%
  - Engineering, manufacturing, and construction: 14%
  - Health and welfare: 10%
  - Social sciences, business, and law: 12%
  - Humanities, languages, and arts: 14%
  - Teacher training and education science: 14%
  - Other degrees: 14%

- U.S. Born
  - Science, mathematics, and computing: 23%
  - Engineering, manufacturing, and construction: 20%
  - Health and welfare: 7%
  - Social sciences, business, and law: 8%
  - Humanities, languages, and arts: 14%
  - Teacher training and education science: 14%
  - Other degrees: 10%

* Refers to degree majors in science, technology, engineering, and mathematics (STEM) fields.
Note: “Other degrees” include degrees in general programs, services, and agriculture and veterinary study programs.
Source: Authors’ tabulation of pooled 2012/2014/2017 PIAAC data, provided by NCES.
In some ways, their command of certain skills is more limited than that of the U.S. born (see Section 4). However, as noted previously, immigrants are more likely to have graduate-level degrees and to have majored in high-demand fields such as STEM, and extensive research demonstrates that the earnings of college graduates vary by their degree majors.\(^{12}\)

On average, PIAAC data show that about one-fifth of both immigrant and U.S.-born working adults with at least a four-year college degree also reported similar rates of skill underutilization.\(^{13}\) About one-fifth of each group stated that their job required no more than a high school education or that they were unemployed (see Table 1).\(^{14}\) This brain waste can have negative effects at both the individual level (increasing poverty, reducing workers’ job satisfaction and wages, and contributing to skills obsolescence) and the macroeconomic level (increasing unemployment, reducing public revenues, and slowing GDP growth).\(^{15}\)

While many population and labor force surveys collect information on earnings and wages, the non-financial aspects of job quality that influence employee behavior and satisfaction are understudied. The PIAAC survey includes several questions that shed light on important non-financial elements of job quality, such as job flexibility or autonomy, management experience, and job security and satisfaction. Across each of the quality indicators surveyed, the differences between how college-educated immigrant and U.S.-born workers described their positions were small to negligible (see Table 2).

### 4 College Graduates’ Skills and Labor Market Outcomes

Despite their strong overall economic outcomes, immigrants scored lower than their U.S.-born counterparts on PIAAC’s literacy, numeracy, and digital

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**TABLE 1**

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<tbody>
<tr>
<td><strong>Immigrants</strong></td>
<td><strong>U.S. Born</strong></td>
<td></td>
</tr>
<tr>
<td>Share in labor force</td>
<td>86%</td>
<td>89%</td>
</tr>
<tr>
<td>Average monthly earnings*</td>
<td>$7,145</td>
<td>$6,499</td>
</tr>
<tr>
<td>Share underutilized**</td>
<td>21%</td>
<td>21%</td>
</tr>
</tbody>
</table>

* Refers to average (mean) monthly earnings of full-time employed workers.
** Refers to the share of workers in the civilian labor force who are employed in jobs that require a high school diploma or less as well as workers who are unemployed.

Source: Authors’ tabulation of pooled 2012/2014/2017 PIAAC data, provided by NCES.

**TABLE 2**

| Job Quality of College-Educated Workers (ages 25–65) in the United States, by Nativity, 2012/2014/2017 |
|---------------------------------------------------|------------------|------------------|
| **Immigrants** | **U.S. Born** |
| Experience high or very high autonomy of work | 48%             | 55%             |
| Have managerial duties                           | 43%             | 40%             |
| Have an indefinite employment contract/no contract | 78%             | 81%             |
| Work at only one job                             | 89%             | 88%             |
| Satisfied at own job                             | 82%             | 82%             |
| Think have skills to handle more demanding duties | 92%             | 93%             |

Source: Authors’ tabulation of pooled 2012/2014/2017 PIAAC data, provided by NCES.
skills assessments. Fifty-three percent of immigrants scored at a high proficiency level in literacy versus almost 76 percent of the U.S. born: a gap of about 22 percentage points. The nativity gap persists but is narrower (11 percentage points) in numeracy: A result that is driven mostly by the lower performance in numeracy of the U.S. born. Proficiency in digital skills is low for immigrants and natives alike: Only 35 percent of immigrants and 54 percent of the U.S. born performed at high levels.\textsuperscript{16}

These results are driven in part by the scores of immigrants who earned their highest degrees abroad; immigrants educated in the United States had higher scores, though they still lagged the U.S. born. One caveat: while PIAAC offers a unique opportunity to assess adults’ foundational skills and explore the relationship between these skills and economic outcomes, it should be noted that the skill assessment was conducted only in English. This puts immigrants without a high level of English proficiency at a disadvantage, as they may not be able to fully demonstrate the extent of their skills. This data limitation could, to some degree, also explain the nativity gaps in skills observed.

The PIAAC data reveal that both native-born and immigrant college graduates had higher labor force participation rates, higher earnings, and lower rates of skill underutilization if they had a high level of literacy, numeracy, and digital skills (see Table 3). Immigrants in particular stand to improve their economic outcomes as their literacy, numeracy, and digital skills rise. For instance, immigrants with high literacy levels were much more likely to participate in the labor market than those with lower skill levels. The monthly earnings of immigrant college graduates with high literacy proficiency levels were almost double those of immigrants who scored at low levels ($8,314 versus $4,445). Compared to U.S.-born graduates, immigrants’ economic outcomes seem particularly sensitive to proficiency levels. For example, immigrants who had low literacy levels were four times more likely than those with

<table>
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<th>TABLE 3</th>
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<tr>
<th></th>
<th>Immigrants</th>
<th>U.S. Born</th>
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<tbody>
<tr>
<td></td>
<td>Low</td>
<td>Middle</td>
</tr>
<tr>
<td><strong>By literacy level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share in labor force</td>
<td>81%</td>
<td>87%</td>
</tr>
<tr>
<td>Average monthly earnings*</td>
<td>$4,445</td>
<td>$6,007</td>
</tr>
<tr>
<td>Share underutilized**</td>
<td>45%</td>
<td>28%</td>
</tr>
<tr>
<td><strong>By numeracy level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share in labor force</td>
<td>81%</td>
<td>88%</td>
</tr>
<tr>
<td>Average monthly earnings*</td>
<td>$5,277</td>
<td>$6,195</td>
</tr>
<tr>
<td>Share underutilized**</td>
<td>44%</td>
<td>27%</td>
</tr>
<tr>
<td><strong>By digital skill level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Share in labor force</td>
<td>91%</td>
<td>87%</td>
</tr>
<tr>
<td>Average monthly earnings*</td>
<td>$6,106</td>
<td>$7,100</td>
</tr>
<tr>
<td>Share underutilized**</td>
<td>44%</td>
<td>22%</td>
</tr>
</tbody>
</table>

* Refers to average (mean) monthly earnings of full-time employed workers.
** Refers to the share of workers in civilian labor force who are employed in jobs that require a high school diploma or less as well as workers who are unemployed.
Source: Authors’ tabulation of pooled 2012/2014/2017 PIAAC data, provided by NCES.
high literacy scores to be underutilized (45 percent versus 11 percent). Among native-born graduates, those with low literacy scores were twice as likely to be underutilized (38 percent versus 19 percent).

The authors employ regression models to distinguish the effects of cognitive skills on economic outcomes from those of other human capital variables, while holding constant a set of sociodemographic characteristics.17 As expected, this analysis found that higher levels of human capital are associated with better economic outcomes for U.S. adults. By and large, higher cognitive skills, advanced degrees, and STEM or health degree majors are each associated with a higher likelihood of being engaged in the labor force and of earning higher monthly earnings, and a lower likelihood of working in a job that requires no more than a high school diploma or being unemployed. Among college-educated immigrants, having a higher level of spoken English proficiency is also strongly associated with better economic outcomes.18

5 Conclusion

The college-educated immigrant population in the United States is growing in both numbers and labor market prominence. These immigrants’ skills and qualifications play an important role in shaping their integration outcomes. A major study by the National Academies of Sciences, Engineering, and Medicine defines integration as “the process by which members of immigrant groups and host societies come to resemble one another.”19 With labor force participation rates, earnings, and measures of job quality that approximate—and in some cases exceed—those of the U.S. born, many immigrant college graduates are meeting or surpassing this mark. Immigrant graduates are disproportionately represented in professions such as medicine, engineering, and the biosciences that support their strong economic outcomes and where they contribute high-demand skills to the U.S. economy. The substantial, if incomplete, economic integration of this largely minority population represents important progress toward racial and ethnic equity objectives and stands in sharp contrast to the negative stereotypes that often afflict immigration discourse.20

However, despite these largely favorable outcomes, one-fifth of immigrant college graduates see their skills underutilized. This brain waste, which affects a similar share of U.S.-born college graduates, reinforces the need for policymakers across the United States to focus on the often-overlooked issue of underemployment among college graduates, even in an era of labor shortages and low unemployment.21

Given that English language skills are among the strongest predictors of immigrant college graduates’ economic outcomes in the United States, helping immigrants boost their ability to understand and use written English text and communicate effectively in English would remove a major obstacle to their economic mobility.22 Additional approaches to remedying brain waste could include more flexible policies for the recognition of educational and occupational credentials earned abroad, the creation of “bridge” courses that efficiently fill gaps in workers’ prior schooling and experience, and the expansion of options to test occupational English in selected professions (e.g., nursing).23 In some cases, reforms that benefit underutilized, internationally educated immigrants—such as bringing greater flexibility into some occupations where licensing regimes are unnecessarily rigid and introduce inefficiencies—will also benefit underemployed U.S.-born college graduates.24 Tapping into the skills of this often-overlooked pool of talented college graduates can help alleviate the labor shortages of both today and tomorrow.
Endnotes

1 National Student Clearinghouse, Research Center, “Overview: Fall 2021 Enrollment Estimate” (data tables, n.d.).
3 Authors’ tabulation of data from the U.S. Census Bureau’s 1990 decennial census and 2019 American Community Survey.
5 Margarita Pivovarova and Jeanne M. Powers, Do Immigrants Experience Education-Job Mismatch? New Evidence from the U.S. PIAAC (Washington, DC: Program for the International Assessment of Adult Competencies Gateway, 2021); Batalova and Fix, Leaving Money on the Table.
6 See Box 2 (Other Factors Contributing to Brain Waste among College-Educated Immigrants) in Batalova and Fix, Leaving Money on the Table.
7 The Migration Policy Institute (MPI) has estimated that brain waste costs immigrants in the United States approximately $40 billion in forgone wages and governments $10 billion in lost revenues annually. See Jeanne Batalova, Michael Fix, and James D. Bachmeier, Untapped Talent: The Costs of Brain Waste among Highly Skilled Immigrants in the United States (Washington, DC: MPI, 2016).
8 Jeanne Batalova, Michael Fix, and José Ramón Fernández-Peña, The Integration of Immigrant Health Professionals: Looking beyond the COVID-19 Crisis (Washington, DC: MPI, 2021).
11 This analysis is based on a NCES dataset that represents three pooled years of Program for the International Assessment of Adult Competencies (PIAAC) data. This means that all variables, including workers’ earnings, are the average values across three years. With regard to earnings, because the goal is to compare the earnings of U.S.- and foreign-born workers, to the extent there are any distortions related to inflation, they are likely to affect the earnings of both groups equally.
13 Building on the work of Sébastien LaRoche-Côté and Darcy Hango and their own research, the authors define skill underutilization as the share of college graduates who reported that they were in a job requiring no more than a high school education or that they were unemployed. See LaRoche-Côté and Hango, Overqualification, Skills, and Job Satisfaction (Ottawa: Statistics Canada, 2016); Batalova and Fix, Leaving Money on the Table.
14 There are two groups within this population of workers whose skills were underutilized: those who were overqualified and those who were unemployed. Among both immigrants and the U.S. born engaged in the civilian labor force, approximately 17 percent were in the former group and 4 percent were in the latter group.
16 For more information on the skill gaps by nativity, see Jeanne Batalova and Michael Fix, The Importance of Skills and Qualifications for College-Educated Immigrants’ Economic Integration (Washington, DC: PIAAC Gateway, 2022).
17 Regression analyses allow researchers to examine the labor market returns on cognitive skills while holding constant other variables also known to affect economic outcomes. These factors (or independent variables) include other human capital characteristics such as degree major and level of education, and in the case of immigrants, oral English proficiency. Additional independent variables typically used in the analysis of economic outcomes include race and ethnicity, gender, and the presence of young children in the home, and in the case of immigrants, length of U.S. residence. Altogether, the authors ran 27 regression models separately for immigrants and the U.S. born. Detailed results are available upon request.
18 When the authors controlled for oral English proficiency, the effect of cognitive skills for immigrants becomes statistically insignificant. Because literacy, numeracy, and digital problem-solving assessments were completed in English, these variables overlap with the oral English skills of immigrants for whom English is a second language, so their effect is “picked up” by another variable. In the case of the U.S.-born college graduates, the relative effect of literacy, numeracy, and digital skills on economic outcomes remains statistically significant (in almost all models) even when other variables are held constant.
MPI researchers have written extensively on policies that address this issue, with a special emphasis on the college-educated immigrant population. See, for example, Jeanne Batalova and Michael Fix, *Tapping the Talents of Highly Skilled Immigrants in the United States: Takeaways from Experts Summit* (Washington, DC: MPI, 2018). Additional MPI research on the topic of brain waste and credential recognition can be found here: MPI, “Brain Waste & Credential Recognition,” accessed September 15, 2022.


About the Authors

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Jeanne Batalova is a Senior Policy Analyst at the Migration Policy Institute (MPI) and Manager of the Migration Data Hub, a one-stop, online resource for the latest facts, stats, and maps covering U.S. and global data on immigration and immigrant integration. She is also a Nonresident Fellow with MPI Europe. Her areas of expertise include the impacts of immigrants on society and labor markets, social and economic mobility, and the policies and practices regulating the immigration and integration of highly skilled workers and foreign students.

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

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Before joining MPI, Mr. Fix was Director of Immigration Studies at the Urban Institute. He is a Policy Fellow with IZA in Bonn, Germany, and has in the past been a member of the National Research Council’s Committee on the Integration of Immigrants, the National Academy of Sciences' Committee on the Redesign of U.S. Naturalization Tests, and the Committee on the Health and Adjustment of Immigrant Children. Mr. Fix received a JD from the University of Virginia and a BA from Princeton University.
Acknowledgments

This fact sheet is drawn from a study that was commissioned by the American Institutes for Research (AIR), funded through a contract with the National Center for Education Statistics (NCES) of the U.S. Department of Education. The full report is available on the Program for the International Assessment of Adult Competencies (PIAAC) Gateway: The Importance of Skills and Qualifications for College-Educated Immigrants’ Economic Integration. The authors thank AIR and NCES for their support of this research. They are particularly grateful to Jaleh Soroui, Saida Mamedova, Katie Herz, and Emily Pawlowski of AIR for their guidance and to the anonymous reviewers who provided excellent comments and questions on the earlier report.

Additional support for the production of this fact sheet was provided by a grant from the Lumina Foundation to the Migration Policy Institute (MPI). The authors thank their MPI colleagues Lauren Shaw for her excellent edits and Michelle Mittelstadt for strategic outreach.

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