

## **Brain Waste in the Pennsylvania Workforce: Select Labor Force Characteristics of College-Educated Native-Born and Foreign-Born Adults**

Research by the Migration Policy Institute (MPI) in the United States and Europe has demonstrated the challenges facing foreign-educated individuals who seek high-skilled employment that utilizes their talents and professional experience.<sup>1</sup> In the United States, these challenges include difficulties in obtaining recognition of professional experiences and credentials earned from educational institutions abroad, acquiring professional-level English skills, navigating costly or time-consuming recertification processes, and building professional networks and U.S. job search skills.

This fact sheet on Pennsylvania is part of a series that assesses the extent of “brain waste” in the United States and twelve key states—that is, the number of college-educated immigrant<sup>2</sup> and native-born adults ages 25 and older who are either unemployed or have jobs that are significantly below their education and skill levels. The fact sheet also provides calculations of underutilization<sup>3</sup> of education among immigrant and native-born professionals in Pennsylvania with engineering, nursing, and teaching degrees at the undergraduate level.

Among the key findings:

- 35,100, or 20 percent, of the 174,300 college-educated immigrants ages 25 and older in the civilian labor force in Pennsylvania are affected by brain waste—e.g. are in low-skilled jobs or are unemployed, according to MPI analysis of the most recent U.S. Census Bureau American Community Survey data.
- Brain waste particularly affects the foreign born in Pennsylvania who earned their bachelor’s degrees abroad, with 22 percent in low-skilled jobs or unemployed.
- 17 percent of the state’s college-educated immigrants who obtained their academic degree abroad worked in low-skilled jobs, compared to 12 percent of college-educated native-born workers.

1. See, for example: Jeanne Batalova and Michael Fix with Peter A. Creticos, *Uneven Progress: The Employment Pathways of Skilled Immigrants in the United States* (Washington, DC: Migration Policy Institute, 2008), [www.migrationpolicy.org/research/uneven-progress-employment-pathways-skilled-immigrants-united-states](http://www.migrationpolicy.org/research/uneven-progress-employment-pathways-skilled-immigrants-united-states); Madeleine Sumption, *Tackling Brain Waste: Strategies to Improve the Recognition of Immigrants’ Foreign Qualifications* (Washington, DC: Migration Policy Institute, 2013), [www.migrationpolicy.org/research/tackling-brain-waste-strategies-improve-recognition-immigrants%E2%80%99-foreign-qualifications](http://www.migrationpolicy.org/research/tackling-brain-waste-strategies-improve-recognition-immigrants%E2%80%99-foreign-qualifications).
2. The terms *immigrant* and *foreign born* are used interchangeably, and describe persons who had no U.S. citizenship at birth. This population includes naturalized citizens, lawful permanent residents (LPRs), certain legal nonimmigrants (e.g., persons on student or work visas), those admitted under refugee or asylee status, and persons illegally residing in the United States; the native born are persons born in the United States, U.S. outlying territories, or abroad to at least one U.S. citizen parent.
3. The terms *brain waste* and *skill underutilization* are used interchangeably and describe a phenomenon when college-educated persons are either unemployed or employed in *low-skilled jobs*, i.e., jobs that require only moderate on-the-job training or less, such as nursing, psychiatric, and home health aides, personal care aides, maids and housekeeping cleaners, taxi and truck drivers, and cashiers.

## I. College-Educated Adults in the Pennsylvania Civilian Labor Force by Nativity and Place of Education<sup>4</sup>

More than 1.8 million adults ages 25 and older engaged in the civilian labor force in Pennsylvania have at least a bachelor's degree, according to the most recent American Community Survey (ACS) data from the U.S. Census Bureau. Of these adults, about 174,300 are college-educated immigrants. While immigrants represent 6 percent<sup>5</sup> of the overall Pennsylvania population, they account for 9 percent of the college-educated civilian labor force.

We estimate that 96,800 (or 56 percent) of the 174,300 college-educated immigrants in the Pennsylvania civilian labor force obtained their education abroad, with the remaining 77,600 U.S.-educated. These groups make up 5 percent and 4 percent of the overall Pennsylvania college-educated civilian labor force respectively.

**Table 1. College-Educated Adults in the Pennsylvania Civilian Labor Force, by Nativity and Place of Education**

	Native Born	Foreign Born		
		Total	Foreign-Educated Immigrants	U.S.-Educated Immigrants
<b>College-educated civilian labor force</b>	1,676,900	174,300	96,800	77,600
<b>Share of all immigrants by place of education</b>	--	--	56%	45%
<b>Share of the total college-educated by nativity</b>	91%	9%	5%	4%

Source: Migration Policy Institute (MPI) tabulation of U.S. Census Bureau pooled 2010-12 American Community Survey (ACS) data.

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4. *College-educated civilian labor force*: defined as civilian adults ages 25 and older with at least a bachelor's degree who were either employed or unemployed but looking for work. Civilian labor force excludes members of the armed forces (Army, Navy, Air Force, Coast Guard, and Marines); *Place of education*: The ACS survey does not ask for respondents' place of education. We use the following definitions: *foreign-educated immigrants* are immigrants who have at least a bachelor's degree and who arrived to the United States at the age 25 or older; *U.S.-educated immigrants* are immigrants with at least a BA and who arrived to the United States before age 25.
  5. U.S. Census Bureau, "Selected Social Characteristics in the United States 2012 American Community Survey 1-Year Estimates," accessed from American FactFinder, <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>.

## II. College-Educated Native-Born and Foreign-Born Adults in Pennsylvania by Job Skill and Place of Education with Number and Share Affected by Brain Waste

Among both native-born and foreign-born college-educated adults in Pennsylvania, a majority of individuals are employed in high-skilled positions. About 1 million (60 percent) of native-born workers in the state are employed in high-skilled positions compared to 207,100 (12 percent) employed in low-skilled positions. Among the foreign born, a slightly larger share—62 percent or 108,700—is employed in high-skilled jobs versus 26,100 (15 percent) in low-skilled jobs. Among college-educated immigrants, those educated in the United States are more likely to be employed in high-skilled jobs than those with foreign credentials (64 percent versus 61 percent). The greatest disparity exists between foreign-educated immigrants and their native-born and U.S.-educated counterparts: 17 percent of foreign-educated college graduates who are immigrants are employed in low-skilled jobs versus 12 percent and 13 percent of their U.S.-educated counterparts (native born and foreign born respectively).

Comparing college-educated native- and foreign-born individuals who are either employed in low-skilled jobs or unemployed, one finds that foreign-born individuals are also more generally affected by brain waste, with 20 percent in low-skilled jobs or unemployed compared to 17 percent of the native born. Among the foreign-born labor force, those educated abroad are again more likely to be affected by brain waste, with 22 percent in low-skilled jobs or unemployed compared to 17 percent of both native-born college-educated adults and U.S.-educated immigrants.

**Table 2. College-Educated Native-Born and Foreign-Born Adults in Pennsylvania, by Job Skill and Place of Education with Number and Share Affected by Brain Waste**

	Native Born	Foreign Born		
		Total	Foreign-Educated Immigrants	U.S.-Educated Immigrants
<b>College-educated labor force</b>	1,676,900	174,300	96,800	77,600
	100%	100%	100%	100%
<b>Employed workers by job skill</b>				
<b>High-skilled</b>	1,000,000	108,700	59,100	49,600
<i>Share high-skilled</i>	60%	62%	61%	64%
<b>Middle-skilled</b>	399,300	30,600	16,200	14,400
<i>Share middle-skilled</i>	24%	18%	17%	19%
<b>Low-skilled</b>	207,100	26,100	16,200	9,900
<i>Share low-skilled</i>	12%	15%	17%	13%
<b>Unemployed</b>	70,500	9,000	5,300	3,600
<i>Share unemployed</i>	4%	5%	5%	5%
<b>Affected by brain waste</b>				
<b>Number (i.e., in low-skilled jobs or unemployed)</b>	277,600	35,100	21,500	13,500
<b>Share</b>	17%	20%	22%	17%

*Notes: High-skilled jobs require at least a four-year bachelor's degree plus a substantial amount of work-related skills, knowledge, or experience; Middle-skilled jobs typically require that workers have trained in vocational schools, have related on-the-job experience, or hold an associate's degree; Low-skilled jobs require only moderate on-the-job training or less. Unemployed refers to those adults who do not have a job but are looking for work.*

*Source: MPI tabulation of U.S. Census Bureau pooled 2010-12 ACS data.*

### III. Number and Share of Immigrants in Pennsylvania with Engineering, Nursing, or Teaching Degrees Earned at the Undergraduate Level

Immigrants account for 9 percent of the Pennsylvania college-educated labor force, but they are overrepresented among workers with engineering bachelor’s degrees. Of the 152,400 college-educated individuals who earned a bachelor’s degree in engineering, about 33,500 or 22 percent are foreign born. However, immigrants are underrepresented among those with nursing and teaching degrees—accounting for 7,000 or 8 percent of individuals in the workforce with a bachelor’s degree in nursing and 9,200 or 3 percent of individuals with a teaching degree.

**Table 3. Number and Share of Immigrants in Pennsylvania with Undergraduate Engineering, Nursing, or Teaching Degrees**

	Total College-Educated Labor Force	Foreign Born	Foreign-Born Share (%)
Persons with engineering major **	152,400	33,500	22%
Persons with nursing major ***	83,400	7,000	8%
Persons with teaching major ****	269,100	9,200	3%

*Notes:* The ACS requests degree major information only at the bachelor’s level. If a respondent earned a master’s degree the subject area would not be reflected in the data; if a respondent earned two bachelor’s degrees, each would be counted separately.

\*\* Engineering or engineering technologies was indicated as the degree of field at the bachelor of arts (BA) or the bachelor of science (BS) level; \*\*\* Nursing was indicated as the degree of field at the BA/BS level; \*\*\*\* Education was indicated as the degree of field at the BA/BS level (e.g., general, elementary, early childhood, secondary teacher, or special needs education, mathematics, science, and computer teacher education, art and music education).

*Source:* MPI tabulation of U.S. Census Bureau pooled 2010-12 ACS data.

### IV. Adults in Pennsylvania Who Earned Bachelor’s Degrees in Engineering, Nursing, or Teaching by Job Skill, Nativity, and Place of Education for Foreign Born

*Engineering/engineering technology major college graduates.* Though the majority of individuals with engineering degrees at the undergraduate level in Pennsylvania are employed in high-skilled positions, significant disparities exist among native-born and foreign-born college graduates, especially for engineers who were educated abroad. Foreign-educated immigrant engineers are twice as likely to be employed in a low-skilled job (12 percent) as their native-born counterparts (6 percent), and while 73 percent of native-born and 80 percent of U.S.-trained immigrant engineers are employed in high-skilled positions, 72 percent of those educated abroad are.

*Nursing major college graduates.* Foreign -educated immigrants with a nursing bachelor’s degree are more than twice as likely to have a low-skilled job (10 percent) as their U.S.-born counterparts (4 percent) and only 51 percent work in middle-skilled positions (compared to 70 percent of native-born college-graduates with a nursing degree). However, foreign-educated immigrants with a nursing degree are more likely to work in high-skilled jobs (34 percent) than native-born individuals with a bachelor’s degree in nursing (24 percent).

*Teaching major college graduates.* Data on the underemployment of foreign-educated teachers show the greatest disparities of all three fields. Foreign-educated immigrant teachers are more than twice as likely to have low-skilled jobs (27 percent) as U.S.-born teachers (12 percent). While 68 percent of U.S.-born individuals with teaching degrees are employed in high-skilled jobs, only 45 percent of foreign-educated immigrants with a teaching degree and 60 percent of those educated in the United States hold high-skilled positions.

**Table 4. Adults in Pennsylvania with Bachelor’s Degrees in Engineering, Nursing, or Teaching by Job Skill, Nativity, and Place of Education for Foreign Born**

	Native Born	Foreign-Educated Immigrants	U.S.-Educated Immigrants
<b>Persons with engineering major at the BA/BS level**</b>	118,900	21,100	12,400
High-skilled	73%	72%	80%
Middle-skilled	17%	13%	11%
Low-skilled	6%	12%	6%
Unemployed	4%	3%	3%
<b>Persons with nursing major at the BA/BS level***</b>	76,400	4,100	2,900
High-skilled	24%	34%	21%
Middle-skilled	70%	51%	66%
Low-skilled	4%	10%	10%
Unemployed	2%	5%	3%
<b>Persons with teaching major at the BA/BS level****</b>	259,900	5,600	3,500
High-skilled	68%	45%	60%
Middle-skilled	17%	20%	17%
Low-skilled	12%	27%	20%
Unemployed	3%	9%	3%

*Notes:* The ACS requests degree major information only at the bachelor’s level. If a respondent earned a master’s degree the subject area would not be reflected; if a respondent earned two bachelor’s degrees each would be counted separately.

\*\* Engineering or engineering technologies was indicated as the degree of field at the bachelor’s level; \*\*\* Nursing was indicated as the degree of field at the bachelor’s level; \*\*\*\* Education was indicated as the degree of field at the bachelor’s level (e.g., general, elementary, early childhood, secondary teacher, or special needs education, mathematics, science, and computer teacher education, art and music education).

*Source:* MPI tabulation of U.S. Census Bureau pooled 2010-12 American Community Survey data.

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