



The Costs of Brain Waste among Highly Skilled Immigrants in Oregon

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Oregon's population grew from 3.4 million to 4.0 million between 2000 and 2015, with immigrants accounting for 17 percent of population growth. Today Oregon is home to nearly 400,000 immigrants, representing one in ten state residents.¹ Immigrants are employed in diverse industries—including education and health, manufacturing, and hospitality—and at all skill levels across Oregon.² Nonetheless, a significant number of college-educated immigrants in Oregon find that they cannot put their academic and professional qualifications to full use.

Using an innovative methodology developed by the Migration Policy Institute (MPI), this fact sheet examines skill underutilization—also known as “brain waste”—and its economic costs in Oregon. The authors estimate the number and share of college-educated immigrants who work in low-skill jobs or are unemployed in the state. They identify the key factors underlying this brain waste, and estimate the amount of annual earnings and state and local taxes lost because immigrant college graduates end up working in low-skilled jobs. In general, the analysis employs two types of comparisons: (1) between the foreign born³ and U.S. born who are college graduates; and (2) between foreign-educated and U.S.-educated immigrants. This fact sheet follows a national report on brain waste, *Untapped Talent: The Costs of Brain Waste among Highly Skilled Immigrants in the United States*.⁴

Box 1. What Is Brain Waste? Quick Definitions

Brain waste describes the situation when college graduates cannot fully utilize their skills and education in the workplace despite their high professional qualifications. (We use the terms *college educated* and *highly skilled* interchangeably in this fact sheet.)

We define *brain waste* (or *skill underutilization*) as comprising two unfavorable labor market outcomes: unemployment and underemployment.

- *Unemployment* occurs when a person who is actively searching for employment is unable to find work.
- *Underemployment* refers to work by the highly skilled in *low-skilled jobs*, that is, jobs that require only moderate on-the-job training or less (e.g., home-health aides, personal-care aides, maids and housekeepers, taxi and truck drivers, and cashiers). These occupations typically require a high school diploma or less.

In contrast, highly skilled individuals who are *adequately employed* are working in high- or middle-skilled jobs. *High-skilled* jobs require at least a bachelor's degree (e.g., postsecondary teachers, surgeons, scientists, and engineers); *middle-skilled* jobs require long-term on-the-job training, vocational training, or an associate's degree (e.g., carpenters, electricians, massage therapists, and real estate brokers).

Because individuals in middle-skilled jobs are considered adequately employed in this analysis, underemployment here refers only to those who are *severely underemployed*, or in positions substantially below their level of training.

Key Findings

- Oregon was home to 55,000 highly skilled immigrants with at least a bachelor's degree during the 2009-13 period.⁵ Of this group, 27 percent—or 15,000 people—were either working in low-skilled jobs or unemployed—a slightly higher rate than college-educated immigrants nationwide (25 percent).
- Low-skilled employment resulted in immigrant college graduates in Oregon forgoing approximately \$272.5 million in annual earnings. As a result, Oregon experienced \$27.7 million in forgone state and local tax revenue. Nationally, immigrant underemployment resulted in more than \$39.4 billion in annual earnings losses and \$3 billion in forgone state and local taxes.
- As with the country as a whole, highly skilled immigrants in Oregon experienced higher levels of brain waste than the U.S. born—with 27 percent of college-educated immigrants in the state working in low-skilled jobs or without work compared to 21 percent of Oregonians born in the United States.
- Having a degree earned outside the United States increases the likelihood of brain waste: Foreign-educated⁶ immigrants in Oregon were more likely to be either underemployed or unemployed (30 percent) than U.S.-educated immigrants (23 percent). (Nationally, these shares

were 29 percent and 21 percent, respectively.) Immigrants in Oregon were also more likely to experience brain waste if they had limited English skills, had only a bachelor's degree, or were Hispanic or Black.⁷ Time in the United States reduced skill underutilization for immigrant women more than for men.⁸

- Unlike the country as a whole, U.S. citizenship did not appear to reduce brain waste for highly skilled immigrants in Oregon. Naturalized U.S. citizens and legal permanent residents had nearly the same skill underutilization rates: 31-32 percent among immigrants educated abroad and 22-23 percent among those educated in the United States.

I. Highly Skilled Immigrants by the Numbers

Highly Skilled Immigrants. There were 55,000 immigrant college graduates in the Oregon civilian labor force during the 2009-13 period (see Table 1). They accounted for 11 percent of all highly skilled workers in the state. ("College graduates" and the "highly skilled" are used interchangeably in this fact sheet and refer to adults with a bachelor's degree or higher.)

Brain Waste Levels. Twenty-seven percent (15,000) of college-educated immigrants in Oregon were either underemployed or unemployed compared to 21 percent (98,000) of their U.S.-born counterparts (see Table 1). These shares were slightly higher than national averages.

Table 1. Employment Status of Highly Skilled Adults in Oregon and the United States, by Nativity (%), 2009-13

	Oregon		United States	
	Immigrants	U.S. Born	Immigrants	U.S. Born
Total labor force	55,000	459,000	7,618,000	37,936,000
<i>Percent</i>	100	100	100	100
Unemployed	7	6	6	4
Employed by job type				
High-skilled	56	58	57	62
Middle-skilled	18	20	18	19
Low-skilled	19	15	19	14
Brain waste: unemployed or in low-skilled jobs				
Number	15,000	98,000	1,918,100	6,974,800
Percent of the labor force	27	21	25	18

Note: Percentages may not add up to 100 percent due to rounding.

Source: Migration Policy Institute (MPI) analysis of U.S. Census Bureau data from the pooled 2009-13 American Community Survey (ACS) and 2008 Survey of Income and Program Participation (SIPP), with legal status assignments by James Bachmeier of Temple University and Jennifer Van Hook of The Pennsylvania State University, Population Research Institute.

II. Economic Cost of Brain Waste

Beyond the human-capital losses that are felt by individuals and their families, brain waste has broader economic implications. Workers who are either underemployed or lack employment despite their high professional qualifications have lower disposable incomes to spend and invest, and they pay less in taxes as a result of these forgone earnings. At the same time, employers—and the economy—miss an opportunity to hire available workers with needed skills and qualifications.

In this fact sheet, the Migration Policy Institute (MPI) for the first time estimates the value of forgone earnings associated with low-skilled employment of highly skilled immigrants, as well as the state and local taxes that would be generated by those earnings.⁹ To do so, the authors compared the average annual earnings of highly skilled immigrants working in low-skilled jobs to those of “adequately” employed immigrants—i.e., those working in middle- and high-skilled jobs. Using decomposition analysis, the authors then estimated the amount of earnings losses attributable to low-skilled employment after controlling for demographic, educational, linguistic, legal status, and other factors.¹⁰ It is important to note that these figures are in some ways conservative, as they do not account for the lost wages of highly skilled immigrants who were unemployed during the study period, despite wanting to work. Lost wages are also not quantified for highly skilled immigrant workers in occupations that require more than a high school diploma but less than a bachelor’s degree (e.g., dental hygienists, teacher assistants, and electricians).

The value of annual earnings that highly skilled immigrants in Oregon lost due to their employment in low-skilled jobs amounted to \$272.5 million during the period surveyed. If these immigrants had instead been adequately employed and remunerated correspondingly, their households would have paid an additional \$27.7 million in state and local taxes. Nationwide, the low-skilled employment of college-educated immigrants resulted in \$39.4 billion in forgone wages and \$3 billion in forgone state and local taxes annually.¹¹

III. Factors Driving Brain Waste

Several demographic characteristics of highly skilled immigrants in Oregon help explain their rates of skill underutilization. Some of these factors are examined below.

Place of Education. Of the 55,000 highly skilled immigrants in Oregon, 50 percent (28,000) were foreign educated and 50 percent (27,000) obtained their degrees in the United States. In the United States overall, 52 percent of highly skilled immigrants were educated abroad.

Like the country as a whole, foreign-educated immigrants in Oregon were more likely to be either underemployed or unemployed (30 percent) than U.S.-educated immigrants (23 percent). These higher rates of skill underutilization among the foreign educated reflect a number of factors, among them real and perceived differences in the quality of U.S. and foreign education, adult newcomers' access to professional networks, and the difficulties that immigrants can face getting their foreign credentials and professional experiences recognized by employers and professional licensing bodies.

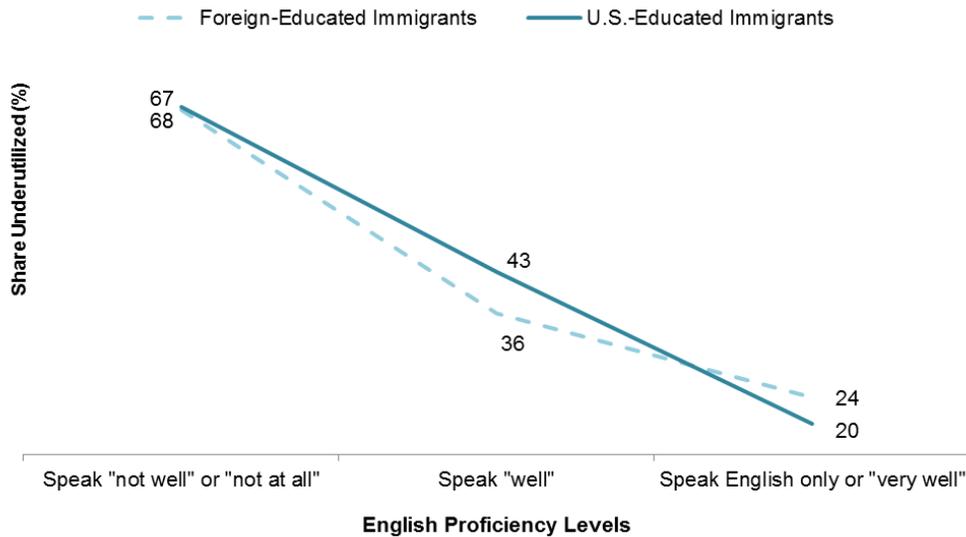
English Proficiency. The majority of high-skilled immigrants in Oregon were English proficient: 70 percent of the foreign educated and 87 percent of the U.S. educated (compared to 67 percent and 86 percent respectively at the national level).¹²

Limited English skills contribute significantly to higher risk of brain waste. Immigrants in Oregon who spoke English “not well” or “not at all” were approximately three times more likely to experience brain waste than those who spoke English “only” or “very well” (see Figure 1).

Level of Degree. As at the national level, college-educated immigrants in Oregon were more likely than the U.S. born to have advanced degrees:¹³ 45 percent and 35 percent, respectively. Nationally, 43 percent of immigrants had advanced degrees compared to 37 percent of the U.S. born.

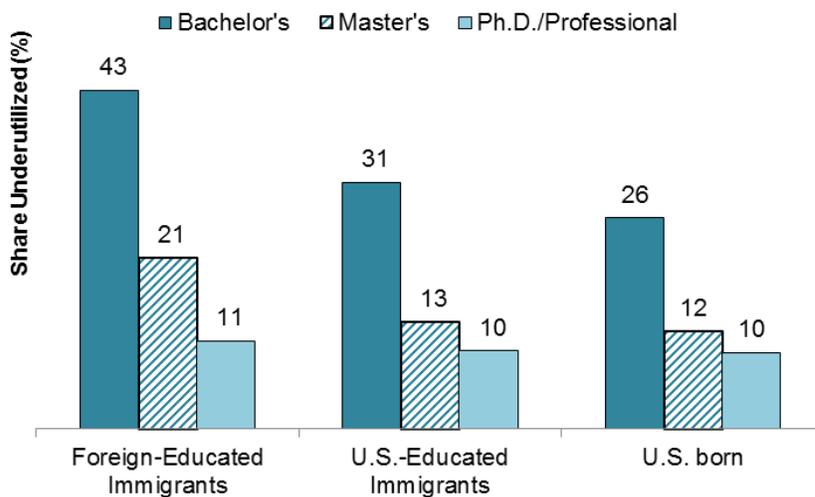
Regardless of place of birth or education, bachelor degree holders had much higher rates of skill underutilization than those with advanced degrees. Among the foreign educated in Oregon, 43 percent of bachelor degree holders experienced brain waste compared to 11 percent of those with a Ph.D. or professional degree, such as a law or medical degree (see Figure 2). Foreign-educated immigrants at all degree levels were more likely to be underemployed or unemployed than those with U.S. degrees. In contrast, there was no difference among U.S.-educated immigrants with advanced degrees and their U.S.-born counterparts.

Figure 1. Underemployment and Unemployment of Highly Skilled Immigrants in Oregon, by Place of Education and English Proficiency (%), 2009-13



Source: MPI analysis of 2009-13 ACS and 2008 SIPP data from the U.S. Census Bureau, with legal status assignments by Bachmeier and Van Hook.

Figure 2. Underemployment and Unemployment of Highly Skilled Adults in Oregon, by Nativity, Place of Education, and Degree Level (%), 2009-13



Source: MPI analysis of 2009-13 ACS and 2008 SIPP data from the U.S. Census Bureau, with legal status assignments by Bachmeier and Van Hook.

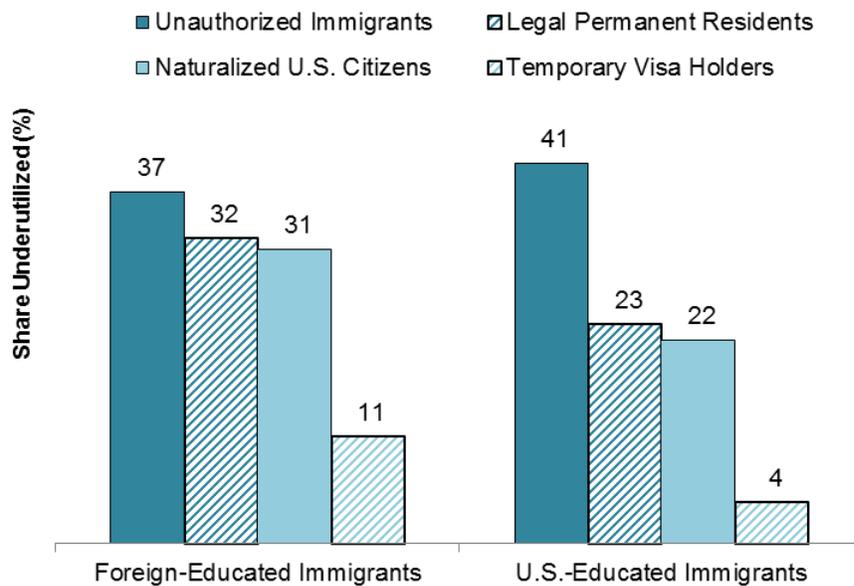
Legal Status/Citizenship. Fifty-three percent of highly skilled immigrants in Oregon were naturalized U.S. citizens, 31 percent were legal permanent residents (LPRs), 9 percent were unauthorized immigrants, and 7 percent were temporary visa holders. Highly skilled immigrants in Oregon were less likely to be naturalized U.S. citizens than the national average of 57 percent. As in the rest of the country, temporary visa holders had the lowest rates of skill underutilization—owing in large part to visa requirements.¹⁴ For instance, many temporary visa holders have visas such as the H-1B (for highly skilled workers) or the L-1 (for intracompany transfers), meaning they

have presumably been sponsored by a company or nonprofit institution to perform a job commensurate with their experience and skill level.

U.S. citizenship did not appear to reduce brain waste levels for highly skill immigrants as it does at the national level. Naturalized U.S. citizens and LPRs both had a skill underutilization rate of 31-32 percent among immigrants educated abroad and 22-23 percent among those educated in the United States (see Figure 3).

Unauthorized immigrants had the highest risk of brain waste, with 37 percent of those who were foreign educated and 41 percent of the U.S. educated being either underemployed or unemployed. Nonetheless, it is noteworthy that more than 50 percent of college-educated unauthorized immigrants worked in middle- or high-skilled jobs.

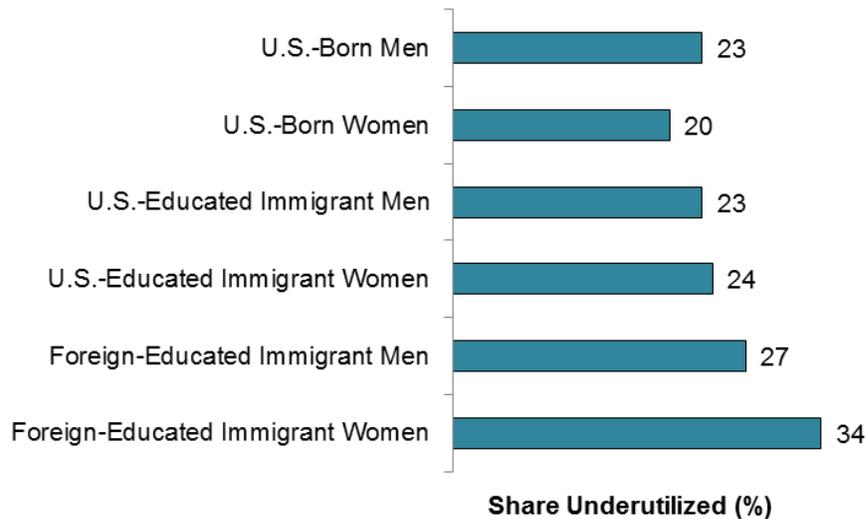
Figure 3. Underemployment and Unemployment of Highly Skilled Immigrants in Oregon, by Place of Education and Legal Status (%), 2009-13



Source: MPI analysis of 2009-13 ACS and 2008 SIPP data from the U.S. Census Bureau, with legal status assignments by Bachmeier and Van Hook.

Gender. Women represented 47 percent of the 55,000 million highly skilled immigrants in Oregon and 50 percent of the state’s 459,000 U.S.-born college graduates. Foreign-educated immigrant women had the highest skill underutilization rates of all college-educated workers in the state (34 percent) (see Figure 4).

Figure 4. Underemployment and Unemployment of Highly Skilled Adults in Oregon, by Nativity, Place of Education, and Gender (%), 2009-13



Source: MPI analysis of 2009-13 ACS and 2008 SIPP data from the U.S. Census Bureau, with legal status assignments by Bachmeier and Van Hook.

Time in the United States. Length of residence in the United States had a bigger impact on the skill underutilization of immigrant women than of men—a change that may owe to shifting social norms within immigrant families as well as a need for higher household earnings.¹⁵ The levels of brain waste among immigrant women decreased from 46 percent of recent arrivals (i.e., in the country for five years or less) to 23 percent of long-term residents (i.e., in the country for 15 years or more). By contrast, skill underutilization rates of immigrant men declined only slightly: from 28 percent of recent arrivals to 25 percent of long-term residents.

Race and Ethnicity. The racial and ethnic composition of highly skilled immigrants in Oregon varied by place of education (see Table 2): Among the foreign-educated population, White and Asian immigrants represented nearly the same shares (42 and 41 percent respectively); Asian immigrants represented the largest share (45 percent) among the U.S.-educated population. Hispanic and Black immigrants represented significantly lower shares of the U.S.-educated population. Ninety-four percent of U.S.-born college graduates were White.

Table 2. Race and Ethnicity of Highly Skilled Adults in Oregon, by Nativity and Place of Education (%), 2009-13

Race/Ethnicity	Oregon		
	Foreign-Educated Immigrants	U.S.-Educated Immigrants	U.S. Born
Number	28,000	27,000	459,000
Percent	100	100	100
Hispanic	13	16	3
Non-Hispanic Black	5	3	1
Non-Hispanic Asian	41	45	2
Non-Hispanic White	42	36	94

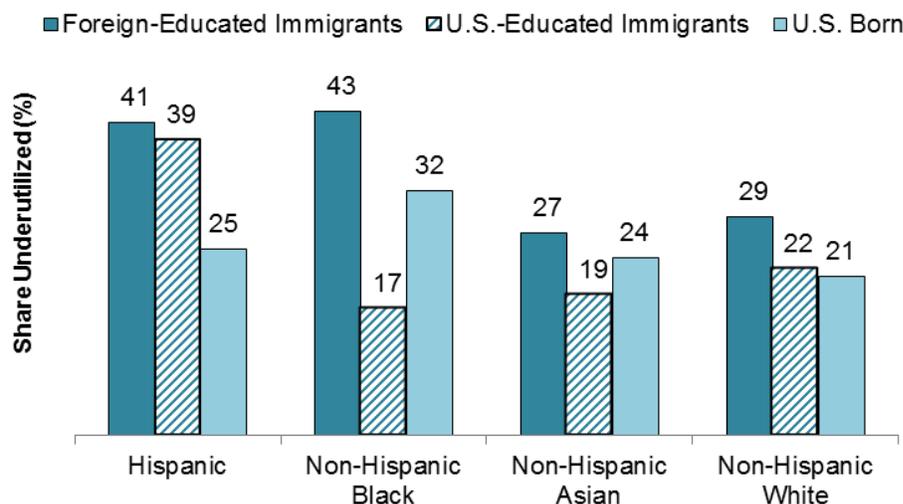
Note: Percentages may not add up to 100 percent due to rounding.

Source: MPI analysis of 2009-13 ACS and 2008 SIPP data from the U.S. Census Bureau, with legal status assignments by Bachmeier and Van Hook.

Of all racial and ethnic groups, Blacks had the highest skill underutilization rates (43 percent) among foreign-educated immigrants (see Figure 5). Hispanics had the highest rates of brain waste among U.S.-educated immigrants (39 percent). Asians and Whites had roughly similar skill underutilization rates across nativity and place of education.

Among Hispanics, skill underutilization rates were significantly lower for the U.S. born (25 percent) than for foreign- and U.S.-educated immigrants (41 percent and 39 percent respectively).

Figure 5. Underemployment and Unemployment of Highly Skilled Adults in Oregon, by Nativity, Place of Education, and Race/Ethnicity (%), 2009-13



Source: MPI analysis of 2009-13 ACS and 2008 SIPP data from the U.S. Census Bureau, with legal status assignments by Bachmeier and Van Hook.

Region and Country of Birth. Highly skilled immigrants in Oregon came from diverse regional origins, with no group representing over 20 percent of the population (see Table 3). Immigrants from East Asia and the European Union countries each represented about 20 percent of those

educated abroad—higher shares than nationally. Forty-eight percent of U.S.-educated immigrants came from Asia, with nearly similar shares across the East (17 percent), Southeast (16 percent), and Southwest (15 percent) regions.

Table 3. Region/Country of Birth and Place of Education for Highly Skilled Immigrants in Oregon and the United States (%), 2009-13

Region or Country of Birth	Oregon		United States	
	Foreign-Educated Immigrants (%)	U.S.-Educated Immigrants (%)	Foreign-Educated Immigrants (%)	U.S.-Educated Immigrants (%)
Total (Number)	28,000	27,000	3,992,000	3,626,000
Percent	100	100	100	100
East Asia	20	17	16	16
China	10	8	9	10
Japan/Asian Tigers*	10	9	6	6
Southeast Asia	11	16	13	14
Philippines	7	4	10	6
Southwest Asia	13	15	20	17
India	8	11	15	12
Middle East	3	2	3	3
Central America	8	11	7	11
Mexico	6	10	5	7
Caribbean	1	2	5	9
South America	4	4	8	7
Canada	5	9	3	3
Australia/Oceania	2	2	1	<1
European Union/EEA**	19	15	12	11
Rest of Europe	7	3	6	4
Africa	7	4	7	5

* Japan/Asian Tigers refers to Hong Kong, Japan, Singapore, and South Korea.

** European Union/EEA refers to the 28 European countries that were part of the European Union as of 2013, plus Iceland, Liechtenstein, and Norway, which are part of the European Economic Area (EEA).

Note: Percentages may not add up to 100 percent due to rounding.

Source: MPI analysis of 2009-13 ACS and 2008 SIPP data from the U.S. Census Bureau, with legal status assignments by Bachmeier and Van Hook.

Table 4. Underemployment and Unemployment of Highly Skilled Immigrants, by Place of Education and Region/ Country of Birth in Oregon and United States (%), 2009-13

Region or Country of Birth	Oregon		United States	
	Foreign-Educated Immigrants (%)	U.S.-Educated Immigrants (%)	Foreign-Educated Immigrants (%)	U.S.-Educated Immigrants (%)
Total (%)	30	23	29	21
East Asia	17	13	20	16
China	9	10	16	14
Japan/Asian Tigers*	26	16	25	20
Southeast Asia	50	32	35	20
Philippines	50	34	35	21
Southwest Asia	26	14	23	16
India	16	8	18	13
Middle East	51	23	28	21
Central America	45	44	51	36
Mexico	42	45	47	36
Caribbean	62	15	44	24
South America	28	35	37	25
Canada	19	16	12	15
Australia/Oceania	9	34	16	18
European Union/EEA**	21	18	18	19
Rest of Europe	43	36	33	23
Africa	45	20	37	26

* Japan/Asian Tigers refers to Hong Kong, Japan, Singapore, and South Korea.

** European Union/EEA refers to the 28 European countries that were part of the European Union as of 2013, plus Iceland, Liechtenstein, and Norway, which are part of the European Economic Area (EEA).

Source: MPI analysis of 2009-13 ACS and 2008 SIPP data from the U.S. Census Bureau, with legal status assignments by Bachmeier and Van Hook.

Although they represented a relatively low share of highly skilled immigrants in Oregon, those from the Caribbean had the highest rates of skill underutilization (62 percent) among the foreign-educated population, and those from Mexico had the highest rates (45 percent) among the U.S.-educated population (see Table 4). Chinese and Indian immigrants had lower skill underutilization rates in the state than at the national level, regardless of their place of education.

IV. Conclusion

In sum, 27 percent of the 55,000 college-educated immigrants living in Oregon were either underemployed or unemployed during the 2009-13 period. Low-skilled employment among these highly skilled immigrants comes with a price tag: \$272.5 million in annual lost earnings and \$27.7 million in forgone state and local taxes.

The scale of this economic impact suggests that policymakers would do well to examine the barriers to full employment that immigrants—particularly those who are foreign educated—face in the Oregon labor market. Given the costs documented here, policies that promote the recognition of foreign credentials, make licensing requirements more transparent, and expand access to courses that teach professional English and fill educational gaps should provide substantial returns on public investment.

About the Authors

Ariel G. Ruiz Soto is a Research Assistant at the Migration Policy Institute (MPI), where he provides quantitative research support across MPI programs. His research focuses on the impact of U.S. immigration policies on immigrant experiences of socioeconomic integration across varying geographical and political contexts. More recently, Mr. Ruiz Soto has analyzed methodological approaches to estimate sociodemographic trends of the unauthorized immigrant population in the United States.

Jeanne Batalova is a Senior Policy Analyst at MPI and Manager of its Data Hub, a one-stop, online resource that provides instant access to the latest facts, statistics, and maps covering U.S. and global data on immigration and immigrant integration. Her areas of expertise include the immigration and integration of highly skilled workers and foreign students in the United States and other countries; the impacts of immigrants on society and labor markets; and the social and economic mobility of immigrant-origin young adults.

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

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ENDNOTES

¹ Authors' tabulations of integrated public use microdata series from the U.S. Census Bureau's 2000 and 2015 American Community Surveys (ACS).

² Migration Policy Institute (MPI), "State Immigration Data Profiles," www.migrationpolicy.org/data/state-profiles/state/workforce/OR/US.

³ The foreign born (or immigrants) are persons who were not U.S. citizens at birth. The U.S. born (or natives) are persons who were U.S. citizens at birth, even if they were born outside of the country.

⁴ 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, New American Economy, and World Education Services, 2016). State-level fact sheets examining brain waste for college-educated immigrants cover California, Florida, Michigan, New York, Ohio, Texas, and Washington, and can be found at www.migrationpolicy.org/topics/brain-waste-credential-recognition.

⁵ All estimates in this fact sheet refer to civilian adults ages 25 and older and are based on analysis of U.S. Census Bureau pooled 2009-13 ACS data unless otherwise stated. The data were pooled to increase the precision of the estimates. James Bachmeier at Temple University, in consultation with Jennifer Van Hook at The Pennsylvania State University and researchers at MPI developed techniques to link the ACS data to the Census Bureau's 2008 Survey of Income and Program Participation (SIPP) to allow for estimates by legal status. The 2009-13 data were the most recent at the time of the analysis.

⁶ The term "foreign educated" refers to immigrants who have at least a bachelor's degree and arrived in the United States at age 25 or later. They were likely to have obtained all of their formal education abroad; "U.S. educated" refers to college-educated immigrants who came to the United States before age 25 and are likely to have been educated in the United States.

⁷ Persons identified as Black, Asian, and White refer to non-Hispanic individuals. Persons identified as Hispanic are of any race.

⁸ In *Untapped Talent*, Batalova, Fix, and Bachmeier employ logistic regression models to test the effect of place of education, time in the United States, level of educational attainment, English skills, race and ethnicity, and citizenship and legal status on the odds of low-skilled employment of immigrant men and women. The report finds that each of these variables had an independent and statistically significant impact on the likelihood of low-skilled employment. The analysis assumes that the relationships observed at the national level hold at the state level as well. See Batalova, Fix, and Bachmeier, *Untapped Talent*.

⁹ MPI in 2008 first estimated the size of the immigrant population experiencing brain waste. See Jeanne Batalova and Michael Fix with Peter A. Creticos, *Uneven Progress: The Employment Pathways of Skilled Immigrants in the United States* (Washington, DC: MPI, 2008), www.migrationpolicy.org/research/uneven-progress-employment-pathways-skilled-immigrants-united-states.

¹⁰ The analysis of forgone earnings was done separately by place of education and gender. See Batalova, Fix, and Bachmeier, *Untapped Talent*, Appendix A-3 for additional discussion of the decomposition methodology. Estimates of forgone tax contributions at the state and local level were computed by MPI based on framework provided by the Institute on Taxation and Economic Policy (ITEP). See Batalova, Fix, and Bachmeier, *Untapped Talent*, Appendix A-4 for additional discussion of the tax estimation methodology. The value of forgone federal taxes associated with low-skilled employment of immigrants in Oregon was not estimated.

¹¹ The national report also estimates the amount of forgone federal taxes associated with immigrant low-skilled employment: approximately \$10.2 billion. See Batalova, Fix, and Bachmeier, *Untapped Talent*.

¹² Persons who reported speaking English only or "very well" in the ACS are considered to be English proficient. Persons who reported speaking English "not well" or "not at all" are considered to have low levels of English proficiency.

¹³ Refers to master, doctoral, and professional degrees.

¹⁴ Foreigners on temporary visas include those on work visas such as the H-1B visa or the L-1 intracompany transferee visa, or international students on F-1 visas. To obtain an H-1B visa, for instance, foreign workers must have a sponsoring employer (i.e., they will have a job) and the position for which they are hired (in most cases) requires at least a bachelor's degree (i.e., their job per the definition used in this fact sheet is "highly skilled").

¹⁵ See Mary C. Waters and Marisa Gerstein Pineau, eds., *The Integration of Immigrants into American Society* (Washington, DC: The National Academies Press), www.nap.edu/catalog/21746/the-integration-of-immigrants-into-american-society.

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