

# The Contributions of New Americans in Arizona



# Partners



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## CONTENTS

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Demographics.....	<b>1</b>	Naturalization.....	<b>19</b>
The Role of Immigrants as Entrepreneurs.....	<b>2</b>	International Students.....	<b>20</b>
Income and Tax Contributions.....	<b>4</b>	Voting Power.....	<b>21</b>
The Role of Immigrants in the Broader Workforce.....	<b>6</b>	Undocumented Population.....	<b>22</b>
Science, Technology, Engineering, and Math.....	<b>10</b>	Spotlight On: Carla Chavarria.....	<b>27</b>
Healthcare.....	<b>12</b>	Methodology.....	<b>28</b>
Agriculture.....	<b>14</b>	Endnotes.....	<b>35</b>
Housing.....	<b>16</b>	Endnotes: Methodology.....	<b>38</b>
Visa Demand.....	<b>17</b>		

# Demographics

**A**fter decades when states such as California, Florida, and New York attracted the majority of immigrants to the country, Arizona—which shares a 372-mile border with Mexico—has recently emerged as a major destination for New Americans. In 1990, 7.6 percent of Arizona residents were foreign-born. By 2010, that figure had risen to 13.4 percent.

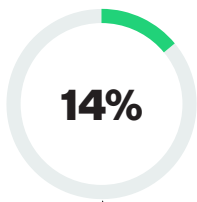
Over the next four years, such growth patterns only continued. In fact, the growth of Arizona’s foreign-born population figured prominently in the state’s overall population growth between 2010 and 2014. The native-born population increased by just 4.6 percent, but the state’s immigrant population grew by 7.0 percent during that period.

Arizona, which shares a 372-mile border with Mexico, is now home to more than **920,000** foreign-born residents.

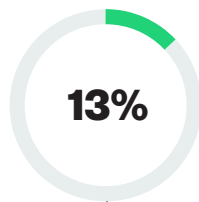
Today Arizona boasts the 11th largest immigrant population in the United States, with over 920,000 foreign-born residents. New Americans in Arizona serve as everything from entrepreneurs to farm laborers, making them critical contributors to the state’s economic success overall.

## 921,641

Arizona residents were born abroad.



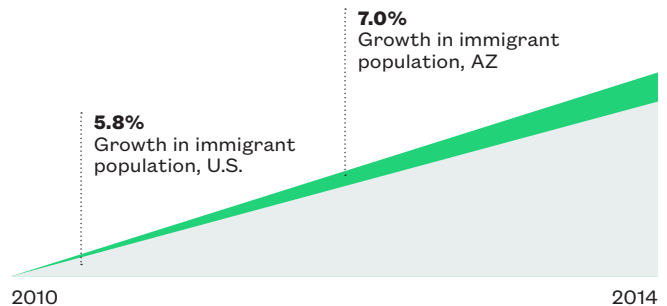
Share of Arizona residents born abroad



Share of U.S. residents born abroad

## 60,417

people immigrated to Arizona between 2010 and 2014.



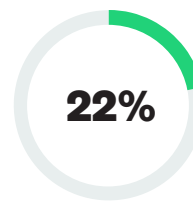
# The Role of Immigrants as Entrepreneurs

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**60,132**

immigrants in Arizona are self-employed.

Immigrant-owned businesses generated **\$1.3B** in business income in 2014.



Share of entrepreneurs in Arizona who are immigrants

**113,760** people in Arizona were employed by immigrant owned companies in 2007

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**G**iven that the act of picking up and moving to another country is inherently brave and risky, it should be little surprise that immigrants have repeatedly been found to be more entrepreneurial than the U.S. population as a whole.<sup>1</sup> According to The Kauffman Foundation, a nonprofit group that studies entrepreneurship, immigrants were almost twice as likely to start a new business in 2015 than the native-born population.<sup>2</sup> The companies they founded ranged from small businesses on Main Street to large firms responsible for thousands of American jobs. Recent studies, for instance, have indicated that immigrants own more than half of the grocery stores in America and 48 percent of nail salons.<sup>3</sup> Foreign-born entrepreneurs are also behind 51 percent of our country's billion dollar startups.<sup>4</sup> In addition, more than 40 percent of Fortune 500 firms have at least one founder who was an immigrant or the child of an immigrant.

In 2010, roughly **1 in 10** American workers with jobs at private firms were employed at immigrant-founded companies.

The super-charged entrepreneurial activity of immigrants provides real and meaningful benefits to everyday Americans. In 2010, roughly one in 10 American workers with jobs at private firms were employed at immigrant-founded companies. Such businesses also generated more than \$775 billion in annual business revenue that year.<sup>5</sup> In Arizona, like the country as a whole, immigrants are currently punching far above their weight class as entrepreneurs. Foreign-born workers currently make up 22.0 percent of all entrepreneurs in the state, despite accounting for 13.7 percent of Arizona's population. Their firms generated

\$1.3 billion in business income in 2014. Arizona firms with at least one immigrant owner also provided jobs to roughly 114,000 Americans in 2007.<sup>6</sup>

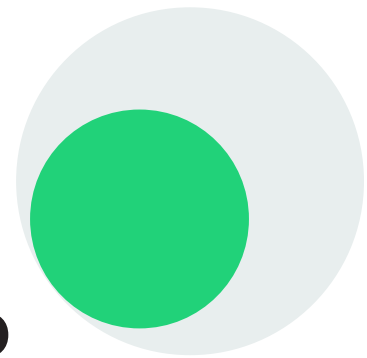
Immigrant entrepreneurs have played an important part of Arizona's economic success story. Avnet, a Fortune 500 technology distributor based in the state, was originally founded by Charles Avnet, a Russian immigrant. Avnet started out by selling spare radio parts in downtown Manhattan. By World War II, he had turned his company into one of the country's leading radio distributors.<sup>7</sup> Freeport-McMoRan, another Fortune 500 firm based in Arizona, had one founder whose parents immigrated to America. Together, these two companies employ 54,000 people globally and bring in almost \$50 billion in revenues each year.

Currently, there is no visa to come to America, start a company, and create jobs for U.S. workers—even if an entrepreneur already has a business plan and has raised hundreds of thousands of dollars to support his or her idea. Trying to exploit that flaw in our system, countries around the world—from Canada to Singapore, Australia to Chile—have enacted startup visas, often with the explicit purpose of luring away entrepreneurs who want to build a U.S. business but cannot get a visa to do so.<sup>8</sup> Here in the United States, many individuals have gone to great lengths to circumnavigate the visa hurdles. Many

entrepreneurs sell a majority stake in their company and then apply for a visa as a high-skilled worker, rather than the owner of their firm. And a few enterprising venture capitalists, led by Jeff Bussgang in Boston and Brad Feld in Colorado, have launched programs that bring over foreign-born entrepreneurs to serve as “entrepreneurs in residence” at colleges and universities. Because nonprofit academic institutions are exempt from the H-1B cap, such entrepreneurs can secure their visas by working as mentors at a school, and then build their startups in their free time.

These innovative programs, which are currently available at 13 colleges and universities across the country, are already resulting in meaningful economic contributions. As of mid-2016, 23 entrepreneurs had secured visas through these programs nationally. The companies they founded had created 261 jobs and raised more than \$100 million in funding.<sup>9</sup>

40%



of **Fortune 500** companies based in Arizona were founded by immigrants or their children.

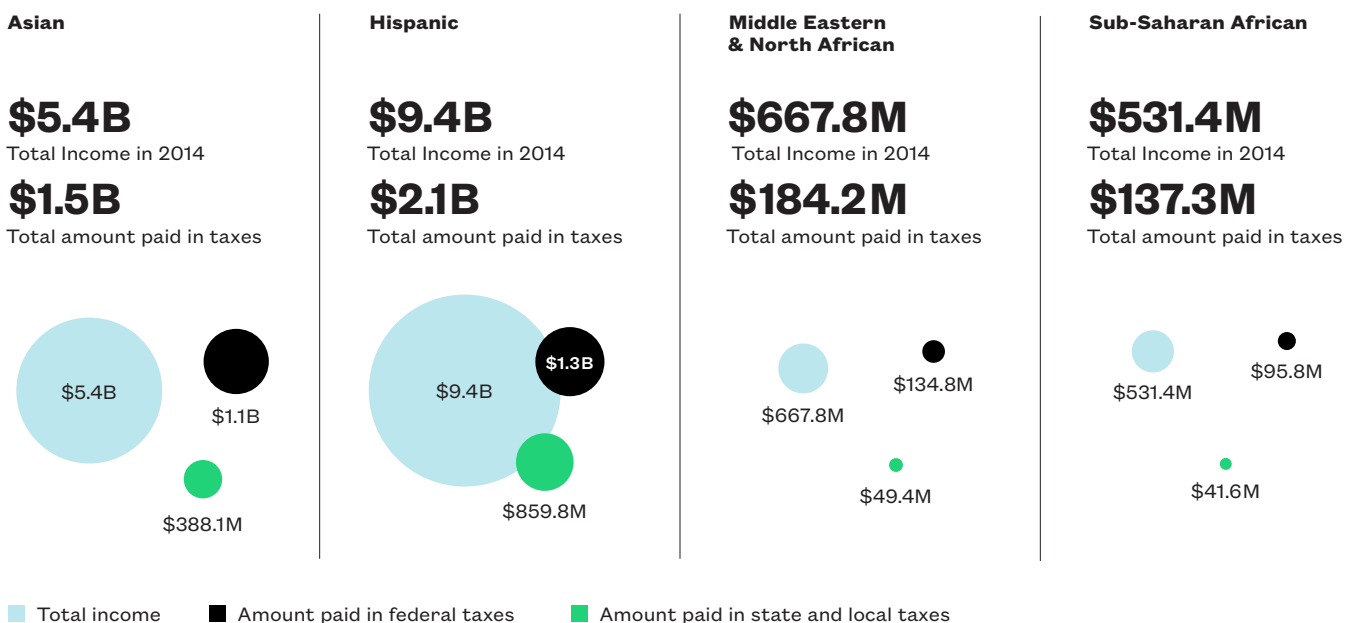
Those firms generate **\$49.6B** in annual revenue, and employ **54,000** people globally.

# Income and Tax Contributions

Immigrants in Arizona play an important role contributing to the state as both taxpayers and consumers. In 2014, immigrant-led households in Arizona earned \$21.4 billion dollars—or 13.0 percent of all income earned by Arizonan that year. With those earnings, the state’s foreign-born households were able to contribute more than one in every eight dollars paid by Arizona residents in state and local tax revenues, payments that support important public services such as public schools and police. Through their individual wage contributions, immigrants also paid almost \$2.7 billion into the Social Security and Medicare programs that year.

By spending the money they earn at businesses such as hair salons, grocery stores, and coffee shops, immigrants also support small business owners and job creation in the communities where they live. In Arizona immigrants held \$16.0 billion in spending power in 2014, defined in this brief as the net income available to a family after paying federal, state, and local taxes. We highlight the spending power and tax contributions of several subsets of Arizona’s foreign-born population below, including Hispanics and immigrants from Northern Africa or the Middle East.

## INCOME AND TAX CONTRIBUTIONS OF KEY GROUPS WITHIN ARIZONA'S IMMIGRANT POPULATION, 2014



In 2014, immigrants in Arizona earned **\$21.4B.**



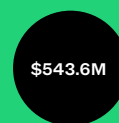
**\$1.7B** — went to state and local taxes ...

**\$3.7B** — went to federal taxes ...

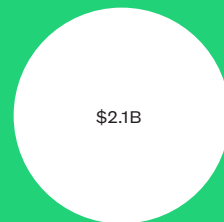
Leaving them with **\$16.0B** in spending power.

#### ENTITLEMENT CONTRIBUTIONS

Arizona's immigrants also contribute to our country's entitlement programs. In 2014, through taxes on their individual wages, immigrants contributed **\$543.6M** to Medicare and **\$2.1B** to Social Security.



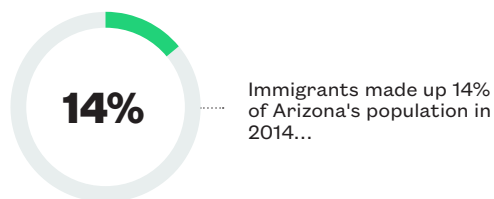
Medicare



Social Security

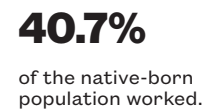


# The Role of Immigrants in the Broader Workforce



Because they tended to be working-age,

Immigrants were **31%** more likely to work than native-born Arizonans.



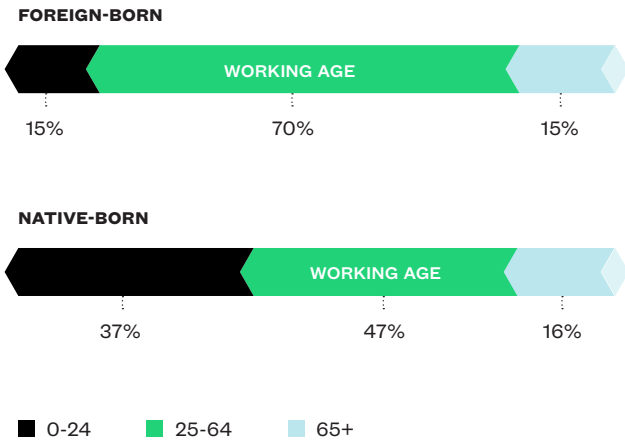
**P**eople who come to the United States often come here to work. Because of that, they often have skills that make them a good fit for our labor force—and a strong complement to American workers already here. In the country as a whole, immigrants are much more likely to be working-age than the U.S.-born. They also have a notably different educational profile. The vast majority of Americans – more than 79 percent of the U.S.-born population – fall into the middle of the education spectrum by holding a high school or bachelor’s degree. Immigrants, by contrast, are more likely to gravitate toward either end of the skill spectrum. They are more likely to lack a high school diploma than the native born, but also more likely to have an advanced degree. This makes them good candidates for labor-intensive positions, such

as housekeeping, that many more educated U.S.-born workers are less interested in pursuing, as well as high-level positions that allow innovation-driven firms to expand and add jobs for Americans at all skill levels.

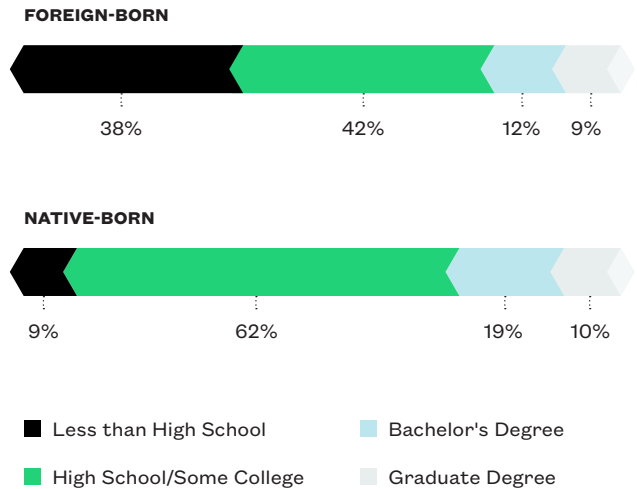
In Arizona, **70.5%** of the foreign-born population is working aged, compared to only **46.8%** of the native-born population.

Immigrants in Arizona in many ways resemble the trend in the country as whole. In Arizona 70.5 percent of the foreign-born population is working aged, defined in this brief as falling between the ages 25 and 64, while only 46.8 percent of the native-born population is. That

**AGE BREAKDOWN OF ARIZONA'S FOREIGN-BORN AND NATIVE-BORN POPULATIONS, 2014**



**EDUCATIONAL ATTAINMENT OF ARIZONA'S FOREIGN-BORN AND NATIVE-BORN POPULATION (AGES 25+), 2014**



23.8-percentage point gap, which is larger than the national average, has major implications for the state’s workforce. In 2014, immigrants in the state were 31.1 percent more likely to be actively employed than the state’s native-born residents—a reality driven largely by the fact that a larger than average portion of the native-born population was under the age of 25. Foreign-born individuals punched above their weight class as workers in the state as well: In 2014, they made up 17.2 percent of all employed individuals in the state, despite accounting for 13.7 percent of the Arizona’s population overall.

When it comes to education, however, Arizona differs from the national pattern. Immigrants here are less likely to have either a bachelor’s degree or graduate level training than native-born residents. Instead, they are considerably more likely to have less than a high-school education: More than one in three of the state’s immigrants fall into that category, compared to just 8.6 percent of natives.

The immigrants who are working in Arizona contribute to a wide range of different industries in the state—many of which are growing and important parts of the local

economy. Foreign-born residents make up almost half the employees in the state’s landscaping industry. They also account for 63.1 percent of the state’s workers in crop production, contributing to Arizona’s sizeable agriculture industry, which added \$2.5 billion to the state’s gross domestic product (GDP) in 2014. Immigrants also frequently gravitate toward sectors where employers may struggle to find enough interested U.S.-born workers. Immigrants in Arizona, for instance, make up 37.5 percent of workers providing services to buildings and dwellings, an industry that includes office cleaners, exterminators, and carpet cleaners.

In recent decades, immigrants have also played an important role in Arizona’s manufacturing industry. Studies have found that the arrival of immigrants to a community can have a powerful impact creating or preserving manufacturing jobs. This is because foreign-born workers give employers access to a large and relatively affordable pool of laborers, making it less attractive for firms to move work to cheaper locations offshore. One study by the Partnership for a New American Economy and the Americas Society/Council of the Americas, for instance, found that every

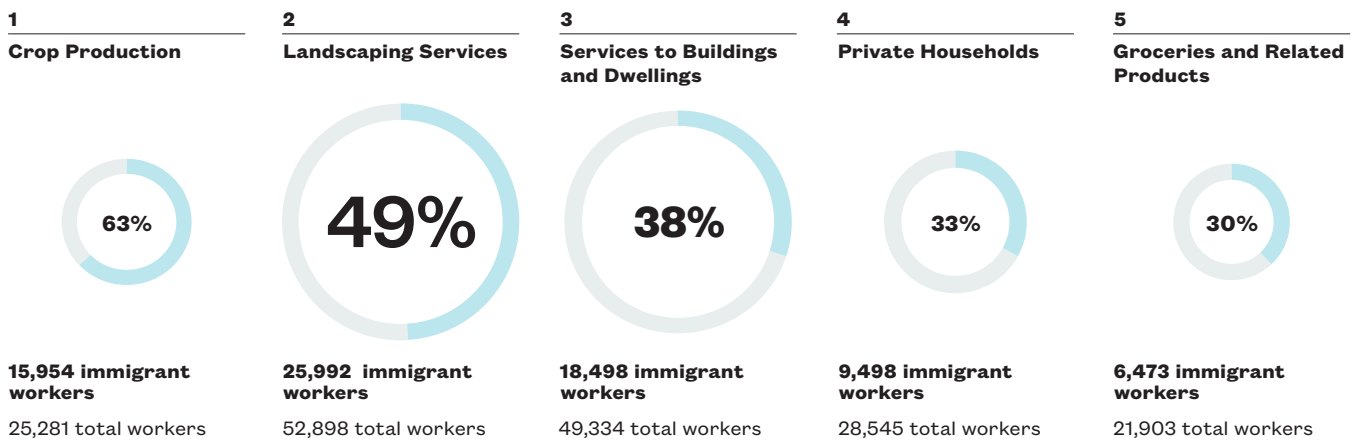
time 1,000 immigrants arrive in a given U.S. county, 46 manufacturing jobs are preserved that would otherwise not exist or have moved elsewhere.<sup>10</sup>

The **860,000** immigrants who were living in Arizona in 2010 were responsible for creating or preserving almost **40,000** manufacturing jobs.

Aside from just looking at overarching industry groups, our work also examines the share of workers that are foreign-born in specific occupations and jobs. Reflecting their unique educational profile, immigrants in Arizona are often overrepresented in particularly labor-intensive positions. While foreign-born workers make up 17.2 percent of the state’s employed population, they account for 73.9 percent of the subset of farm laborers that hand pick fresh fruits and vegetables in the fields. They also make up 55.0 percent of those working as maids and housekeepers, and more than half of grounds maintenance workers.

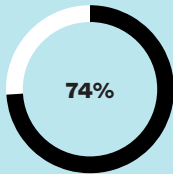
INDUSTRIES WITH LARGEST SHARE OF FOREIGN-BORN WORKERS, 2014

■ Share of workers who are immigrants



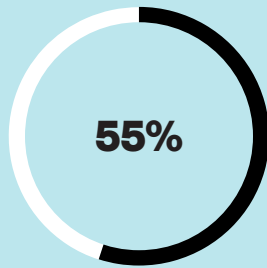
OCCUPATIONS WITH LARGEST SHARE OF FOREIGN-BORN WORKERS, 2014

**1**  
Misc. Agricultural Workers  
including Animal Breeders



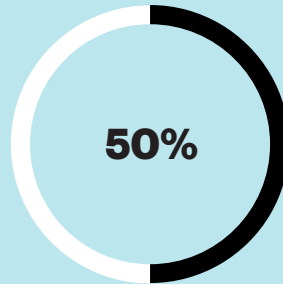
**15,661 immigrant workers**  
21,198 total workers

**2**  
Maids and  
Housekeeping Cleaners



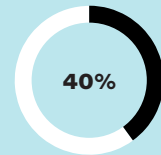
**25,566 immigrant workers**  
46,483 total workers

**3**  
Grounds Maintenance  
Workers



**26,050 immigrant workers**  
51,920 total workers

**4**  
Painters, Construction and  
Maintenance



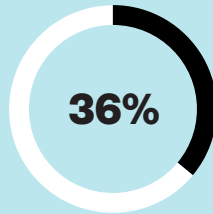
**5,330 immigrant workers**  
13,442 total workers

**5**  
Cleaners of Vehicles and  
Equipment



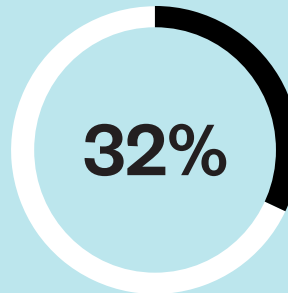
**4,707 immigrant workers**  
11,884 total workers

**6**  
Carpenters



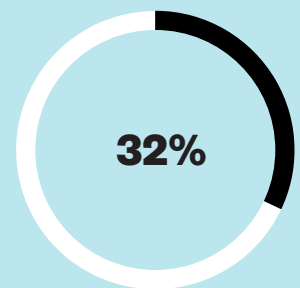
**10,848 immigrant workers**  
29,854 total workers

**7**  
Janitors and Building  
Cleaners



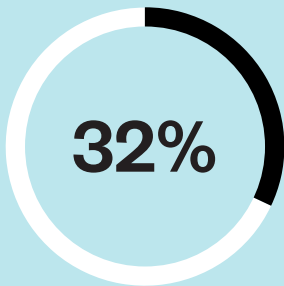
**21,237 immigrant workers**  
65,475 total workers

**8**  
Construction Laborers



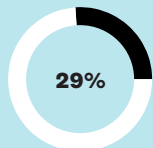
**16,249 immigrant workers**  
50,648 total workers

**9**  
Cooks



**18,371 immigrant workers**  
57,559 total workers

**10**  
Miscellaneous Assemblers  
and Fabricators



**4,494 immigrant workers**  
15,313 total workers

■ Share of workers who are immigrants

# Science, Technology, Engineering, and Math

**B**etween 2014 and 2024, science, technology, engineering, and math—or “STEM”—fields are projected to play a key role in U.S. economic growth, adding almost 800,000 new jobs and growing 37.0 percent faster than the U.S. economy as a whole.<sup>11</sup> Immigrants are already playing a huge part ensuring that Arizona remains a leading innovator in STEM fields like advanced manufacturing and aerospace.

Despite making up **13.7%** of the state’s population, foreign-born Arizonans made up **17.3%** of STEM workers in the state in 2014.

Our outdated immigration system, however, makes it difficult for STEM employers to sponsor the high-skilled workers they need to fill critical positions. This is problematic because it can slow the ability of firms

to expand and add jobs for U.S.-born workers. It also makes little sense, given the country’s ongoing shortage of STEM talent—an issue that heavily impacts employers here. In 2014, 9.0 STEM jobs were advertised online in Arizona for every one unemployed STEM worker in the state.

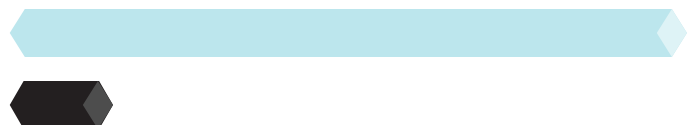
Immigrants, however, are not just a crucial piece of Arizona’s STEM workforce now—they are also likely to power it in the future. In 2014 students on temporary visas made up roughly one out of every 4 students earning a STEM Master’s degree at Arizona’s universities, and 36.8 percent of students earning a PhD-level degree in STEM. Even after America’s universities invest in their education, however, many of those students struggle to remain in the country after graduation. Creating visa pathways that would make it easier for them to stay would have a major economic benefit to Arizona. A study by the Partnership for a New American

# 60,755

available STEM jobs were advertised online in 2014, compared to **6,768** unemployed STEM workers.

The resulting ratio of open jobs to available workers was

# 9.0 to 1



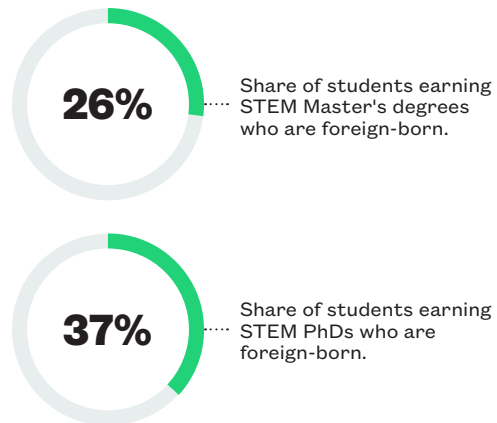
Economy and the American Enterprise Institute found that every time a state gains 100 foreign-born STEM workers with graduate-level STEM training from a U.S. school, 262 more jobs are created for U.S.-born workers there in the seven years that follow.<sup>12</sup> For Arizona, that means that retaining even half of the 1,070 graduates earning advanced-level STEM degrees in 2014 could result in the creation of more than 1,400 new positions for U.S.-born workers by 2021.

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If half of Arizona's **1,070** advanced level STEM grads on temporary visas stayed in the state after graduation...

**1,402**  
jobs for U.S.-born workers would be created by 2021.

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# Healthcare

In the coming years, the American healthcare industry is projected to see incredibly rapid growth—adding more new positions from 2014 to 2024 than any other industry in our economy.<sup>13</sup> Already, caregivers are facing near unprecedented levels of demand. Between 2013 and 2015, the number of Americans with health insurance rose by almost 17 million,<sup>14</sup> opening the door for many patients to receive more regular care. The country’s 76.4 million baby boomers are also aging rapidly—at a major cost to our healthcare system.

Studies have found that elderly Americans spend three times more on healthcare services than those of working age each year.<sup>15</sup>

In Arizona, a state where almost one out of every six residents is currently elderly, finding enough healthcare workers remains a challenge—and one that will likely worsen in the future. Currently the state has 246.9 practicing physicians per 100,000 people—a figure that ranks it 32nd in the country in terms of physician

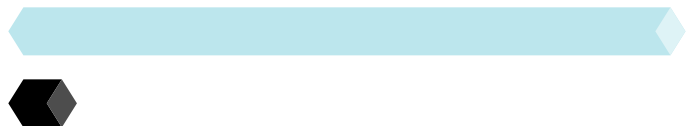
## ARIZONA HAS A SHORTAGE OF HEALTHCARE WORKERS

# 72,964

available healthcare jobs were advertised online in 2014, compared to **6,024** unemployed healthcare workers.

The resulting ratio of open jobs to available workers was

# 12.1 to 1



Additional number of psychiatrists needed: **309**



Shortage of dentists projected by 2025: **405**



Shortage of occupational therapists by 2030: **3,368**



Projected shortage of licensed practical nurses by 2025<sup>16</sup>: **9,590**

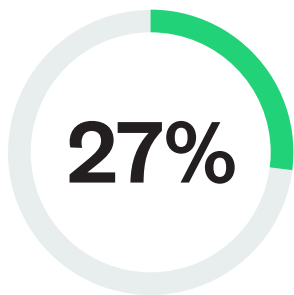


FOREIGN-BORN AND FOREIGN-EDUCATED PROFESSIONALS HELP FILL HEALTHCARE LABOR GAPS

Foreign-Educated

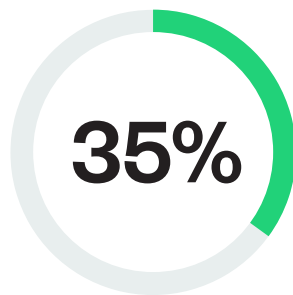
**Doctors**

4,601 graduates of foreign medical schools



**Psychiatrists**

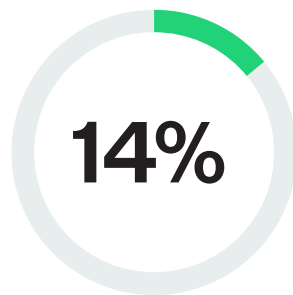
288 graduates of foreign medical schools



Foreign-Born

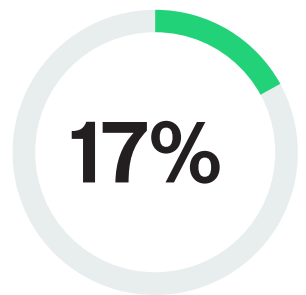
**Nurses**

8,422 foreign-born nurses



**Nursing, Psychiatric, and Home Health Aides**

5,776 foreign-born nursing, psychiatric, and home health aides



coverage relative to other states. The ratio of practicing psychiatrists per capita is also low. All this comes on top of shortages already impacting the state across the entire healthcare workforce. In 2014, 12.1 healthcare jobs were listed online in Arizona for every one unemployed healthcare worker in the state. As baby boomers age a variety of other healthcare professions that cater largely to seniors, such as occupational therapists, will feel additional strain.

Immigrants are already playing a valuable role helping Arizona meet some of its healthcare workforce gaps. In 2016 more than one in four physicians in Arizona graduated from a foreign medical school, a likely sign they were born elsewhere. Immigrant healthcare practitioners also made up 13.5 percent of the state's nurses in 2014, as well as 16.6 percent of those working as nursing, psychiatric, or home health aides.

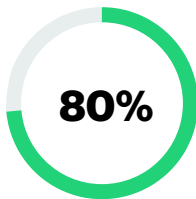
In 2016 more than **1 in 4** physicians in Arizona graduated from a foreign medical school, a likely sign they were born elsewhere.



# Agriculture

## 18.6%

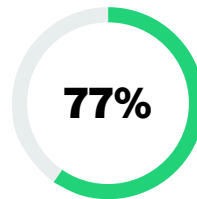
of farms in Arizona produced fresh fruits and vegetables in 2014.



Share of miscellaneous agriculture workers on farms who are immigrants. (This is the occupation made up largely of laborers who hand pick crops in the field.)

## \$2.5B

Amount agriculture contributes to Arizona's GDP annually.



Share of hired farmworkers in the state who are immigrants.

One sector of the economy of particular importance to Arizona is agriculture. In 2014, the agriculture industry contributed nearly \$2.5 billion to Arizona's GDP. It also directly provided jobs to almost 30,000 Arizonans. Within that massive industry, fresh fruits and vegetables played a prominent role. In 2014, farmers in the state grew almost \$897 million worth of fresh fruits, vegetables, and tree nuts. Arizona also grew more lettuce, as measured in farm receipts, than any other state in the country except California.

Arizona's leading role as a produce producer makes the state's agriculture industry inherently reliant on immigrants. Fresh fruits and vegetables—unlike commodity crops such as corn, soybeans, and wheat—almost always must be harvested by hand. And the so-called “field and crop workers” that perform that work are overwhelmingly immigrant: From 2008 to 2012, foreign-born workers made up 72.9 percent of field and crop laborers in the country as a whole

In Arizona, that reality means that even when managers, packers, and equipment managers are included,

immigrants are still a huge part of the state's overall agricultural workforce. In 2014, 77 percent of all hired farmworkers in the state were born abroad.

**From 2008 to 2012, foreign-born workers made up 72.9% of field and crop laborers in the country as a whole.**

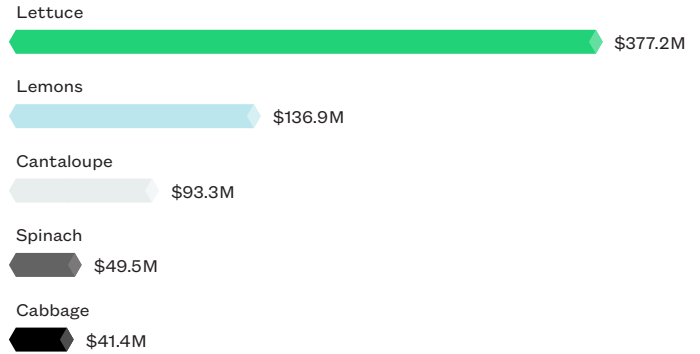
The current visa system for agriculture presents many problems for states like Arizona. The H-2A visa program, which is designed to bring in temporary farm laborers, is too expensive and burdensome for many U.S. farms.<sup>17</sup> Growers frequently complain that delays issuing H-2A visas result in workers arriving weeks late, which can lead to crop loss. The visa's lack of portability also means that growers must often commit to pay workers for a longer period than they actually need them. For Arizona growers, the lack of a workable visa—coupled with a huge drop-off in the number of farmworkers who have immigrated in recent years—has led to a labor

# \$896.9M

Farm receipts generated from the sale of fruits, vegetables, and nuts in 2014.

Arizona's leading agricultural exports include plant products (such as sweeteners and planting seeds), dairy products, and cotton.

TOP FIVE PRODUCE ITEMS PRODUCED IN THE STATE IN 2014, AS MEASURED BY FARM RECEIPTS

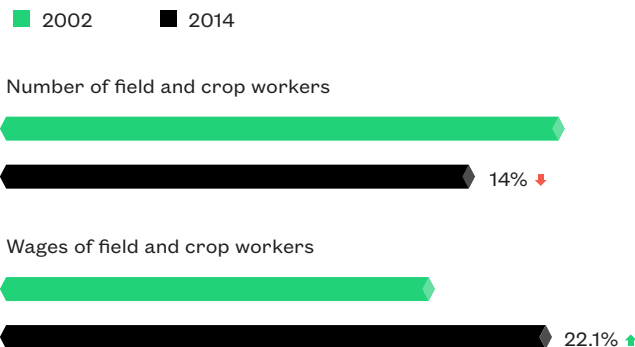


picture that is increasingly untenable. Between 2002 and 2014, the number of field and crop workers in Arizona and New Mexico decreased by 14 percent. Wage trends indicate that caused a major labor shortage on Arizona farms: Real wages for field and crop workers jumped by 22.1 percent during the period.

The shortage of qualified field and crop workers has made it difficult for many farmers in Arizona to keep pace with rising consumer demand for fresh fruits and vegetables. Between the 1998-2000 and 2010-2012 time periods, for instance, the share of produce consumed by Americans that was imported from other countries grew by 79.3 percent. Labor issues explain an estimated

27 percent of that market share loss. Many farmers say a shortage of manpower has forced them to either cut back on the acres devoted to labor intensive crops or abandon expansion plans altogether.<sup>18</sup> Such moves, in Arizona and elsewhere, have cost the U.S. economy in recent years. If labor shortages had not been an issue, the country would have had an additional 24,000 jobs by 2012, including 17,000 in fields outside agriculture like transportation and irrigation. The U.S. economy would have had \$1.3 billion in additional farm income by 2012 as well.

THE SUPPLY OF FIELD AND CROP WORKERS IN ARIZONA IS DECREASING, LEADING TO LABOR SHORTAGES



# 1,853 ↓

Decline in the number of field and crop workers in Arizona and New Mexico from 2002-2014

\*Data on individual states is unavailable.

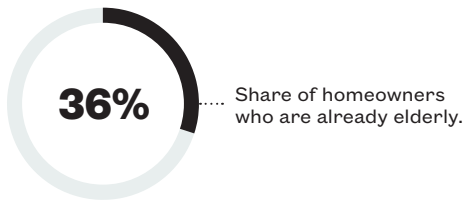
# Housing

Immigrant families have long played an important role helping to build housing wealth in the United States. One study released by the Partnership for a New American Economy and Americas Society/Council of the Americas, for instance, found that in recent decades the country's more than 40 million immigrants collectively raised U.S. housing wealth by \$3.7 trillion. Much of this was possible because immigrants moved into neighborhoods once in decline, helping to revitalize communities and make them more attractive to U.S.-born residents.<sup>19</sup>

In Arizona, immigrants are actively strengthening the state's housing market. In 2014, immigrant-led

households held more than \$41 billion in housing wealth in Arizona or more than one out of every eight dollars concentrated in real estate that year. They also paid 15.3 percent of the money Arizonans spent on rent, despite making up 15.6 percent of the state's households. Because Arizona's immigrants are more likely to be working age, they help address another major concern of housing experts as well—that the large wave of baby boomers retiring in the coming years could result in more homes going up for sale than there are buyers to purchase them. In a state where seniors already own 35.6 percent of homes, immigrant families made up more than one in six new homebuyers from 2010 to 2014.

Immigrants are **bolstering the housing market** by buying the wave of homes coming on the market as the baby boomers retire.



## 212,392

Number of immigrant homeowners in 2014

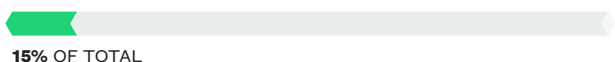
## \$41.4B

Amount of housing wealth held by immigrant households



## \$136.4M

Amount paid by immigrant-led households in rent



# Visa Demand

One key measure of the demand for immigrant workers involves the number of visas requested by employers in a given state. Before an employer can formally apply for many types of visas, however, it must first obtain “certification” from the Department of Labor—essentially a go-ahead from the DOL that the employer can apply for a visa to fill a given job or role. For the H-1B visa, which is used to sponsor high-skilled workers, an employer gains certification by filing what’s known as a Labor Condition Application, or LCA. In the LCA the employer must detail

the position the foreign national would fill, the salary he would be paid, and the geographic location of the job. Firms must also attest that hiring an immigrant will not adversely impact similarly situated American workers. For two other large work visa categories—the H-2A for agricultural laborers and the H-2B for seasonal or temporary needs—employers file what is known as a Labor Certification application, or a “labor cert” for short. To get a labor cert approved, the employer must demonstrate that it is unable to locate an American worker that is available, willing, and able to fill the job.

## H-1B

Number of positions:

**13,382**

**Top jobs:**

- Computer Systems Analysts
- Computer Programmers
- Software Developers, Applications

## GREEN CARD

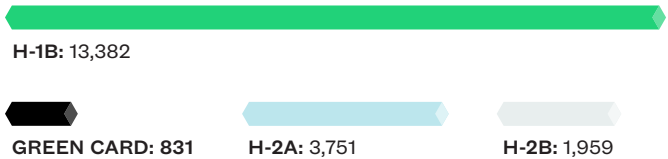
Number of positions:

**831**

**Top jobs:**

- Software Developers, Applications
- Electronic Engineers, Except Computer
- Computer Systems Analysts

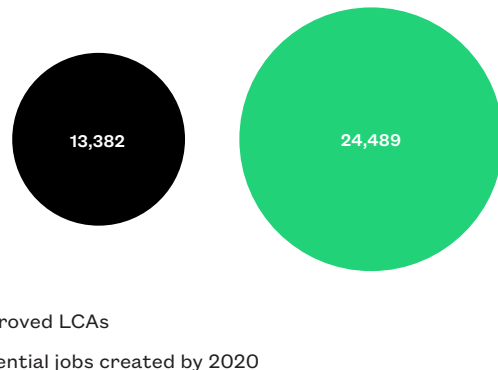
## CERTIFIED POSITIONS BY VISA TYPE, 2014



\* This includes only employment-based green cards

## IF ALL APPROVED LCAS HAD TURNED INTO VISAS...

**13,382 LCAs** for H-1B workers could have created **24,489 jobs**.



## H-2A

Number of positions:

**3,751**

**Top crops or jobs:**

- Lettuce
- Livestock
- Melons

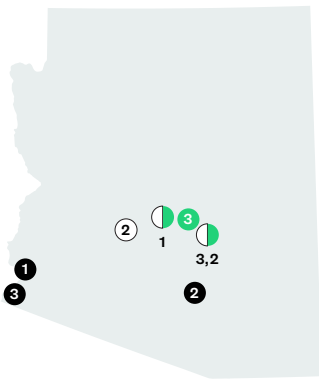
## H-2B

Number of positions:

**1,959**

**Top jobs:**

- Landscaping and Groundskeeping Workers
- Amusement and Recreation Attendants
- Helpers, Construction Trades, All Other



CITIES ARE DEMANDING VISAS ALL OVER THE STATE

H-2A

Top cities:

- 1 Yuma
- 2 Casa Grande
- 3 Somerton

H-2B

Top cities:

- 1 Phoenix
- 2 Laveen
- 3 Chandler

H-1B

Top cities:

- 1 Phoenix
- 2 Chandler
- 3 Tempe

In fiscal year 2014, Arizona employers received DOL certification for almost 20,000 positions, including jobs across a wide variety of occupations and geographies within the state. They included more than 13,000 positions for potential workers on H-1B visas, as well as roughly 3,800 for H-2A workers. Federal officials also issued more than 2,000 certifications for H-2B visas, which are frequently used to staff places like hotels, fisheries, and stables during the high season. Given that it is expensive and cumbersome for employers to obtain labor certs—and similarly daunting to formally apply for an H-1B visa—the large interest in all these visa categories indicates Arizona employers likely were having real trouble finding the workers they needed on U.S. soil.

Applying for certification, however, is not the same as receiving a visa. The H-1B program is currently capped at 85,000 visas a year for private sector employers. In the country as a whole, this resulted in almost half of all such applications being rejected in fiscal year 2014 alone. The H-2B program is similarly limited to just 66,000 visas per year. Even permanent immigrants get ensnared in the limitations of our outdated immigration system. Only seven percent of all green cards can go to nationals of any one country in a given year—resulting in backlogs lasting years for many Indian, Chinese, Mexican, and Filipino workers.<sup>20</sup>

When companies are denied the visas they need, company expansion is commonly slowed—often at a real and meaningful cost to the U.S.-born population. One study by the Partnership for a New American Economy and the American Enterprise Institute estimated that when a state receives 100 H-2B visas, 464 jobs are

created for U.S.-born workers in the seven years that follow.<sup>21</sup> The fact that H-1B visa holders actually create—not take away—jobs from Americans has also been widely supported in the literature. A 2013 paper written by professors at Harvard University looking at the 1995 to 2008 period found that 1 additional young, high-skilled immigrant worker hired by a firm created 3.1 jobs for U.S.-born workers at that same company during the period studied.<sup>22</sup> Other academics have tied each H-1B visa award or labor request with the creation of four<sup>23</sup> or five<sup>24</sup> American jobs in the immediate years that follow.

In this brief, we rely on a more conservative estimate of the impact of the H-1B program on the American workforce. Specifically, we use the estimate that every 1 additional H-1B visa awarded to a state was associated with the creation of 1.83 more jobs for U.S.-born workers there in the following seven years.<sup>25</sup> On the previous page, we show the number of jobs that would have been created for U.S.-born workers in Arizona by 2020 if all the fiscal year 2014 LCAs for H-1Bs had turned into actual visas.

We also show how the large number of H-1B visas denied to Phoenix metropolitan area in 2007 and 2008 cost U.S.-born tech workers there in the two years that followed.

PHOENIX METRO AREA

1,140 denials for H-1B workers in computer related fields cost U.S.-born computer-related workers in Phoenix’s metro area as many as

**1,921** ↓ potential new jobs and **\$14.6M** in aggregate wage growth in the two years that followed.

# Naturalization

Arizona's immigrants are not only living in the state, they are also laying down roots in the state as well. Our analysis found that 39.7 percent of immigrants in Arizona, or well over one in three of them, have already become naturalized citizens. Although that figure is lower than the naturalization rate for immigrants in the country as a whole, it still means that almost 366,000 immigrants in the state have taken that important step.

Like almost all parts of the country Arizona is also home to a population of immigrants who are eligible to naturalize, but haven't yet done so. Embracing public policies that would help those individuals navigate the naturalization process could have an important economic impact on the state. Studies have found that immigrants who become citizens seek out higher

education at greater rates than non-citizens.<sup>26</sup> Because citizenship allows immigrants to pursue a greater range of positions, including public and private sector jobs requiring a security clearance, it also has been found to raise a person's annual wages. One study by researchers at the University of Southern California pegged the size of that wage increase at 8 to 11 percent.<sup>27</sup> If the average non-citizen in Arizona saw a wage boost at the low end of that range, or 8 percent, they would earn almost \$2,200 more per year — money that could be reinvested in the state's economy through their spending at local businesses. Multiplied by the roughly 290,000 non-citizens in Arizona currently eligible to naturalize, such policy initiatives could collectively boost wages in the state by almost \$630 million.

## 289,676

Number of non-citizens eligible to naturalize in 2014

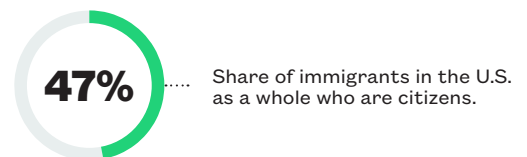
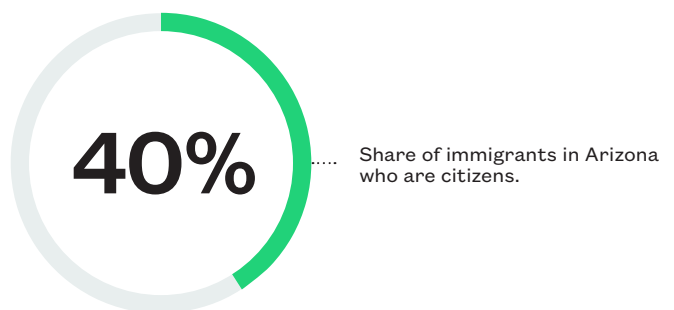


The average non-citizen in Arizona earns **\$27,168** per year. If they naturalized, they each could earn an average of **\$2,173 more** per year.

## \$629.6M

Aggregate additional earnings if eligible non-citizens naturalized.

### NATURALIZATION RATES IN ARIZONA



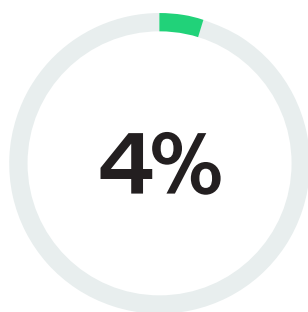
# International Students

**P**olicymakers are increasingly realizing that international students provide huge benefits to the communities where they live and study. The World Bank has found that an increase in the number of international graduate students studying at American schools leads to large boosts in the number of patents awarded to local research universities in the years that follow.<sup>28</sup> Through their tuition payments and day-to-day spending, international students in the broader United States also contributed more than \$30.5 billion to the U.S. economy in the 2014-2015 school year and supported more than 370,000 jobs.<sup>29</sup>

In Arizona, the roughly 16,000 international college students studying on temporary visas make up just 4.1 percent of all college students in the state. Still, their economic contribution is enormous. They support more than 6,700 jobs in the state, including positions in transportation, health insurance, and retail.

International students in the United States contributed **\$30.5B** to the U.S. economy in the 2014-2015 school year and supported more than **370,000** jobs.

International students represent a very small portion of all students in Arizona, but they make a big impact...



International students make up only **4%** of all students in Arizona.

**\$479.1M** **6,726**

Economic contribution of international students to the state, 2015.

Jobs supported by international students, 2015.

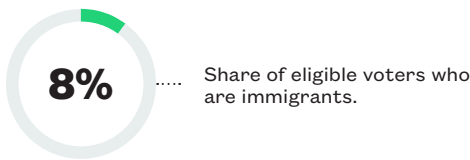
# Voting Power

Immigrants in Arizona do not only make a difference to the state’s economy, they also play a role at the voting booth. In 2014, Arizona was home to roughly 352,000 foreign-born residents who were eligible to vote, including an estimated 209,000 foreign-born residents who had formally registered. Although few would call Arizona a swing state today, the sheer size of the state’s immigrant voting bloc means it has the potential to powerfully impact which way the state votes in national and state elections. In 2012, for instance, Republican presidential candidate Mitt Romney won Arizona almost by 208,000 votes—a smaller vote tally than the current number of eligible immigrant voters in the state.

The power of immigrant voters in Arizona is also poised to continue growing rapidly. Based on voting participation patterns in recent years, we would expect roughly 163,000 foreign-born voters to cast formal ballots in the presidential election this year. An additional 61,000 more immigrants will either naturalize or turn 18 by 2020, expanding the pool of eligible new American voters in Arizona to almost 385,000 people. If this group comes out to vote at similar rates to eligible voters in the state overall, Arizona could easily become competitive in upcoming elections.

## 351,859

Number of immigrants eligible to vote.



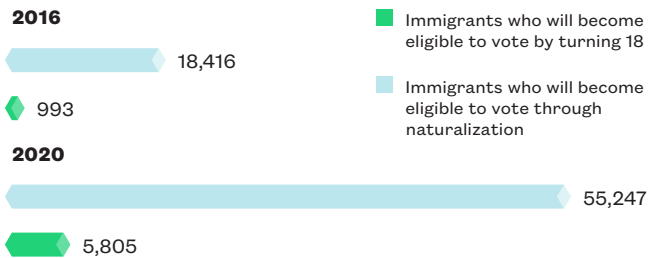
## 208,882

Number of immigrants registered to vote.

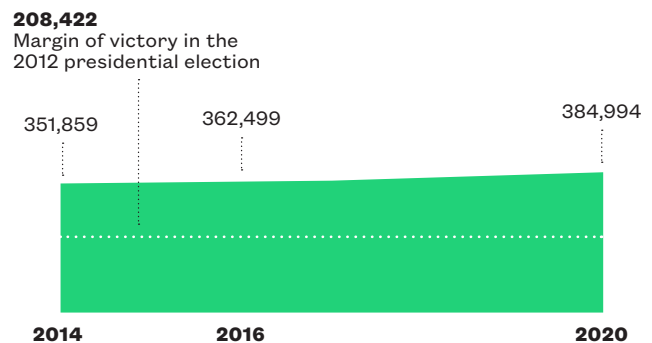
## 208,422

Margin of victory in the 2012 presidential election.

### THE GROWING POWER OF THE IMMIGRANT VOTE



### PROJECTED POOL OF ELIGIBLE IMMIGRANT VOTERS, 2014-2020





# Undocumented Population

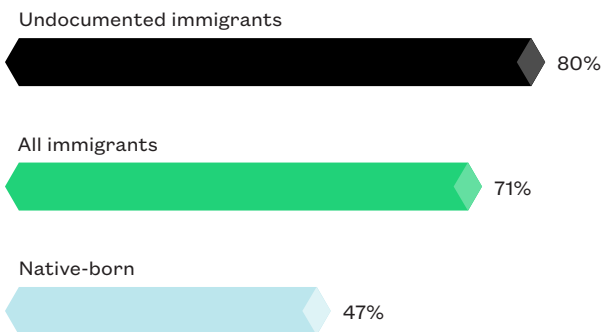
**T**he United States is currently home to an estimated 11.4 million undocumented immigrants, the vast majority of whom have lived in the United States for more than five years. The presence of so many undocumented immigrants in our country for so long a time presents many legal and political challenges that are beyond the scope of this report. But while politicians continue to debate what to do about illegal immigration without any resolution, millions of undocumented immigrants are actively working across the country, and collectively, these immigrants have a large impact on the U.S. economy. One recent study found that 86.6 percent of undocumented males in the country were employed in 2012 and 2013, suggesting that most immigrants who come here illegally do so because of work opportunities.<sup>30</sup> And because employers are required by

law to gather Social Security numbers for all their hires, many undocumented individuals are paying into our tax system as well—often under falsified or incorrect Social Security numbers.<sup>31</sup> These undocumented immigrants generally lack access to federal aid programs such as Medicaid, food stamps, and Temporary Assistance for Needy Families, so they also draw down far less from these programs than their native-born counterparts.<sup>32</sup>

Of course, there are many compelling reasons that having a large undocumented population is a problem for a society. It undermines law and order, permits a shadow economy that is far harder to regulate, and is simply unfair to the millions of people who have come here legally. But as the undocumented immigration problem has gone largely unaddressed for the past 30 years, undocumented workers in the country have

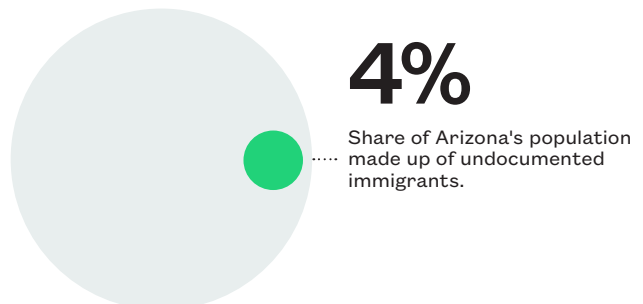
## UNDOCUMENTED IMMIGRANTS ARE MORE LIKELY TO BE WORKING-AGED THAN NATIVES OR OTHER IMMIGRANTS

Share of population ages 25-64, 2014



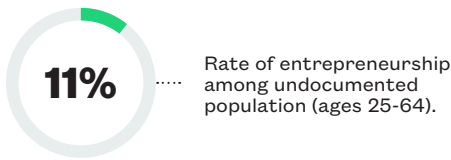
# 284,378

Estimated number of undocumented immigrants in Arizona.



# 24,656

Estimated number of undocumented entrepreneurs in Arizona.



# \$464.2M

Total business income of self-employed entrepreneurs.

# 8.8%

Share of all working-age entrepreneurs in Arizona who are undocumented immigrants.

begun to play an increasingly integral role in many U.S. industries. In some sectors, such as agriculture, undocumented immigrants account for 50 percent of all hired crop workers, making them a critical reason why the industry is able to thrive on U.S. soil.<sup>33</sup> Many studies have also indicated that these undocumented workers are not displacing the U.S.-born, but rather, taking jobs few Americans are interested in pursuing. Economists have found that low-skilled immigrants, the group that most undocumented immigrants fall into, tend to pursue different jobs than less-skilled natives. While U.S.-born workers without a high school degree are often overrepresented in forward-facing roles like

## THE ARIZONA INDUSTRIES WHERE UNDOCUMENTED IMMIGRANTS MAKE UP THE LARGEST SHARE OF THE WORKFORCE, 2014



cashiers, receptionists, and coffee shop attendants, many less-skilled immigrants pursue more labor-intensive work requiring less human interaction, filling jobs as meat processors, sewing machine operators, or nail salon workers.<sup>34</sup> This phenomenon exists within industries as well. In construction, for instance, less-skilled immigrants often work as painters and drywall installers, allowing natives to move into higher paying positions requiring more training, such as electricians, contractors, and plumbers.<sup>35</sup>

The challenge of undocumented immigration is particularly evident in Arizona, which is home to one of

the larger undocumented populations in the country. But just as with the nation as a whole, as these immigrants spend years and decades in America, they get further integrated into our economy. In Arizona, there is evidence that undocumented immigrants are playing an important role in the workforce. In this section, we estimate the size and the characteristics of the undocumented population in Arizona by conducting a close analysis of the American Community Survey from the U.S. Census. This work uses a series of variables to identify immigrants in the survey who are likely to lack legal status—a method that has recently emerged in the academic literature on immigration.<sup>36</sup> (See the Methodology Appendix for more details.)

Using this technique, we estimate that Arizona is home to more than 284,000 undocumented immigrants. These individuals are far more likely than the native-born population—or even the broader foreign-born one—to be in the prime of their working years, or ranging in age from 25-64. They also contribute to a range of industries that could not thrive without a pool of workers willing to take on highly labor-intensive roles. In 2014, for instance, undocumented immigrants made up 18.5 percent of all employees in Arizona’s administrative, support, and waste management services industry, a sector that includes grounds maintenance workers, janitors and building cleaners, and security guards. They also made up more than one in four workers employed in the agriculture sector, as well as 8.3 percent of workers in the wholesale trade industry.

Large numbers of undocumented immigrants in Arizona have also managed to overcome licensing and financing obstacles to start small businesses. In 2014, an estimated 10.9 percent of the state’s working-age undocumented immigrants were self-employed—meaning Arizona was one of about two dozen states where unauthorized immigrants boasted higher rates of entrepreneurship than either legal permanent residents or immigrant citizens of the same age group. Almost 25,000 undocumented immigrants in Arizona were self-employed in 2014, many providing jobs and economic opportunities to others in their community. Undocumented entrepreneurs in the state also earned

an estimated \$464.2 million in business income that year.

## In 2014, we estimate that Arizona households led by undocumented immigrants earned almost **\$3.5B** in income.

The larger political debate around the economic cost or benefits of undocumented immigration tends to focus on the expense of educating immigrant children or the healthcare costs associated with increased use of emergency rooms and other services. These costs are real and can be substantial, but taken alone they paint an incomplete picture of the impact of undocumented immigration. This is because the debate infrequently recognizes that since most undocumented immigrants are working, they make large federal and state tax contributions and frequently are net contributors to many of our most important—and most imperiled—benefits programs. Social Security’s Chief Actuary, for example, has credited unauthorized immigrants with contributing \$100 billion more to Social Security than they drew down in benefits during the last decade.<sup>37</sup> Several in-depth studies at the state level have similarly come to the conclusion that undocumented immigrants represent a net benefit to the states in which they live. One paper, from researchers at Arizona State University, estimated that undocumented immigrants in that state pay \$2.4 billion in taxes each year—a figure far eclipsing the \$1.4 billion spent on the law enforcement, education, and healthcare resources they use.<sup>38</sup> Another study estimated that, on a per capita basis, Florida’s undocumented immigrants pay \$1,500 more in taxes than they draw down in public benefits each year.<sup>39</sup>

Although we are currently unable to calculate the amount spent on any public benefits or services used by undocumented immigrant families, we can gain a fairly clear sense of the amount they are paying in taxes each year. A variety of studies have estimated that anywhere from 50 to 80 percent of households led by undocumented immigrants file federal income taxes annually.<sup>40</sup> Federal government officials have also

In 2014,  
undocumented  
immigrants in  
Arizona earned  
**\$3.5B.**

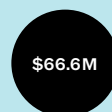
**\$162.2M** — went to state and local taxes ...

**\$226.6M** — went to federal taxes ...

Leaving them with **\$3.1B**  
in spending power.

#### ENTITLEMENT CONTRIBUTIONS

Undocumented immigrants also contribute to our country's entitlement programs. In 2014, through taxes on their individual wages, immigrants contributed **\$66.6M** to Medicare and **\$273.9M** to Social Security.



Medicare



Social Security

estimated that 75 percent of undocumented workers have taxes withheld from their paychecks.<sup>41</sup> In this paper, we make the assumption that 50 percent of the country’s undocumented households paid income taxes in 2014. Although many experts would call this share highly conservative, it has been modeled in several academic papers, and also by think tanks that specialize exclusively in the study of U.S. tax policy.<sup>42</sup>

In 2014, we estimate that Arizona households led by undocumented immigrants earned almost \$3.5 billion in income. Of that, they paid an estimated \$226.6 million in federal taxes. They also contributed more than \$273.9 million directly to the Social Security program through taxes on their individual wages. Arizona’s undocumented immigrants also made an important impact through their state and local tax contributions—money that many localities use to pay for police forces, public education, and city services like garbage collection and recycling. We estimate that Arizona’s undocumented immigrants paid almost \$162.2 million in state and local taxes in 2014.

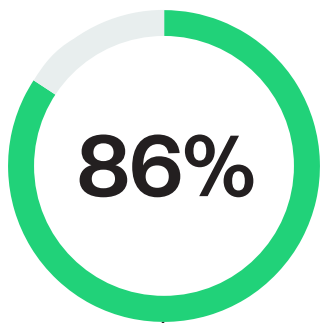
Giving legal status to undocumented immigrants would increase their access to a variety of public benefits—resulting in potentially higher costs for federal, state,

and local governments. But because legalization is expected to raise the earning power of undocumented immigrants and give them access to a wider array of jobs and educational opportunities, it would have the opposite effect as well, potentially allowing them to spend more as consumers and pay more in taxes each year.<sup>43</sup> Provisions within immigration reform requiring that undocumented immigrants pay any back taxes before normalizing their status would temporarily boost U.S. tax revenues still further.

But while the debate over legalization continues without resolution, the data suggests that the undocumented immigrants in Arizona have largely assimilated into the United States, making it less likely that mass deportation will ever be a realistic option. We estimate that 85.6 percent of the state’s undocumented population has been in the United States for five or more years. More than 54.6 percent speak English well, very well, or fluently. Studies show that when immigrants with limited English proficiency learn the language, they see a substantial wage benefit and become less isolated in their communities.<sup>44</sup> The labor market outcomes and educational levels of their children increase with time as well.<sup>45</sup>

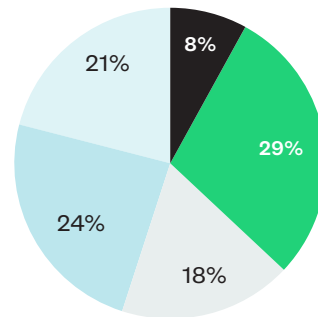
MEASURES OF ASSIMILATION AMONG ARIZONA'S UNDOCUMENTED POPULATION, 2014

Time in the United States



Share of undocumented immigrants who have been in the U.S. for five years or more.

English Proficiency (population ages 5+)



Speaks only English
  Speaks English well  
 Speaks English very well
  Does not speak English well  
 Does not speak any English

SPOTLIGHT ON

# Carla Chavarria

YCM Marketing, Founder

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In high school, Carla Chavarria never thought of herself as different from her classmates. She was a point guard on the basketball team and was an active member of the graphic design club. “I knew I was undocumented,” she says, “but I didn’t really know what it meant.”

It was only when she tried applying for college financial aid that she realized **the severe limitations of not having a Social Security number.**

Chavarria enrolled at a local community college, but without the documentation necessary to apply for scholarships, she couldn’t afford to take many classes. Without a Social Security number, she couldn’t get a job either. So she focused on art and activism, and got involved with the Arizona DREAM Act Coalition, a group of students that advocates for undocumented students who have college ambitions.

This advocacy work inspired her to start her own business, doing graphic design and digital marketing for advocacy groups. She started her business, YCM Marketing, in 2012, and by 2015, she had brought in two business partners. “We were referring clients to each other constantly,” Chavarria says, so joining up “just made sense.” Now, when things get busy, YCM Marketing employs up to eight people on a contract basis. Her staff is a mix of citizens and folks in limbo like herself. Just a couple of months ago, she opened a second company, Self Us Now, to focus on political work, so that YCM Marketing can go after bigger contracts with corporate clients who might be uncomfortable with her

advocacy. Self Us Now works with political campaigns and nonprofit advocacy groups, while YCM Marketing continues to help a variety of local businesses attract new customers, including law firms, real estate agents, and restaurants.

Chavarria applied for the Deferred Action for Childhood Arrivals (DACA) program in 2012, when it was first created, and is now safe from deportation as long as the program continues—and as long as she applies for a renewal of her status every 2 years. In the meantime, she is focusing on expanding her business and creating more jobs and opportunities for others in her state. She also hopes to go back to school to study business or design.

But though DACA has given her more stability, it still doesn’t allow her to apply for student loans to help finance her education. That’s something only citizenship would provide. Which is why Chavarria wants immigration reform to provide a clear path to citizenship for people in her position. Only full security would enable her to attain the level of education—and, through her business, make the tremendous economic contributions—that she’s capable of.

“As an entrepreneur, we’re always looking for the next thing,” she says. “Hopefully, in five or 10 years, I will be able to walk away from this business and have it be standing on its own.” But it’ll be hard for her to keep expanding her business in her current uncertain situation. For example, she has a client in Mexico who’d like her to make a site visit—but she’s nervous about traveling outside the country while she’s still technically undocumented. People like her, she says, need “a clear path” to citizenship to start planning fully for the future.

# Methodology

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The vast majority of data that appears in this brief was calculated by the Partnership for a New American Economy research team, using a variety of publicly available data sources. Our work relied most heavily on the 2014 American Community Survey (ACS) 1-year sample using the Integrated Public Use Microdata Series (IPUMS) database.<sup>1</sup> Unless otherwise noted this data is weighted using the person weight for analysis at the individual level, and is weighted using the household weight for analysis at the household level.

## Demographics

The data points on the foreign-born population in the demographics section are calculated using both the 2010 and 2014 ACS 1-year sample.

## Entrepreneurship

The data on self-employed immigrants and the business income generated by immigrant entrepreneurs come from the 2014 ACS 1-year sample. We define immigrants as foreign-born individuals (excluding those that are children of U.S. citizens or born on U.S. territories).

The number of employees at immigrant-owned firms is estimated by using the 2007 Survey of Business Owners (SBO) Public Use Microdata Sample (PUMS),<sup>2</sup> which is the most recent microdata on business owners currently available. The estimates are weighted using the tabulation weights provided in the dataset. We define immigrant-owned businesses as firms with at least one foreign-born owner. For confidentiality, the data exclude businesses classified as publicly owned firms because they can be easily identified in many states. Based on our own analysis, we believe that many of the publicly owned firms excluded from this data are companies with

500 employees or more. As a result, the final number of employees at immigrant-owned companies in this report is a conservative estimate, and is likely lower than the true value.

Fortune magazine ranks U.S. companies by revenue and publishes a list of top 500 companies and their annual revenue as well as their employment level each year. To produce our estimates, we use the 2015 Fortune 500 list.<sup>3</sup> Our estimates in this section build on past work done by PNAE examining each of the Fortune 500 firms in the country in 2011, and determining who founded them.<sup>4</sup> We then use publicly available data, including historical U.S. Census records and information obtained directly by the firms, to determine the background of each founder. In the rare cases where we could not determine a founder's background, we assumed that the individual was U.S.-born to be conservative in our estimates. Some firms created through the merger of a large number of smaller companies or public entities were also excluded from our analysis. These included all companies in the utilities sector and several in insurance.

To produce the Fortune 500 estimates for each state, we allocate firms to the states where their current headquarters are located. We then aggregate and report the annual revenue and employment of the firms in each state that we identify as "New American" Fortune 500 companies. These are firms with at least one founder who was an immigrant or the child of immigrants.

## Income and Tax Contributions

Using the 2014 ACS 1-year data, we estimate the aggregate household income, tax contributions, and spending power of foreign-born households.

To produce these estimates, a foreign-born household is defined as a household with a foreign-born household head. Immigrant sub-groups are defined as follows: 1) Asian immigrants refer to the foreign-born persons who self identify as Chinese, Taiwanese, Japanese, Filipino, Asian Indian, Korean, Native Hawaiian, Vietnamese, Bhutanese, Mongolian, Nepalese, Cambodian, Hmong, Laotian, Thai, Bangladeshi, Burmese, Indonesian, Malaysian, Pakistani, Sri Lankan, Samoan, Tongan, Guamanian/Chamorro, Fijian, or other Pacific Islanders; 2) Hispanic immigrants include those foreign-born persons who report their ethnicity as Hispanic; 3) Immigrants grouped under Sub-Saharan Africa originate from African countries, excluding the North African countries of Egypt, Libya, Tunisia, Algeria, and Morocco ; 4) Middle Eastern and North African immigrants are foreign-born persons from North Africa as well as the following Middle Eastern countries: Iran, Iraq, Bahrain, Israel, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi Arab, Syria, United Arab Emirates, and Yemen.

In this brief, mirroring past PNAE reports on this topic, we use the term “spending power.”<sup>5</sup> Here and elsewhere we define spending power as the disposable income leftover after subtracting federal, state, and local taxes from household income. We estimate state and local taxes using the tax rates estimates produced by Institute on Taxation and Economic Policy by state income quintiles.<sup>6</sup> For federal tax rate estimates, we use data released by the Congressional Budget Office in 2014 and calculate the federal tax based on the household income federal tax bracket.<sup>7</sup>

Social Security and Medicare contributions are drawn from taxes on an individual’s wage earnings.<sup>8</sup> This is far different from a household’s overall income, which may include other revenue streams such as rental income and returns on investments. To account for this difference between overall federal taxes and Social Security and Medicare contributions, we estimate Medicare and Social Security contributions based on wage and salary data provided at the individual level in the ACS. For self-employed individuals, we use the self-employment income as the income base. The amount of earnings that can be taxed by the Social Security

program is capped at \$117,000, while there no such limit for the Medicare program.<sup>9</sup> We use a flat tax rate of 12.4 percent to estimate Social Security contributions and 2.9 percent for to capture Medicare contributions. This estimates the total amount that immigrants and their employers contributed in 2014.<sup>10</sup>

It is also worth noting that half of the amount contributed to Social Security and Medicare (6.4 percent of Social Security tax rate and 1.45 percent of Medicare tax rate) comes from individual workers, while the other half comes directly from their employers. Self-employed workers have to pay the full tax themselves. When estimating Social Security and Medicare contributions, we include all individual wage earners in the households and aggregate the amount paid by state.

## Workforce

We use the 2014 ACS 1-year sample to estimate all data points in the workforce segment of the report. We define the working age population as those 25 to 64 years old. When estimating how much more foreign-born persons are likely to be employed than native-born persons, however, we calculate the percentage of native-born and foreign-born residents of all ages who were employed in 2014. The reason why we choose a more inclusive population for that estimate is because we want to make the point that the increased likelihood of being working aged that we see among immigrants leads to higher employment in the vast majority of states.

Because the employment status of people who are 16 years old or younger is not available in the ACS, we assume that these young people are not employed. The employed population also does not include those in the Armed Forces.

To estimate how much more likely immigrants are to be employed than natives, we calculate the percent difference between the immigrant and native-born employment rates. Our estimates on the share of immigrants and natives of different education levels only take into consideration individuals aged 25 or older.



The North American Industry Classification System, or NAICS Industry code, is used to estimate the industries with the largest share of foreign-born workers. All individuals 16 years old and above are included in these calculations. The total number of workers for certain industries in some states is extremely small, thus skewing results. In order to avoid this, we calculate the percentile distribution of the total number of workers per industry per state and drop the industries in each state that fall below the lowest 25th percentile. Estimated occupations with the largest share of foreign-born workers per state also follow the same restrictions—the universe is restricted to workers age 16 and above, and the occupations per state that fall under the 25th percentile benchmark are not included.

Our estimates on the number of manufacturing jobs created or preserved by immigrants rely on a 2013 report by the Partnership for a New American Economy and the Americas Society/Council of the Americas. That report used instrumental variable (IV) strategy in regression analysis and found that every 1,000 immigrants living in a county in 2010 created or preserved 46 manufacturing jobs there.<sup>11</sup> We use that multiplier and apply it to the 2010 population data from the ACS to produce our estimates.

## Agriculture

We access the agriculture GDP by state from Bureau of Economic Analysis, which includes GDP contributions from the agriculture, forestry, fishing, and hunting industry.<sup>12</sup> The share of foreign-born agricultural workers is estimated using 2014 ACS 1-year sample. Additional data on agriculture output, top three crops per state, and leading agricultural exports come from United State Department of Agriculture (USDA)'s state fact sheets.<sup>13</sup> When displayed, data on sales receipts generated by the top fresh produce items in each state come the Farm and Wealth Statistics cash receipts by commodity tables available from the USDA's Economic Research Service.<sup>14</sup>

The agriculture section uses the Quarterly Census of Employment and Wage (QCEW) to estimate the

percentage of crop farms producing fresh fruits and vegetables, and change in real wage of agricultural workers between 2002 and 2014. The QCEW data uses the North American Industry Classification System (NAICS) to assign establishments to different industries. We identify the following farms as fresh fruits and vegetable farms: other vegetable and melon farming, orange groves, citrus, apple orchards, grape vineyards, strawberry farming, berry farming, fruit and tree nut combination farming, other non-citrus fruit farming, mushroom production, other food crops grown under cover, and sugar beet farming.

The decline in the number of field and crop workers comes from the quarterly Farm Labor Survey (FLS) administered by USDA.<sup>15</sup> Stephen Bronars, an economist with Edgeworth Economics, previously analyzed and produced these estimates for the PNAE report, “A Vanishing Breed: How the Decline in U.S. Farm Laborers Over the Last Decade has Hurt the U.S. Economy and Slowed Production on American Farms” published in 2015. Additional information on those calculations can be found in the methodology section of that paper.<sup>16</sup>

Finally, for a small number of states, we also produce estimates showing how growers in the state are losing market share for specific produce items consumed each year by Americans, such as avocados or strawberries. Those estimates originate in a 2014 report produced by PNAE and the Agriculture Coalition for Immigration Reform.<sup>17</sup> The author used data from the USDA's annual “yearbook” for fresh fruits and vegetables, among other sources, to produce those estimates. More detail can be found in the methodology of that report.

## Science, Technology, Engineering, and Math

We use the STEM occupation list released by U.S. Census Bureau to determine the number and share of foreign-born STEM workers as well as the number of unemployed STEM workers from 2014 ACS 1-year data.<sup>18</sup> Per U.S. Census classification, healthcare workers such as physicians and dentists are not counted as working in

the STEM occupations. All unemployed workers who list their previous job as a STEM occupation are counted as unemployed STEM workers.

To capture the demand for STEM workers, we use the Labor Insight tool developed by Burning Glass Technologies, a leading labor market analytics firm. Burning Glass, which is used by policy researchers and academics, scours almost 40,000 online sources daily and compiles results on the number and types of jobs and skills being sought by U.S. employers. This search includes online job boards, individual employer sites, newspapers, and public agencies, among other sources. Burning Glass has an algorithm and artificial intelligence tool that identifies and eliminates duplicate listings—including ones posted to multiple job boards as part of a broad search.<sup>19</sup>

The data on STEM graduates are from the 2014 Integrated Postsecondary Education Data System (IPEDS) completion survey.<sup>20</sup> A study by the Partnership for a New American Economy and the American Enterprise Institute found that every time a state gains 100 foreign-born STEM workers with graduate-level STEM training from a U.S. school, 262 more jobs are created for U.S.-born workers there in the seven years that follow.<sup>21</sup> We use this multiplier and the number of STEM advanced level graduates on temporary visas to estimate the number of jobs created for U.S.-born workers.

The last part of the STEM section presents data on patents with at least one foreign-born inventor. The data is originally from a study by Partnership for a New American Economy in 2012, which relied on data from U.S. Patent and Trademark Office's database as well as LinkedIn, direct correspondence, and online profiles to determine the nativity of individual inventors.<sup>22</sup>

## Healthcare

We estimate the number of unemployed healthcare workers using the 2014 ACS 1-year sample. Healthcare workers are healthcare practitioners and technical occupations, or healthcare support occupations as defined by U.S. Census Bureau.<sup>23</sup>

Unemployed healthcare workers are individuals who report their previous job as a healthcare occupation, and their employment status as currently not working but looking for work. We took the number of job postings for healthcare workers from the Burning Glass Labor Insight tool, a database that scours online sources and identifies the number and types of job postings. We describe this resource in detail in the section on STEM methodology.

We then delve into specific occupations within the broader healthcare industry. To produce the figures on the total number of physicians and psychiatrists and the share born abroad, we use American Medical Association (AMA) Physician Masterfile data. To give a sense of the supply and demand of physicians and psychiatrists, we also calculate the physician and psychiatrist density in each state by dividing the total number of physicians or psychiatrists by the population estimates in 2015 for each state.<sup>24</sup> As for the share of foreign-born nurses and home health aides, we use the 2014 ACS 5-year sample data because data from the 1-year sample is too small to make reliable estimates.

We estimate the shortage of psychiatrists, dentists, and occupational therapists using data from the various U.S. government offices. For example, the shortage of psychiatrists refers to the current lack of psychiatrists per the U.S. government's official definition of a mental health shortage area (1/30,000 residents) in each county, aggregated within each state.<sup>25</sup> The shortage of dentists is from an analysis by U.S. Department of Health and Human Services,<sup>26</sup> and the shortage of occupational workers is from a journal article published by PM&R, the official scientific journal of the American Academy of Physical Medicine and Rehabilitation.<sup>27</sup> For psychiatrists, we project future shortages by accounting for individuals in these occupations as they reach the retirement age of 65.

## Housing

The data in the housing section comes from the 2014 ACS 1-year sample. Immigrant homeowners are defined as foreign-born householders who reported living in

their own home. We estimate the amount of housing wealth held by immigrant households by aggregating the total housing value of homes owned by immigrant-led households. We also estimate the amount of rent paid by immigrant-led households by aggregating the rent paid by such families. We then calculate the share of housing wealth and rent that immigrant households held or paid compared to the total population. For characteristics of homeowners, a foreign-born new homebuyer is defined as a household with a foreign-born household head who owned and moved to the current residence within the last five years.

## Visa Demand

The data on visa demand are drawn primarily from the 2014 Annual Report produced by the Office of Foreign Labor Certification within the U.S. Department of Labor.<sup>28</sup> Our figures on the number of visa requests authorized for each state—as well as the occupations and cities those visas are tied to—originate directly from that report.

In this section, we also present estimates on the number of jobs that would have been created if all the visas authorized in 2014 had resulted in actual visa awards. The multipliers we use to produce these estimates originate in a 2011 report released by PNAE and the American Enterprise Institute. That report, written by the economist Madeline Zavodny, used a reduced-form model to examine the relationship between the share of each state’s population that was immigrant and the employment rate of U.S. natives. More detail on Zavodny’s calculations and the multipliers produced for each visa type can be found in the methodology appendix of that report.<sup>29</sup>

For purposes of these briefs, we use Zavodny’s finding that the award of 100 additional H-1B visas in a state is tied to 183 additional jobs for natives there in the 7 years that follow. The award of 100 additional H-2B visas creates 464 additional jobs for natives in the state during that same time period. We apply these multipliers to the number of visas in those categories authorized for each state in 2014.

In many of the state reports, we also present figures showing how visa denials resulting from the 2007 and 2008 H-1B lotteries cost the tech sectors of metropolitan areas both employment and wage growth in the two years that followed. The economists Giovanni Peri, Kevin Shih, and Chad Sparber produced these estimates for a PNAE report on the H-1B visa system that was released in 2014. That report relied on Labor Condition Application and I-129 data that the authors obtained through a Freedom of Information Act request, as well as American Community Survey data from 2006 and 2011. The authors did regressions that examined the causal relationship between a “shock” in the supply of H-1B computer workers and computer employment in subsequent years for more than 200 metropolitan areas. More information on those estimates can be found in the methodology appendix of that report.<sup>30</sup>

## Naturalization

Using the ACS 2014 1-year sample, non-citizens eligible to naturalize are defined as non-citizens who are 18 years or above, can speak English, and have continuous residence in the United States for at least five years.

Researchers at the University of Southern California’s Center for the Study of Immigrant Integration published a report in 2012, “Citizen Gain: The Economic Benefits of Naturalization for Immigrants and the Economy,” which concluded that immigrants experience an 8 to 11 percent gain in their individual wages as a result of becoming naturalized. Because this earnings gain phases in over time—and we want to be conservative in our estimates—we model a wage increase of just 8 percent when discussing the possible gains that could accrue due to naturalization.<sup>31</sup> We use this multiplier and the mean individual wages of non-citizens in each state to estimate the additional earnings that non-citizens would earn if they naturalized. Finally, we calculate the aggregate wage earnings boost by multiplying the total number of non-citizens who are eligible for naturalization by the average increase in wage income per person.

## International Students

We obtain the size and share of postsecondary students who are international in each state from the 2014 Integrated Postsecondary Education Data System (IPEDS) fall enrollment data. Those figures are then applied to preexisting work previously done by NAFSA, an organization representing professionals employed in the international offices of colleges and universities across the United States. NAFSA has developed an economic value tool and methodology that estimates the total economic benefit and jobs created or supported by international students and their dependents in each state.<sup>32</sup> The economic contributions include the costs of higher education along with living expenses minus U.S.-based financial support that international students receive.

Because the enrollment data from IPEDS that we use in this brief is different from the underlying data used by NAFSA, our figures differ slightly from the NAFSA estimates of the economic contributions made by international students in the 2014-2015 school year.

## Voting

The estimates for the number of registered and active voters who are foreign-born are calculated from the Voter Supplement in the Current Population Survey (CPS) for the years 2008, 2010, 2012, and 2014 using the IPUMS database. The sample in CPS includes civilian non-institutional persons only. Foreign-born individuals who stated having voted between 2008 and 2014 are termed active voters.

Using data from the 2014 ACS 1-year sample, we estimate the number and share of foreign-born eligible voters. We define them as naturalized citizens aged 18 or older who live in housing units. Persons living in institutional group quarters such as correctional facilities or non-institutional group quarters such as residential treatment facilities for adults are excluded from the estimation. We also estimate the number of new foreign-born voters who will become eligible to vote in 2016 and 2020, either by turning 18 or through

naturalization, as well as the total number of foreign-born voters in these years. The estimates of newly eligible voters for 2016 include naturalized citizens ages 16 and 17 as of 2014 (thereby becoming of voting age by 2016). Those eligible to vote in 2020 include all naturalized citizens ages 12-17 in 2014. Applicable mortality rates are also applied.<sup>33</sup> In addition, we estimate newly naturalized citizens using data from the Department of Homeland Security, which show the two-year average of new naturalized citizens by state.<sup>34</sup> We discount from these numbers the percentage of children below 18 in households with a naturalized householder by state. Estimates of total foreign-born voters include naturalized citizens aged 18 or older in 2014, discounted by average U.S. mortality rates by age brackets, summed to the pool of newly eligible foreign-born voters.

Margin of victory in 2012 refers to President Barack Obama's margin of victory over Republican candidate Mitt Romney in terms of popular vote. The margins are negative in states that Romney won in 2012.<sup>35</sup>

## Undocumented

Using data from the 2014 ACS, we applied the methodological approach outlined by Harvard University economist George Borjas<sup>36</sup> to arrive at an estimate of the undocumented immigrant population in the overall United States and individual states. The foreign-born population is adjusted for misreporting in two ways. Foreign-born individuals who reported naturalization are reclassified as non-naturalized if the individual had resided in the United States for less than six years (as of 2014) or, if married to a U.S. citizen, for less than three years. We use the following criteria to code foreign-born individuals as legal U.S. residents:

- Arrived in the U.S. before 1980
- Citizens and children less than 18 year old reporting that at least one parent is native-born
- Recipients of Social Security benefits, SSI, Medicaid, Medicare, Military insurance, or public assistance

- Households with at least one citizen that received SNAP
- People in the armed forces and veterans
- People attending college and graduate school
- Refugees
- Working in occupations requiring a license
- Government employees, and people working in the public administration sector
- Any of the above conditions applies to the householder's spouse

The remainder of the foreign-born population that do not meet this criteria is reclassified as undocumented. Estimates regarding the economic contribution of undocumented immigrants and the role they play in various industries, and tax contributions are made using the same methods used to capture this information for the broader immigrant population in the broader brief. When estimating the aggregate household income, spending power, and tax contributions, we are not able to make reliable estimates for undocumented-led households in Alaska, Maine, Montana, North Dakota, South Dakota, Vermont, and West Virginia due to the small sample size of undocumented-led households in ACS. Finally, the variables giving a sense of the undocumented population's level of assimilation—including their English proficiency and time in the United States—are estimated by examining the traits of the undocumented population in the 1-year sample of the ACS.

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- These positive benefits have been documented despite well-known problems regarding the H-1B visa system. The safeguards to protect American workers have not been updated since 1998, opening the door to increased use of the visa by a small number of outsourcing firms. This has left many U.S. companies with no reliable avenue to bring in the top talent they need to grow. PNAE has long advocated for legislation that would reform the H-1B program, including the recently introduced Protect and Grow American Jobs Act. Read more here: <http://www.renewoureconomy.org/uncategorized/press-release-statement-of-partnership-for-a-new-american-economy-on-the-protect-and-grow-america-jobs-act/>.
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ABOUT

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