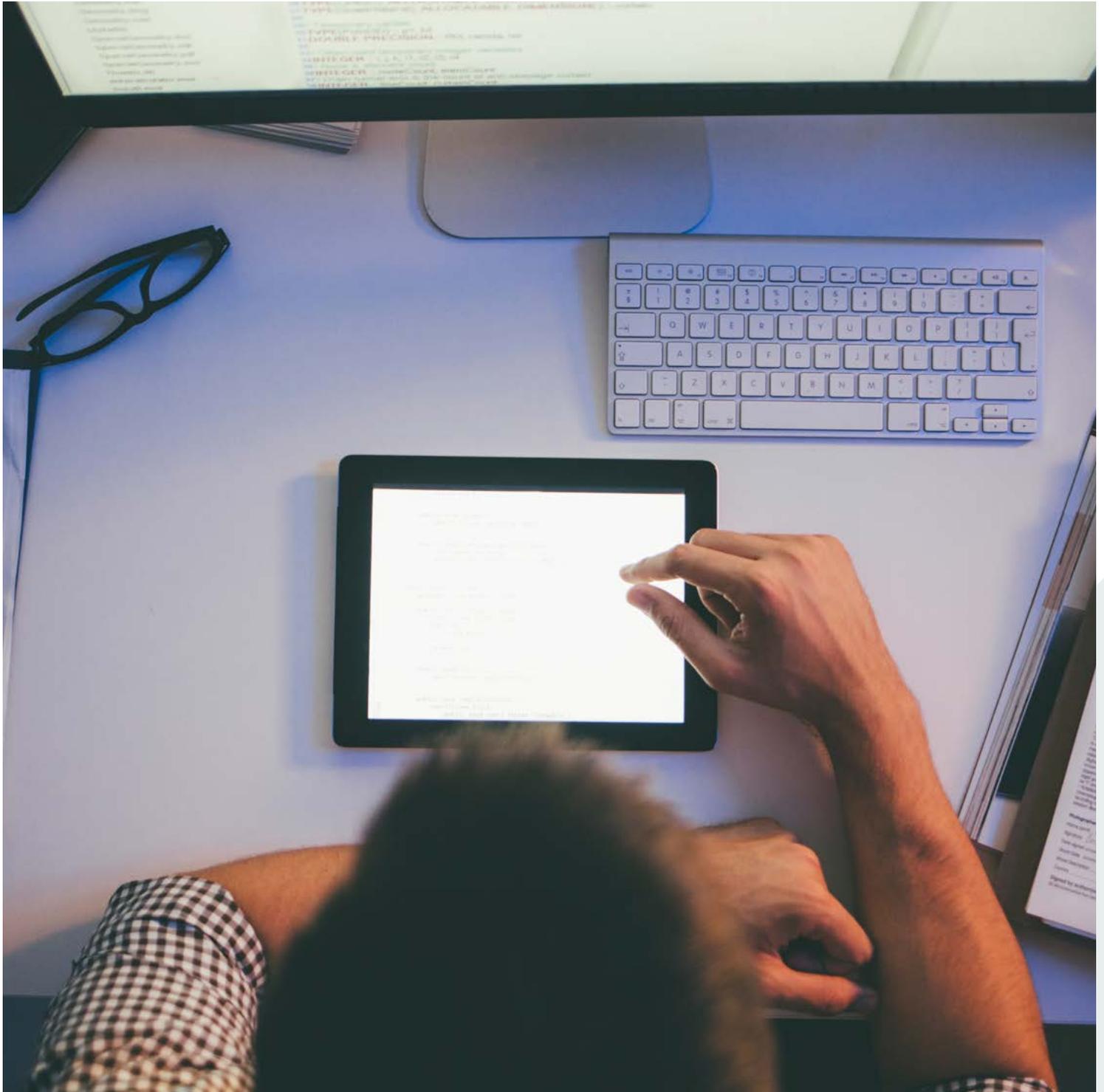


# The Contributions of New Americans in Michigan



# Partners



# The Contributions of New Americans in Michigan

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# Demographics

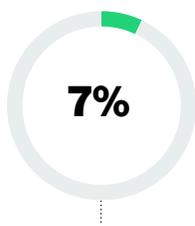
Over the last several decades, Michigan has become increasingly attractive to immigrants—a development that has had a positive impact on the economy of this Midwestern state. Rust Belt cities like Detroit were particularly hard-hit during the Great Recession, suffering both economic downturns and population loss, but recent influxes of immigrants have helped to mitigate some of these negative effects, providing businesses with the customers they need and governments with a healthy tax base. In 1990, Michigan’s immigrant community represented only 3.8 percent of the state’s total population. By 2010, that share had risen to 5.8 percent. And between 2010 and 2014, Michigan’s foreign-born population grew by an additional 60,000 people.

That has made Michigan, in many ways, a state that stands out from others in its attraction to immigrants. Between 2010 and 2014, Michigan’s foreign-born population grew by 10.2 percent—almost twice as fast as the number of immigrant residents increased in the country as a whole. Today, the Great Lakes state is home to more than 640,000 individuals who were born in another country. Such immigrants serve as everything from college professors to mechanical engineers, making them critical contributors to Michigan’s economic success overall.

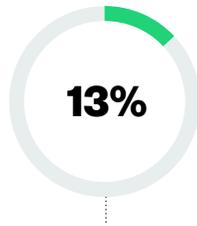
Michigan, in many ways, stands out from other states for its ability to attract immigrants.

## 641,874

Michigan residents were born abroad.



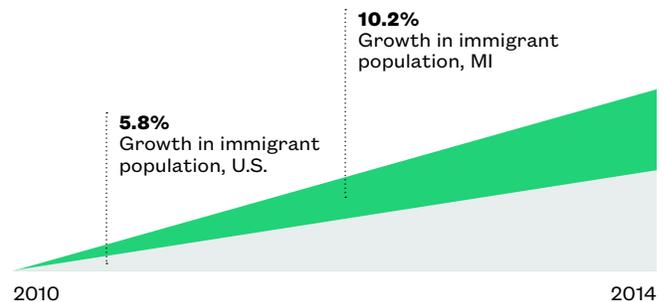
Share of Michigan residents born abroad



Share of U.S. residents born abroad

## 59,327

people immigrated to Michigan between 2010 and 2014.

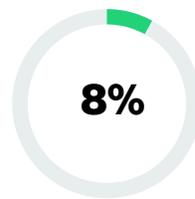


# The Role of Immigrants as Entrepreneurs

## 30,686

immigrants in Michigan are self-employed

Immigrant-owned businesses generated **\$608.4M** in business income in 2014.



Share of entrepreneurs in Michigan who are immigrants

**152,780** people in Michigan are employed at firms owned by immigrants.

\* This is a conservative estimate that excludes large, publicly owned firms.

**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.

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

In Michigan, like the country as a whole, immigrants are currently punching above their weight class as entrepreneurs. Foreign-born workers currently make up 8.3 percent of all entrepreneurs in the state, despite accounting for 6.5 percent of Michigan's population.

Their firms generated \$608.4 million in business income in 2014. Michigan firms with at least one immigrant owner also provided jobs to roughly 153,000 Americans in 2007.<sup>6</sup>

Immigrant entrepreneurs have long been a critical part of Michigan's economic success story. Masco, the Fortune 500 appliance manufacturer based in Detroit, was founded by Alexander Manoogian, an Armenian immigrant. Manoogian opened up an auto parts business that expanded into the home appliance sector with the invention of a faucet that could be turned on and off with one hand. Serving as Lifetime President of the Armenian General Benevolent Union, he maintained strong ties to his immigrant roots.<sup>7</sup> Five other Fortune 500 firms based in the state—including Ford and staffing firm Kelly Services—had at least one founder who either immigrated to the United States or was the child of immigrants. Together, those six companies employ 400,000 people globally and bring in around \$186 billion in revenues each year.

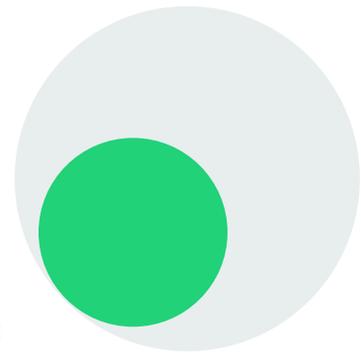
**Six of the Fortune 500 firms based in Michigan—including Ford, Manoogian, and staffing firm Kelly Services—had at least one founder who either immigrated to the United States or was the child of immigrants.**

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 Busgang 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>

**33%**



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

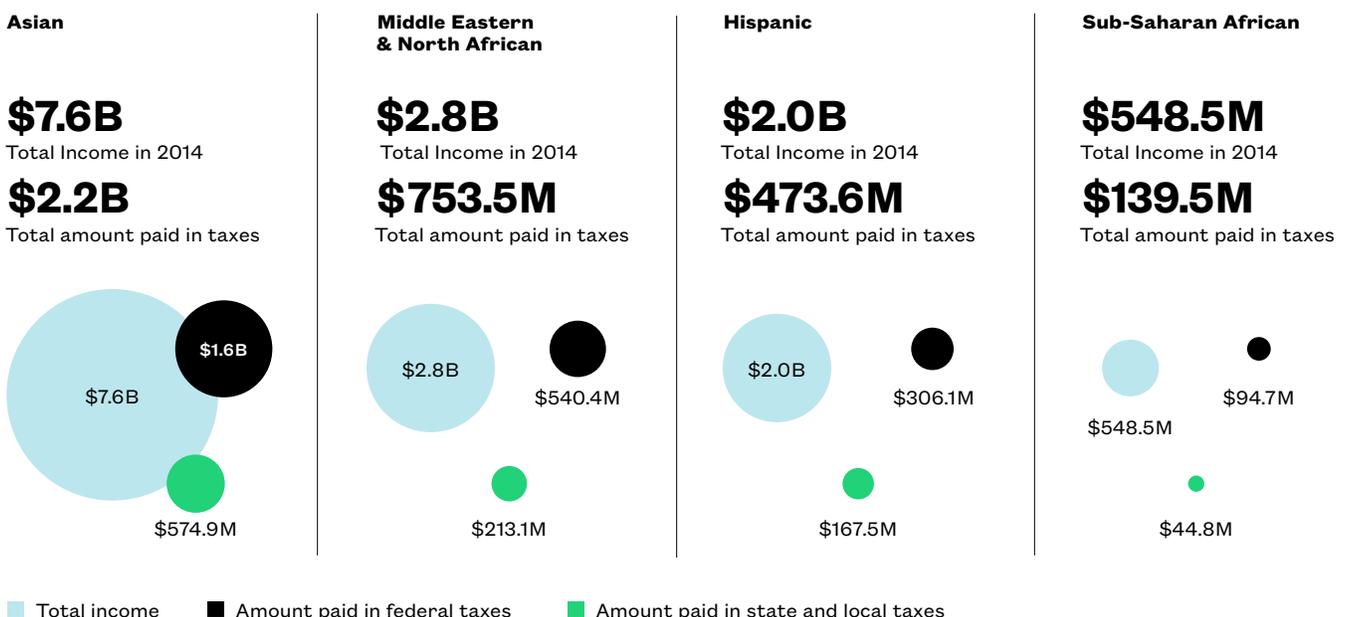
**Those firms generate \$186.4B in annual revenue, and employ 400,000 people globally.**

# Income and Tax Contributions

Immigrants in Michigan play an important role contributing to the state as both taxpayers and consumers. In 2014, immigrant-led households in Michigan earned \$19.6 billion dollars—or 7.7 percent of all income earned by Michiganers that year. With those earnings, the state’s foreign-born households were able to contribute more than one in every 14 dollars paid by Michigan 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 \$2.4 million 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 Michigan immigrants held \$14.2 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. Some specific ethnic groups within the immigrant community had particular power as consumers, such as Middle Eastern and North African immigrants.

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



In 2014, immigrants in Michigan earned **\$19.6B.**



**\$1.5B** — Went to state and local taxes...

**\$3.8B** — Went to federal taxes...

Leaving them with **\$14.2B** in remaining spending power.

#### ENTITLEMENT CONTRIBUTIONS

Michigan's immigrants also contribute to our country's entitlement programs. In 2014, through taxes on their individual wages, immigrants contributed **\$507.5M** to Medicare and **\$1.9B** to Social Security.



\$507.5M

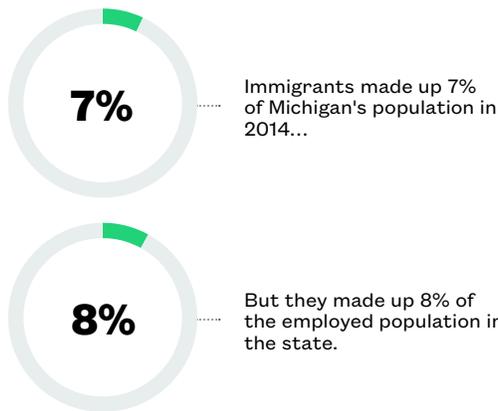
Medicare



\$1.9B

Social Security

# The Role of Immigrants in the Broader Workforce



Because they tended to be working-age,

Immigrants were **18.6%** more likely to work than native-born Michiganders.



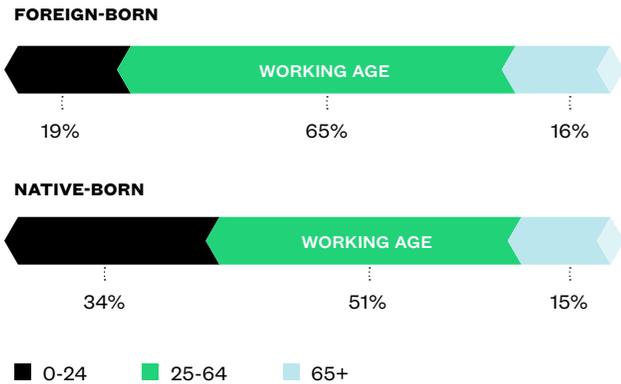
**P**eople who come to the United States often come here to work. Because of that, they often have skills that make them a good fit for our labor force—and a strong complement to American workers already here. In the country as a whole, immigrants are much more likely to be working-age than the U.S.-born. 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.

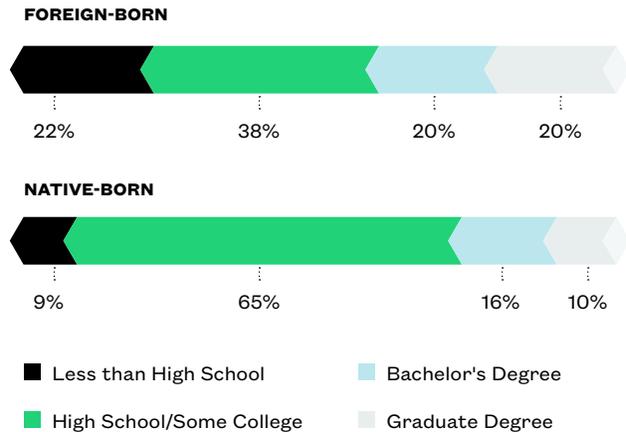
**In Michigan, over 65% of the foreign-born population is working aged, compared to less than 52% of the native-born population.**

Both these dynamics are strong in the state of Michigan. When it comes to educational attainment, immigrants in the state are almost twice as likely to hold a graduate degree than natives. They are also almost 2.4 times more likely to be educated at less than a high-school level. The

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



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



foreign-born population is also more likely to be working age, which we define in this brief as ranging in age from 25 to 64. In Michigan, 65.1 percent of the foreign-born population falls into that age band, while only 51.2 percent of the native-born population does. That 13.9-percentage point gap has major implications for the state’s workforce. In 2014, Michigan’s immigrants were 18.6 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 share of the native-born population had already reached retirement age. Foreign-born individuals punched above their weight class as workers as well: In 2014, they made up 7.6 percent of all employed individuals in the state, despite accounting for 6.5 percent of Michigan’s overall population.

The immigrants who are working in Michigan 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 roughly one in six employees at the state’s groceries and wholesale food industry. They also account for 25.3 percent of the state’s workers in computer systems design, contributing to the state’s technology industry, which has grown by 27 percent since 2009.<sup>10</sup> Having adequate tech talent is critical to policymakers in this state, who have made it

a priority to attract more technology companies—and the ample jobs and economic opportunities they bring—to parts of Michigan that have faced real economic challenges in recent decades.<sup>11</sup> In many ways their efforts are working: By 2014, almost one in 10 residents of Detroit held tech-related jobs.<sup>12</sup>

**The more than 580,000 immigrants who were living in Michigan in 2010 were responsible for creating or preserving almost 27,000 manufacturing jobs.**

In recent decades, immigrants have also played an important role in Michigan’s manufacturing industry, including the advanced manufacturing fields that state leaders frequently focus on strengthening now. 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>13</sup> The more than 580,000 immigrants who were living in the state in 2010 were responsible for creating or preserving almost 27,000 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.

Immigrants in Michigan, like the country as a whole, are often overrepresented in either high-skilled or particularly labor-intensive positions. While foreign-born workers make up 7.6 percent of the state’s employed population, they account for 26.9 percent of the class of agricultural workers that includes those picking crops in the fields by hand. They also make up 21.7 percent of those working as mechanical engineers, and 27.9 percent of software developers for applications and systems software.

**INDUSTRIES WITH LARGEST SHARE OF FOREIGN-BORN WORKERS, 2014**

■ Share of workers who are immigrants



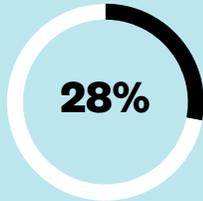
OCCUPATIONS WITH LARGEST SHARE OF FOREIGN-BORN WORKERS, 2014

**1**  
**Physicians and Surgeons**



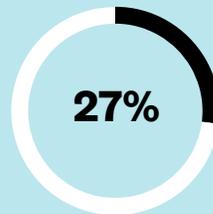
**9,150 immigrant workers**  
30,329 total workers

**2**  
**Software Developers**



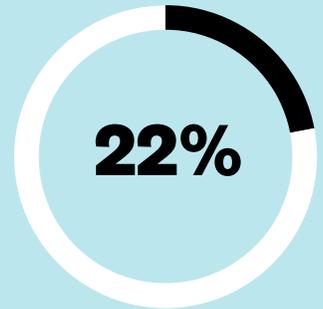
**7,474 immigrant workers**  
26,782 total workers

**3**  
**Misc. Agriculture Workers**



**7,762 immigrant workers**  
28,844 total workers

**4**  
**Postsecondary Teachers**



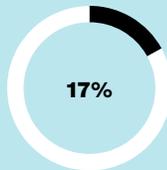
**13,580 immigrant workers**  
61,034 total workers

**5**  
**Mechanical Engineers**



**10,502 immigrant workers**  
48,336 total workers

**6**  
**Computer Systems Analysts**



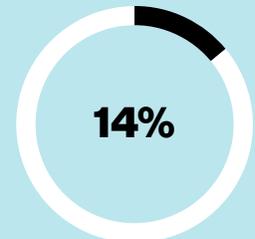
**3,152 immigrant workers**  
18,621 total workers

**7**  
**Packers and Packagers**



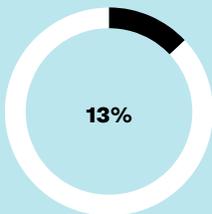
**3,407 immigrant workers**  
20,263 total workers

**8**  
**Food Service Managers**



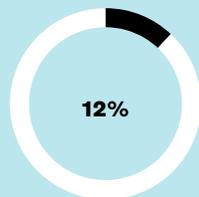
**5,310 immigrant workers**  
37,319 total workers

**9**  
**Other Teachers and Instructors**



**3,884 immigrant workers**  
30,036 total workers

**10**  
**Marketing and Sales Managers**



**2,990 immigrant workers**  
24,615 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>14</sup> Immigrants are already playing a huge part ensuring that Michigan remains a leading innovator in STEM fields like mechanical and industrial engineering. Despite making up 6.5 percent of the state’s population, foreign-born Michiganders made up 15.3 percent 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, 10.2 STEM jobs were advertised online in Michigan for every one unemployed STEM worker in the state.

Despite making up **6.5%** of Michigan's population, immigrants represented **15.3%** of all STEM workers in the state in 2014.

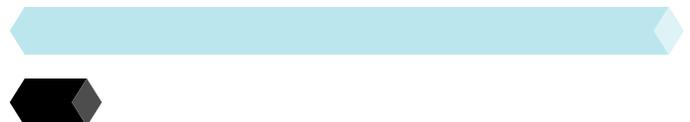
Immigrants, however, are not just a crucial piece of Michigan’s STEM workforce now—they are also likely to power it in the future. In 2014 students on temporary visas made up roughly one out of every 3 students earning a STEM Master’s degree at Michigan’s universities, and 39 percent of students earning 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 Michigan. 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

# 92,648

available STEM jobs were advertised online in 2014, compared to **9,077** unemployed STEM workers.

The resulting ratio of open jobs to available workers was

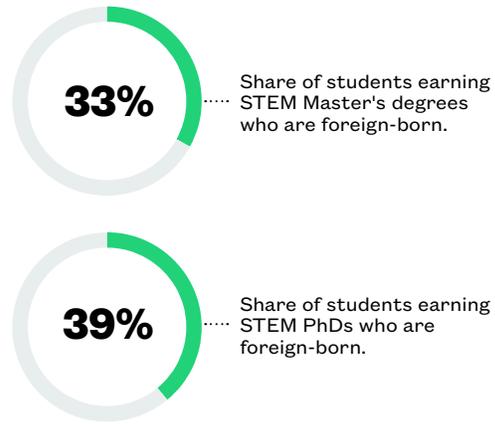
# 10.2 to 1



If half of Michigan's **2,470** advanced level STEM grads on temporary visas stayed in the state after graduation...

**3,236**

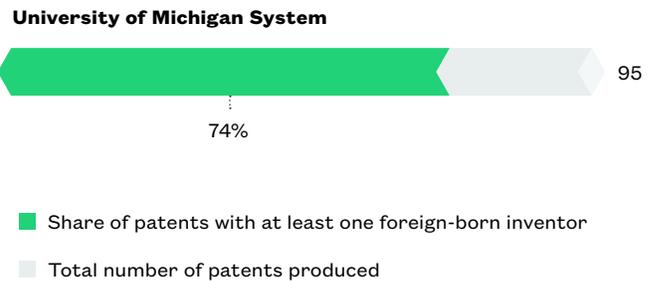
jobs for U.S.-born workers would be created by 2021.



from a U.S. school, 262 more jobs are created for U.S.-born workers there in the seven years that follow.<sup>15</sup> For Michigan, that means that retaining even half of the 2,470 graduates earning advanced-level STEM degrees in 2014 could result in the creation of more than 3,200 new positions for U.S.-born workers by 2021.

Michigan's immigrants also contribute to the state's economic growth and competitiveness by earning patents on cutting-edge research and products. In 2011, the University of Michigan system earned 95 patents, placing it among the top 10 most productive in the country. More than 73 percent of those patents had at least one foreign-born inventor.<sup>16</sup> Such patents are licensed to existing companies or used as foundations for new companies, creating American jobs and revenue along the way.

UNIVERSITY PATENTS WITH FOREIGN-BORN INVENTORS, 2011



SPOTLIGHT ON

# Shri Thanedar

Chairman and Founder, Avomeen Analytical Services

---

In 2014, a desperate food manufacturer called up Dr. Shri Thanedar. Their hash browns smelled like bleach: Could Thanedar’s chemical solutions company help? The hash brown maker sold no other products, explains Thanedar, so “if they didn’t solve this problem, their company would be history.” Thanedar’s business, Avomeen Analytical Services, which is based in Ann Arbor, hopped on the case. Their scientists analyzed the client’s entire manufacturing process, identified the culprit (a new supplier of a particular chemical), and helped the company stay in business.

Thanedar loves how his company helps businesses find innovative solutions to troubling economic problems. Since launching in 2010, Avomeen has created vegan milk, nutritional drinks for undernourished people in Africa, 3D ink, and even weatherized dog paw protectors made of organic wax. But Avomeen relies on highly educated scientists with doctorates and master’s degrees, and these are in short supply. In fact, we have found that there were more than 10 STEM jobs posted online in Michigan in 2014 for every one unemployed STEM worker. Thanedar is frequently unable to find people who are both qualified and able to work legally in the United States. “For someone like me who needs a lot of high-caliber scientists, it is very important that I am able to hire the immigrants or the foreign nationals who are graduating from American universities,” he says. After all, we have determined that 39 percent of those who got PhDs in STEM fields from Michigan schools in 2014 were immigrants, yet there is no easy route for those individuals to stay in the United States as workers.

In many ways, Thanedar embodies the kind of person he would like to hire—someone who is scrappy and enterprising. Thanedar grew up in India’s lower-middle class, and in 1979 he moved to the United States in

search of economic opportunity. He faced his own challenges navigating America’s immigration system before eventually attaining citizenship.

**“For someone like me who needs a lot of high-caliber scientists, it is very important that I am able to hire the immigrants or the foreign nationals who are graduating from American universities,” Thanedar says.**

Thanedar maneuvered through multiple jobs and advanced degrees until he realized that, in order to achieve the level of success he desired, he would need to strike out on his own. In 1990, he purchased a lab that had \$150,000 in revenue that year. He grew the business substantially: In 2000 revenue hit \$4 million; in 2003 it climbed to \$8 million; and by 2008 it had reached \$65 million. That business was sold during the 2008 recession. Today his current company, Avomeen, employs 50 people, half of whom are American. If he could continue to expand, he would.

Thanedar supports immigration policies that would expand routes for foreign-born people to work here legally. This “helps us retain incredibly bright, brilliant people in this country,” he says and adds that, if given the chance, many of these workers would follow in his footsteps: building their own businesses, fueling the economy, and creating jobs. “Legal immigration helps this country succeed and innovate cutting-edge technology,” says Thanedar. “I’ve personally seen this in my own story.”

# 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>17</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>18</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>19</sup>

In Michigan, 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. While the state has a healthy supply of practicing physicians, shortages impact a wide range of other healthcare fields. In 2014, 4.7 healthcare jobs were listed online in Michigan for every one unemployed healthcare worker in the state. Other occupations, such

## MICHIGAN HAS A SHORTAGE OF HEALTHCARE WORKERS

# 69,504

available healthcare jobs were advertised online in 2014, compared to **14,853** unemployed healthcare workers.

The resulting ratio of open jobs to available workers was

# 4.7 to 1



Additional number of psychiatrists needed now: **455**



Shortage of occupational therapists by 2030: **553**



Shortage of dentists projected by 2025: **605**



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

Foreign-Educated

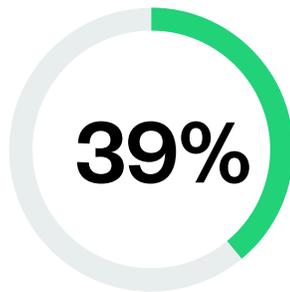
**Doctors**

9,287 graduates of foreign medical schools



**Psychiatrists**

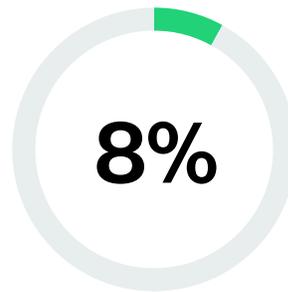
487 graduates of foreign medical schools



Foreign-Born

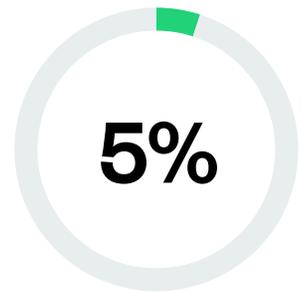
**Nurses**

8,808 foreign-born workers



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

4,754 foreign-born workers



as psychiatrists, that are already stretched thin are projected to need hundreds of new workers by 2030, as are several health occupations that cater largely to seniors.

Immigrants are already playing a valuable role helping Michigan meet some of its healthcare workforce gaps. In 2016 almost one in three physicians in Michigan graduated from a foreign medical school, a likely sign they were born elsewhere. Only 7 other states have a

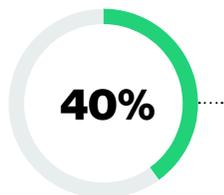
higher share of foreign-educated physicians. Immigrant healthcare practitioners also made up 8.0 percent of the state’s nurses in 2014, as well as 4.5 percent of those working as nursing, psychiatric, or home health aides.

**Only seven other states** have a higher share of foreign-educated physicians than Michigan.

# Agriculture

## 45%

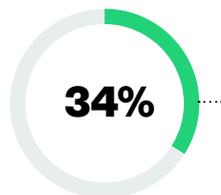
of farms in Michigan produced fresh fruits and vegetables in 2014.



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.)

## \$4.2B

Amount agriculture contributes to Michigan's GDP annually.



Share of hired farmworkers in the state who are immigrants.

One sector of the economy of particular importance to Michigan is agriculture. In 2014, the agriculture industry contributed more than \$4.2 billion to Michigan's gross domestic product (GDP)—placing the state within the top 20 in the country in terms of the size of that contribution. Within Michigan's agriculture industry, fresh fruits and vegetables play a prominent role. In 2014, 45.1 percent of farms in Michigan grew fresh produce, a figure far higher than the 31.4 percent of farms doing so nationally. In 2014, Michigan produced the most blueberries of any state in the country. Two crops grown in the state, apples and sugar beets, each had sales topping \$200 million that year.

Michigan'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 2008-2012,

foreign-born workers made up 72.9 percent of field and crop laborers in the country as a whole. In Michigan, that reality means that even though the state produces a large amount grains, oilseeds, and other commodity crops, immigrants still play a large role in the agriculture workforce. In 2014, more than one in three hired farmworkers in the state was born abroad.

Michigan also is among the top 10 states in country in terms of the amount of milk it produces each year.<sup>20</sup> In recent years, the dairy industry has also become increasingly reliant on immigrant laborers. One 2015 study found that 51 percent of the laborers on U.S. dairy farms were immigrants. What's more, roughly 70 percent of the dairies that hired immigrant workers reported having “low” or “medium” levels of confidence in the authenticity of their workers' documents—indicating that such establishments are vulnerable to immigration raids or uncertainty surrounding their ability to find sufficient workers in the future.<sup>21</sup> In Michigan, more than one in 10 workers in the animal

# \$1B

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

Michigan's leading agricultural exports include other plant products (including sweeteners, planting seeds, and processed foods), soybeans, and dairy products.

TOP FOUR FRESH PRODUCE ITEMS PRODUCED IN THE STATE, AS MEASURED BY FARM RECEIPTS



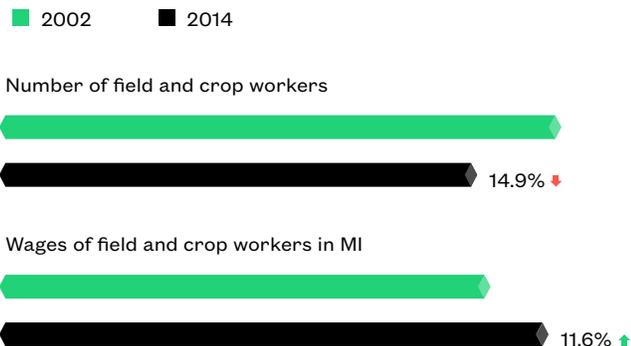
production industry, the sector that includes dairy, were foreign-born in 2014.

The current visa system for agriculture presents many problems for states like Michigan. The H-2A visa program, which is designed to bring in temporary farm laborers, is too expensive and burdensome for many U.S. farms—and it excludes dairy establishments altogether.<sup>22</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 Michigan 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 picture that is increasingly untenable. Between 2002 and 2014, the number of field and crop workers in Michigan, Wisconsin, and Minnesota decreased by 14.9 percent.<sup>23</sup> Wage trends indicate that caused a major labor shortage on Michigan farms: Real wages for field and crop workers jumped by 11.6 percent during the period.

The shortage of qualified field and crop workers has made it difficult for many farmers in Michigan 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

THE SUPPLY OF FIELD AND CROP WORKERS IN MI, WI AND MN IS DECREASING, LEADING TO LABOR SHORTAGES



# 4,434 ↓

Decline in the number of field and crop workers in Michigan, Wisconsin, and Minnesota from 2002-2014

When farms lack enough field and crop workers, they often are unable to complete their harvest, leading to crop loss in the fields. Wages go up as well, as growers struggle to compete for the small pool of workers remaining.

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>24</sup> Such moves, in Michigan and elsewhere, cost the U.S. economy. If labor shortages had not been an issue, the country would have been home to an estimated 24,000 additional 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.

If labor shortages had not been an issue, the country would have been home to an estimated **24,000 additional jobs** by 2012, including 17,000 in fields outside agriculture like transportation and irrigation.

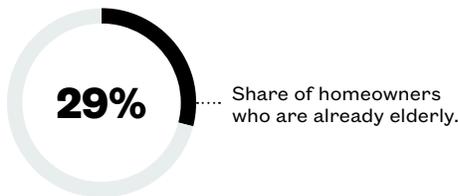
# Housing

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>25</sup>

In Michigan, immigrants are actively strengthening the state's housing market. The roughly 160,000 foreign-

born homeowners in the state held almost \$35 billion in housing wealth in 2014. Immigrant-led households also generated 9.7 percent of the state's rental income, even though they led only 6.8 percent of households in the state. Because Michigan'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 29.3 percent of homes, immigrant families made up 7.7 percent of new homebuyers from 2010 to 2014— a larger than expected portion given their share of the population.

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



## 160,389

Number of immigrant homeowners in 2014

## \$34.6B

Amount of housing wealth held by immigrant households



## \$88.9M

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:

**24,469**

**Top jobs:**

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

## GREEN CARD

Number of positions:

**2,120**

**Top jobs:**

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

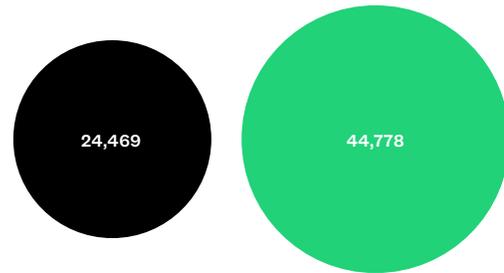
## CERTIFIED POSITIONS BY VISA TYPE, 2014



\* This includes only employment-based green cards

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

**24,469 LCAs** for H-1B workers could have created **44,778 jobs**.



■ Approved LCAs  
■ Potential jobs created by 2020

## H-2A

Number of positions:

**1,317**

**Top crops or jobs:**

- Apples
- Corn
- Trees

## H-2B

Number of positions:

**2,175**

**Top jobs:**

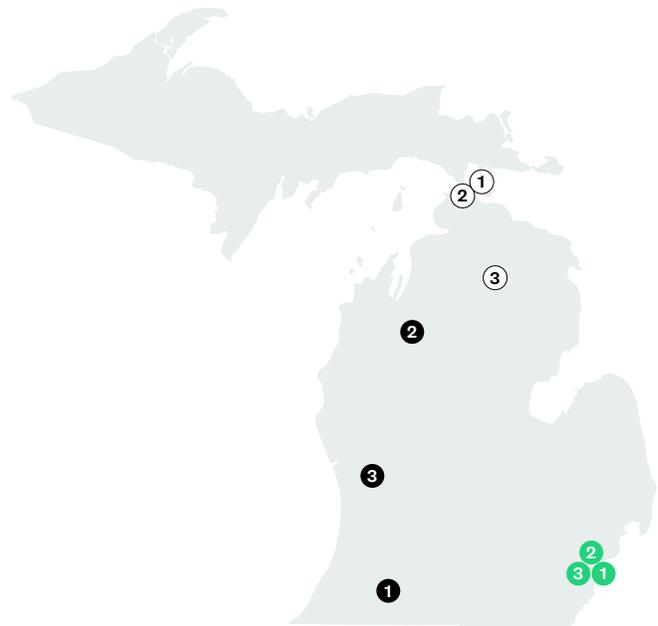
- Cleaners
- Groundskeeping Workers
- Food Preparation Workers

In fiscal year 2014, Michigan employers received DOL certification for over 30,000 positions, including jobs across a wide variety of occupations and geographies within the state. They included more than 24,000 positions for potential workers on H-1B visas, as well as roughly 1,300 for H-2A workers. Federal officials also issued more than 2,200 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 Michigan 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>26</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>27</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>28</sup> Other academics have tied each H-1B

CITIES ARE DEMANDING VISAS ALL OVER THE STATE



H-1B

Top cities:

- ① Detroit
- ② Troy
- ③ Farmington Hills

H-2A

Top cities:

- ① Three Rivers
- ② Manton
- ③ Grand Rapids

H-2B

Top cities:

- ① Mackinac Island
- ② Mackinac City
- ③ Lewiston

visa award or labor request with the creation of four<sup>29</sup> or five<sup>30</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>31</sup> On the previous page, we show the number of jobs that would have been created for U.S.-born workers in Michigan 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 the Detroit and Ann Arbor metropolitan areas in 2007 and 2008 cost U.S.-born tech workers in those cities in the two years that followed.<sup>32</sup>

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#### HOW THE SMALL SUPPLY OF H-1B VISAS HURTS TECH WORKERS IN MICHIGAN CITIES

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##### DETROIT

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**10,772 H-1B denials** for tech workers in the metro area cost computer workers there...

**14,994** ↓

Potential new jobs and **\$135.9M** in aggregate wage growth in the two years that followed.

##### ANN ARBOR

---

**344 H-1B denials** for tech workers in the metro area cost computer workers there...

**371** ↓

Potential new jobs and **\$5.3M** in aggregate wage growth in the two years that followed.

# Naturalization

Michigan’s immigrants are not only living in the state, they are also laying down roots in the state as well. Our analysis found that immigrants in Michigan are naturalizing, or becoming citizens, at considerably higher rates than they are in the country overall. In 2014, 51.4 percent immigrants in Michigan were already U.S. citizens. Nationally, the equivalent figure was 47.3 percent.

Like almost all parts of the country, however, Michigan 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>33</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>34</sup> If the average non-citizen in Michigan saw a wage boost at the low end of that range, or of 8 percent, she would earn more than \$3,100 more per year— money that could be reinvested in the state’s economy through her spending at local businesses. Multiplied by the roughly 128,000 non-citizens in Michigan currently eligible to naturalize, such policy initiatives could collectively boost wages in the state by almost \$400 million.

## 128,174

Number of non-citizens eligible to naturalize in 2014

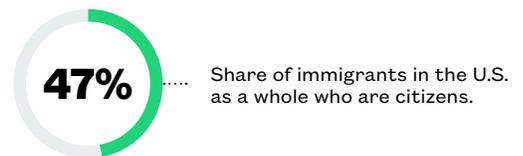
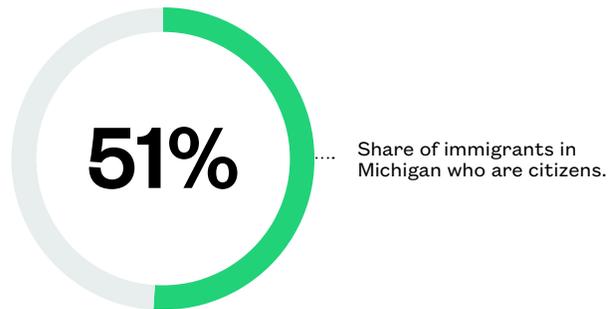


The average non-citizen in Michigan earns **\$38,983** per year. If they naturalized, they each could earn an average of **\$3,119 more** per year.

## \$399.7M

Aggregate additional earnings if eligible non-citizens naturalized.

### NATURALIZATION RATES IN MICHIGAN



# International Students

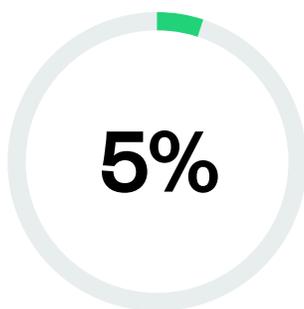
**P**olicymakers are increasingly realizing that international students provide huge benefits to the communities where they live and study. The World Bank has found that an increase in the number of international graduate students studying at American schools leads to large boosts in the number of patents awarded to local research universities in the years that follow.<sup>35</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>36</sup>

In Michigan, the roughly 32,000 international college students studying on temporary visas make up just 5.2 percent of all college students in the state. Still, their

economic contribution is sizable. They support more than 13,000 jobs in the state, including positions in transportation, health insurance, and retail.

Through their tuition payments and day-to-day spending, international students in the broader United States contributed more than **\$30.5 billion 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 Michigan, but they make a big impact...



International students make up only **5%** of all students in Michigan.

**\$1.0B**

Economic contribution of international students to the state, 2015.

**13,448**

Jobs supported by international students, 2015.

# Voting Power

Immigrants in Michigan do not only make a difference to the state's economy, they also play a large role at the voting booth. In 2014, Michigan was home to more than 308,000 foreign-born residents who were eligible to vote, including an estimated 186,000 foreign-born residents who had formally registered. Those numbers are particularly meaningful given the narrow margins of victory that have decided elections in this swing state in recent years. In 2012, President Barack Obama won Michigan by less than 450,000 votes.

The power of immigrant voters is likely to continue to be a large factor in upcoming elections. Based on voting participation patterns in recent years, we would expect more than 146,000 foreign-born voters to cast formal ballots in the presidential election this year. An additional 64,000 more immigrants will either naturalize or turn 18 by 2020, expanding the pool of eligible new American voters in Michigan to almost 345,000 people.

## 308,037

Number of immigrants eligible to vote.



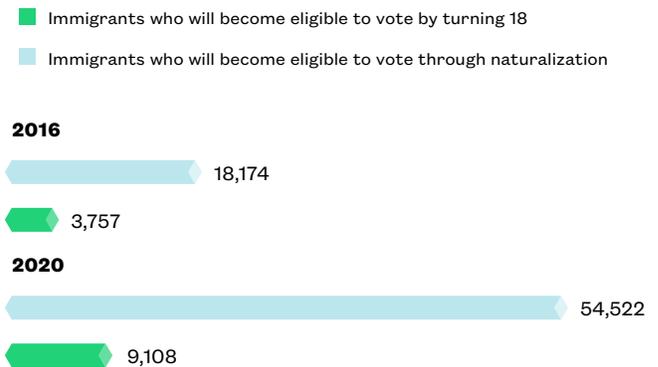
## 186,432

Number of immigrants registered to vote.

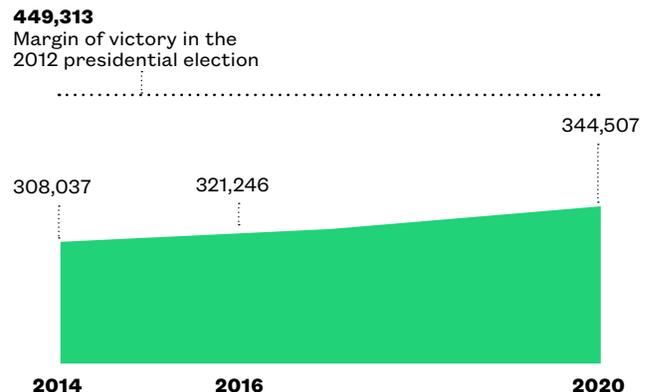
## 449,313

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

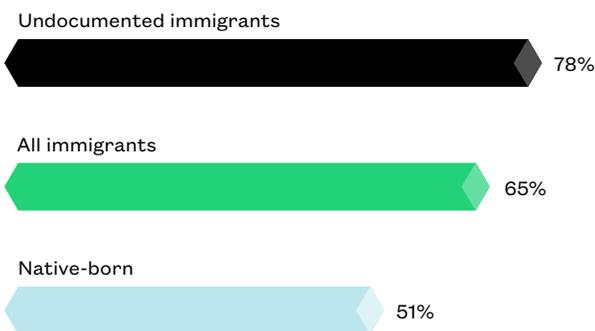
**T**he United States is currently home to an estimated 11.4 million undocumented immigrants, the vast majority of whom have lived in the United States for more than five years. The presence of so many undocumented immigrants in our country for such a long time presents many legal and political challenges 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>37</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>38</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>39</sup>

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.

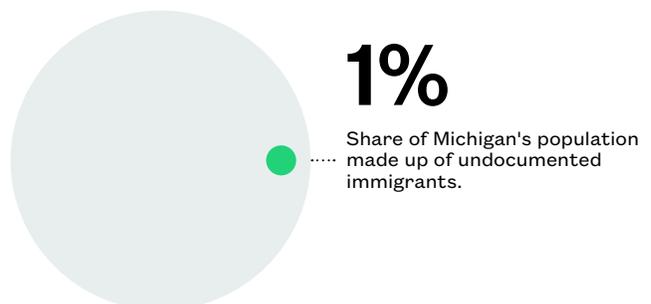
## UNDOCUMENTED IMMIGRANTS ARE MORE LIKELY TO BE WORKING-AGED THAN NATIVES OR OTHER IMMIGRANTS

Share of population ages 25-64, 2014



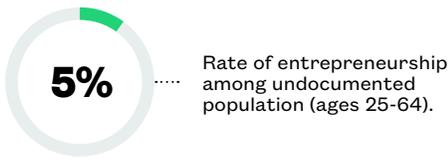
# 126,398

Estimated number of undocumented immigrants in Michigan.



# 5,149

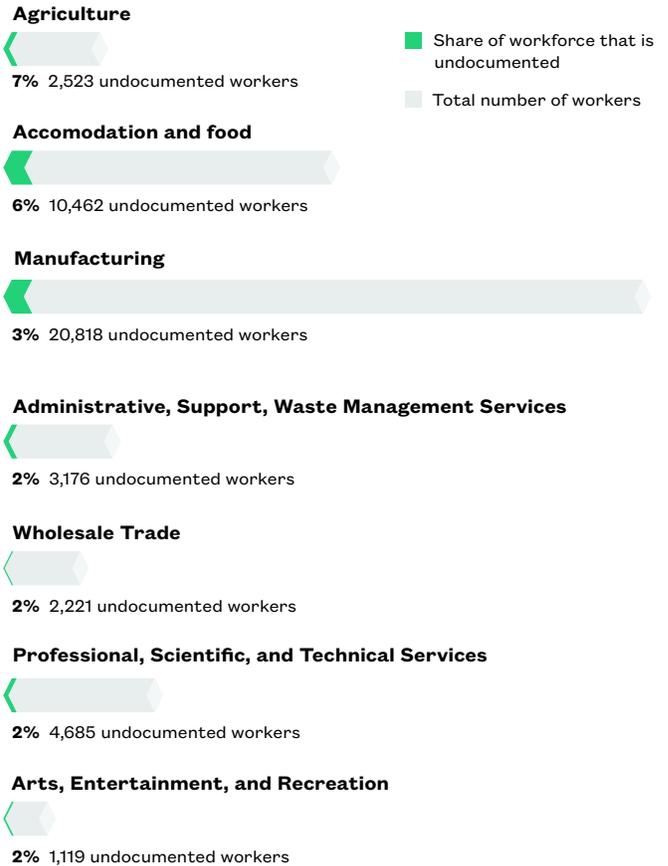
Estimated number of undocumented entrepreneurs in Michigan.



# \$48.7M

Total business income of self-employed entrepreneurs.

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



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 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>40</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 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>41</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>42</sup>

The challenge of undocumented immigration is becoming increasingly apparent in places like Michigan, which have not historically been home to large numbers of such immigrants. 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 Michigan, there is evidence that undocumented immigrants are playing a small but critical role in the workforce. In this section, we estimate the size and the characteristics of the undocumented population in Michigan 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>43</sup> (See the Methodology Appendix for more details.)

Using this technique, we estimate that Michigan is home to more than 126,000 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

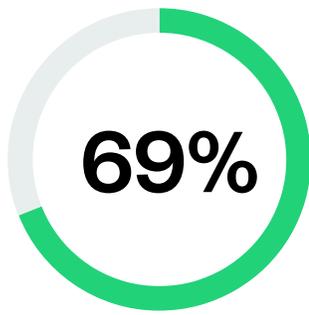
range of industries that could not thrive without a pool of workers willing to take on highly labor-intensive roles. In 2014, for instance, undocumented immigrants made up 5.8 percent of all employees in Michigan’s accommodation and food services industry, a sector that includes dishwashers, food preparation workers, and short order cooks. They also made up 2.9 percent of workers employed in the manufacturing sector, as well as 7.2 percent of workers in the agriculture industry. In Michigan, a state that grows a large amount of fresh produce, many agriculture positions require workers to handpick crops in the field.

Large numbers of undocumented immigrants in Michigan have also managed to overcome licensing and financing obstacles to start small businesses. In 2014, an estimated 5.2 percent of the state’s working-age undocumented immigrants were self-employed. More than 5,100 undocumented immigrants in Michigan 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 \$48.7 million in business income that year.

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

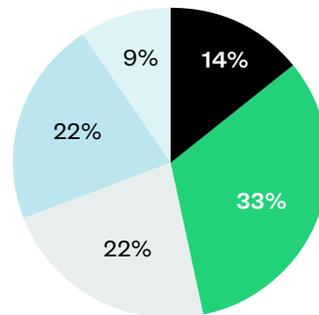
MEASURES OF ASSIMILATION AMONG MICHIGAN'S UNDOCUMENTED POPULATION, 2014

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

In 2014,  
undocumented  
immigrants in  
Michigan earned  
**\$2.0B.**

**\$82.9M**—Went to state and local taxes...

**\$177.9M**—Went to federal taxes...

Leaving them with **\$1.8B** in remaining  
spending power.

#### ENTITLEMENT CONTRIBUTIONS

Undocumented immigrants also contribute to our country's entitlement programs. In 2014, through taxes on their individual wages, immigrants contributed **\$40.6M** to Medicare and **\$157.6M** to Social Security.



Medicare



Social Security

an incomplete picture of the impact of undocumented immigration. This is because the debate infrequently recognizes that since most undocumented immigrants are working, they also 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>44</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>45</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>46</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>47</sup> Federal government officials have also estimated that 75 percent of undocumented workers have taxes withheld from their paychecks.<sup>48</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>49</sup>

**In 2014, we estimate that Michigan households led by undocumented immigrants earned more than \$2.0 billion in income.**

In 2014, we estimate that Michigan households led by undocumented immigrants earned more than \$2.0 billion in income. Of that, they paid an estimated \$177.9 million in federal taxes. They also contributed almost \$157.6 million directly to the Social Security program through taxes on their individual wages. Michigan’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 Michigan’s undocumented immigrants paid almost \$82.9 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>50</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 Michigan have largely assimilated into the United States, making it less likely that mass deportation will ever be a realistic option. We estimate that 69.3 percent of the state’s undocumented population has been in the United States for five or more years. Approximately 69.2 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>51</sup> The labor market outcomes and educational levels of their children increase with time as well.<sup>52</sup>

# 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.

# Endnotes

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- 1** Robert Fairlie, "Open For Business: How Immigrants Are Driving Small Business Creation In The United States," Partnership for a New American Economy, 2012, <http://www.renewoureconomy.org/research/open-for-business-how-immigrants-are-driving-small-business-creation-in-the-united-states-2/>; Vivek Wadhwa et al., "America's New Immigrant Entrepreneurs: Part I," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, 2007), <http://papers.ssrn.com/abstract=990152>.
- 2** Arnobio Morelix et al., "The Kauffman Index 2015: Startup Activity | State Trends," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, June 4, 2015), <http://papers.ssrn.com/abstract=2614598>.
- 3** David Dyssegaard Kallick, "Bringing Vitality to Main Street: How Immigrant Small Businesses Help Local Economies Grow," New York: Fiscal Policy Institute and Americas Society/Council of the Americas, 2015, <http://www.as-coa.org/articles/bringing-vitality-main-street-how-immigrant-small-businesses-help-local-economies-grow>.
- 4** Stuart Anderson, "Immigrants and Billion Dollar Startups," NFAP Policy Brief March, 2016, <http://nfap.com/wp-content/uploads/2016/03/Immigrants-and-Billion-Dollar-Startups.NFAP-Policy-Brief.March-2016.pdf>.
- 5** Fairlie, "Open For Business."
- 6** This is the most recent year for which data on employment is available.
- 7** Lawrence Van Gelder, "Alex Manoogian, 95; Perfected Design of Single-Handled Faucet," The New York Times, 1996, sec. U.S., <http://www.nytimes.com/1996/07/13/us/alex-manoogian-95-perfected-design-of-single-handled-faucet.html>.
- 8** Somini Sengupta, "Countries Seek Entrepreneurs From Silicon Valley," The New York Times, 2013, [http://www.nytimes.com/2013/06/06/technology/wishing-you-and-your-start-up-were-here.html?\\_r=0](http://www.nytimes.com/2013/06/06/technology/wishing-you-and-your-start-up-were-here.html?_r=0).
- 9** Craig Montuori, email message to author, June 23, 2016.
- 10** Tyrel Linkhorn, "Tech Industry Growing in Michigan," The Blade, 2016, <http://toledoblade.com//Technology/2016/03/05/Tech-industry-growing-in-Michigan.html>.
- 11** "Gov. Rick Snyder: Foreign Nationals Could Help Michigan Economy," The Associated Press, 2011, [http://www.mlive.com/politics/index.ssf/2011/01/gov\\_rick\\_snyder\\_foreign\\_nation.html](http://www.mlive.com/politics/index.ssf/2011/01/gov_rick_snyder_foreign_nation.html).
- 12** Minehaha Forman, "Better Than Silicon? Experts Pit Michigan's Tech Industry Against Top Dogs," 2014, <https://www.corpmagazine.com/technology/digital/better-than-silicon-experts-pit-michigans-tech-industry-against-top-dogs/>.
- 13** Jacob Vigdor, "Immigration and the Revival of American Cities," Partnership for a New American Economy, 2013, <http://www.renewoureconomy.org/issues/american-cities/>.
- 14** "Employment Projections: 2014-24 Summary," Bureau of Labor Statistics Economic News Release, 2015, <http://www.bls.gov/news.release/ecopro.nr0.htm>.
- 15** Madeline Zavodny, "Immigration and American Jobs," The Partnership for a New American Economy and the American Enterprise Institute, 2011, [http://www.renewoureconomy.org/sites/all/themes/pnae/img/NAE\\_Im-AmerJobs.pdf](http://www.renewoureconomy.org/sites/all/themes/pnae/img/NAE_Im-AmerJobs.pdf).

- 16** “Patent Pending: How Immigrants Are Reinventing The American Economy,” Partnership for a New American Economy, June 26, 2012, <http://www.renewoureconomy.org/research/patent-pending-how-immigrants-are-reinventing-the-american-economy-2/>.
- 17** “Employment Projections.”
- 18** Katherine Grace Carman, Christine Eibner, and Susan M. Paddock, “Trends in Health Insurance Enrollment, 2013-15,” Product Page, Health Affairs, (2015), [http://www.rand.org/pubs/external\\_publications/EP50692.html](http://www.rand.org/pubs/external_publications/EP50692.html).
- 19** Sean P. Keehan et al., “Age Estimates in the National Health Accounts,” Health Care Financing Review 26, no. 2 (2004): 1-16.
- 20** “USDA ERS - Dairy Data (Milk Cow Production by State and Region),” United States Department of Agriculture Economic Research Service, 2016, <http://www.ers.usda.gov/data-products/dairy-data.aspx>.
- 21** Flynn Adcock, David Anderson, and Parr Rosson, “The Economic Impacts of Immigrant Labor on U.S. Dairy Farms,” Center for North American Studies, 2015, <http://www.nmpf.org/files/immigration-survey-090915.pdf>.
- 22** Patrick O’Brien, John Kruse, and Darlene Kruse, “Gauging the Farm Sector’s Sensitivity to Immigration Reform via Changes in Labor Costs and Availability -,” WAEES and the American Farm Bureau Federation, 2014, <http://oppenheimer.mcgill.ca/Gauging-the-Farm-Sector-s>.
- 23** Stephen Bronars, “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,” Partnership for a New American Economy, 2015, <http://www.renewoureconomy.org/research/vanishing-breed-decline-u-s-farm-laborers-last-decade-hurt-u-s-economy-slowed-production-american-farms/>.
- 24** Stephen Bronars and Angela Marek Zeitlin, “No Longer Home Grown: How Labor Shortages Are Increasing America’s Reliance on Imported Fresh Produce and Hampering U.S. Economic Growth,” Partnership for a New American Economy, 2014, <http://www.renewoureconomy.org/wp-content/uploads/2014/03/no-longer-home-grown.pdf>.
- 25** Vigdor, “Immigration and the Revival of American Cities.”
- 26** “Visa Bulletin for May 2016,” U.S. Department of State, 2016, <https://travel.state.gov/content/visas/en/law-and-policy/bulletin/2016/visa-bulletin-for-may-2016.html>.
- 27** Zavodny, “Immigration and American Jobs.”
- 28** Sari Pekkala Kerr, William R. Kerr, and William F. Lincoln, “Skilled Immigration and the Employment Structures of U.S. Firms,” Working Paper (National Bureau of Economic Research, 2013), <http://www.nber.org/papers/w19658>.
- 29** Matthew J. Slaughter, “Job Clocks Background,” Hanover, NH, 2013, [http://faculty.tuck.dartmouth.edu/images/uploads/faculty/matthew-slaughter/jobs\\_clock.pdf](http://faculty.tuck.dartmouth.edu/images/uploads/faculty/matthew-slaughter/jobs_clock.pdf).
- 30** “NFAP Policy Brief: H-1B Visas by the Numbers,” National Foundation for American Policy, 2009, <http://www.nfap.com/pdf/1003h1b.pdf>.

**31** Zavodny, “Immigration and American Jobs.”

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/>.

**32** Giovanni Peri et al., “Closing Economic Windows: How H-1B Visa Denials Cost U.S.-Born Tech Workers Jobs and Wages During the Great Recession,” Partnership for a New American Economy, 2014, <http://www.renewoureconomy.org/research/h1b-report/>.

**33** Jacob L. Vigdor, *From Immigrants to Americans: The Rise and Fall of Fitting In* (Rowman & Littlefield, 2010); Bernt Bratsberg, James F. Ragan, Jr., and Zafar M. Nasir, “The Effect of Naturalization on Wage Growth: A Panel Study of Young Male Immigrants,” *Journal of Labor Economics* 20, no. 3 (2002): 568–97, doi:10.1086/339616.

**34** Manuel Pastor and Justin Scoggins, “Citizen Gain: The Economic Benefits of Naturalization for Immigrants and the Economy,” 2012, <http://www.immigrationresearch-info.org/report/university-southern-california/citizen-gain-economic-benefits-naturalization-immigrants-and-e>.

**35** Aaditya Mattoo, Gnanaraj Chellaraj, and Keith E. Maskus, “The Contribution of Skilled Immigration and International Graduate Students to U.S. Innovation” (The World Bank, 2005), <http://documents.worldbank.org/curated/en/2005/05/5800523/contribution-skilled-immigration-international-graduate-students-innovation>.

**36** “NAFSA International Student Economic Value Tool | NAFSA,” accessed June 28, 2016, [http://www.nafsa.org/Explore\\_International\\_Education/Impact/Data\\_And\\_Statistics/NAFSA\\_International\\_Student\\_Economic\\_Value\\_Tool/](http://www.nafsa.org/Explore_International_Education/Impact/Data_And_Statistics/NAFSA_International_Student_Economic_Value_Tool/).

**37** George J. Borjas, “The Labor Supply of Undocumented Immigrants,” NBER Working Paper (National Bureau of Economic Research, Inc, 2016), <https://ideas.repec.org/p/nbr/nberwo/22102.html>.

**38** Lisa Christensen Gee, Matthew Gardener, and Meg Wiehe, “Undocumented Immigrants’ State & Local Tax Contributions,” The Institute on Taxation and Economic Policy, 2016, <http://www.immigrationresearch-info.org/report/other/undocumented-immigrants%E2%80%99-state-local-tax-contributions>.

**39** Ryan Honeywell, “How Language Fits Into the Immigration Issue,” *Governing*, 2012, <http://www.governing.com/topics/public-workforce/gov-how-language-fits-in-to-the-immigration-issue.html>.

**40** Thomas Hertz Zahniser Steven, “USDA Economic Research Service - Immigration and the Rural Workforce,” United States Department of Agriculture Economic Research Service, 2013, <http://www.ers.usda.gov/topics/in-the-news/immigration-and-the-rural-workforce.aspx>.

**41** Maria E. Enchautegui, “Immigrant and Native Workers Compete for Different Low-Skilled Jobs,” Urban Institute, 2015, <http://www.urban.org/urban-wire/immigrant-and-native-workers-compete-different-low-skilled-jobs>.

**42** Scott A. Wolla, “The Economics of Immigration: A Story of Substitutes and Complements,” *Page One Economics Newsletter*, 2014, 1–5.

**43** Borjas, “The Labor Supply of Undocumented Immigrants.”

- 44** Roy Germano, “Unauthorized Immigrants Paid \$100 Billion Into Social Security Over Last Decade,” VICE News, 2014, <https://news.vice.com/article/unauthorized-immigrants-paid-100-billion-into-social-security-over-last-decade>.
- 45** Judith Gans, “Immigrants in Arizona: Fiscal and Economic Impacts” (Udall Center for Studies in Public Policy, University of Arizona, 2008), <http://udallcenter.arizona.edu/immigration/publications/impactofimmigrants08.pdf>.
- 46** Emily Eisenhauer et al., “Immigrants in Florida: Characteristics and Contributions,” Research Institute on Social and Economic Policy, Florida International University, 2007, [https://rise.fiu.edu/research-publications/immigration/immigration-in-florida/2007-immigrants-in-florida-characteristics-and-contributions/immigrants\\_spring\\_2007\\_reduced.pdf](https://rise.fiu.edu/research-publications/immigration/immigration-in-florida/2007-immigrants-in-florida-characteristics-and-contributions/immigrants_spring_2007_reduced.pdf).
- 47** Laura E. Hill and Hans P. Johnson, “Unauthorized Immigrants in California: Estimates for Counties,” Public Policy Institute of California, 2011, <http://www.ppic.org/main/publication.asp?i=986>.
- 48** Eduardo Porter, “Illegal Immigrants Are Bolstering Social Security With Billions,” The New York Times, 2005, <http://www.nytimes.com/2005/04/05/business/illegal-immigrants-are-bolstering-social-security-with-billions.html>.
- 49** Aaron Williams and Michael Cassidy, “Undocumented, But Not Untaxed,” The Commonwealth Institute, (2016), <http://www.thecommonwealthinstitute.org/2016/01/08/undocumented-but-not-untaxed/>; Leah Zallman et al., “Unauthorized Immigrants Prolong the Life of Medicare’s Trust Fund,” *Journal of General Internal Medicine* 31, no. 1 (June 18, 2015): 122–27, doi:10.1007/s11606-015-3418-z; Gee, Gardener, and Wiehe, “Undocumented Immigrants’ State & Local Tax Contributions.”
- 50** For information on the wage benefits of legalization, see : Sherrie A. Kossoudji and Deborah A. Cobb-Clark, “Coming out of the Shadows: Learning about Legal Status and Wages from the Legalized Population,” *Journal of Labor Economics* 20, no. 3 (2002): 598–628; Raul Hinojosa-Ojeda, “Raising the Floor for American Workers: The Economic Benefits of Comprehensive Immigration Reform,” Center for American Progress and American Immigration Council, 2010, <https://www.americanprogress.org/issues/immigration/report/2010/01/07/7187/raising-the-floor-for-american-workers/>.
- 51** See for instance: Barry R. Chiswick and Paul W. Miller, “Immigrant Earnings: Language Skills, Linguistic Concentrations and the Business Cycle,” *Journal of Population Economics* 15, no. 1 (2002): 31–57; Hoyt Bleakley and Aimee Chin, “Age at Arrival, English Proficiency, and Social Assimilation Among U.S. Immigrants,” *American Economic Journal. Applied Economics* 2, no. 1 (2010): 165, doi:10.1257/app.2.1.165.
- 52** Jill H. Wilson, “Investing in English Skills: The Limited English Proficient Workforce in U.S. Metropolitan Areas,” The Brookings Institution, 2014, <http://www.brookings.edu/research/reports2/2014/09/english-skills>.

# Endnotes: Methodology

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- 1 Steven Ruggles, Katie Genadek, Ronald Goeken, Josiah Grover, and Matthew Sobek. Integrated Public Use Microdata Series: Version 6.0 [Machine-readable database]. Minneapolis: University of Minnesota, 2015.
- 2 U.S. Census Bureau, Survey of Business Owner and Self-Employed Persons Data Sets. <http://www.census.gov/programs-surveys/sbo/data/data-sets.html>
- 3 “Fortune 500,” *Fortune*, 2015, <http://fortune.com/fortune500/2015/>.
- 4 “The ‘New American’ Fortune 500,” Partnership for a New American Economy, 2011, <http://www.renewoureconomy.org/wp-content/uploads/2013/07/new-american-fortune-500-june-2011.pdf>.
- 5 “The Power of the Purse: The Contributions of Hispanics to America’s Spending Power and Tax Revenues in 2013,” Partnership for a New American Economy, 2014, <http://www.renewoureconomy.org/research/page/2/>.
- 6 “Who Pays? A Distributional Analysis of the Tax Systems in All 50 States (5th edition),” Institute on Taxation and Economic Policy, 2014, [http://www.itep.org/whopays/full\\_report.php](http://www.itep.org/whopays/full_report.php).
- 7 “The Distribution of Household Income and Federal Taxes, 2011,” Congressional Budget Office, Washington, D.C., 2014, <https://www.cbo.gov/publication/49440#title0>.
- 8 Office of Retirement and Disability Policy U. S. Social Security Administration, “OASDI and SSI Program Rates & Limits,” 2014, [https://www.ssa.gov/policy/docs/quickfacts/prog\\_highlights/RatesLimits2014.html](https://www.ssa.gov/policy/docs/quickfacts/prog_highlights/RatesLimits2014.html).
- 9 Ibid.
- 10 Ibid.
- 11 Jacob Vigdor, “Immigration and the Revival of American Cities,” Partnership for a New American Economy, 2013, <http://www.renewoureconomy.org/issues/american-cities/>.
- 12 Bureau of Economic Analysis, <http://www.bea.gov/regional/index.htm>
- 13 United States Department of Agriculture, “State Fact Sheets, Economic Research Service” 2016, <http://www.ers.usda.gov/data-products/state-fact-sheets.aspx>
- 14 United States Department of Agriculture, Economic Research Service, “Cash Receipts by Commodity, 2010-2015,” <http://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics/cash-receipts-by-commodity.aspx>.
- 15 United State Department of Agriculture, “Farm Labor Survey”, [https://www.nass.usda.gov/Surveys/Guide\\_to\\_NASS\\_Surveys/Farm\\_Labor/](https://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Farm_Labor/)
- 16 Stephen Bronars, “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,” Partnership for a New American Economy, 2015, [http://www.renewoureconomy.org/wp-content/uploads/2015/08/PNAE\\_FarmLabor\\_August-3-3.pdf](http://www.renewoureconomy.org/wp-content/uploads/2015/08/PNAE_FarmLabor_August-3-3.pdf).

- 17** Stephen Bronars, “No Longer Home Grown: How Labor Shortages are Increasing America’s Reliance on Imported Fresh Produce and Slowing U.S. Economic Growth”, Partnership for a New American Economy, 2014, <http://www.renewoureconomy.org/wp-content/uploads/2014/03/no-longer-home-grown.pdf>.
- 18** U.S. Census Bureau, “STEM, STEM-related, and Non-STEM Occupation Code List 2010,” 2010, <https://www.census.gov/people/io/files/STEM-Census-2010-occ-code-list.xls>
- 19** “About Us,” Burning Glass, accessed July 1, 2016, available here: <http://burning-glass.com/labor-insight/>.
- 20** National Center for Education Statistics, “Integrated Postsecondary Education Data System,” <http://nces.ed.gov/ipeds/>
- 21** Madeline Zavodny, “Immigration and American Jobs,” The Partnership for a New American Economy and the American Enterprise Institute, 2011, [http://www.renewoureconomy.org/sites/all/themes/pnae/img/NAE\\_Im-AmerJobs.pdf](http://www.renewoureconomy.org/sites/all/themes/pnae/img/NAE_Im-AmerJobs.pdf).
- 22** “Patent Pending: How Immigrants Are Reinventing The American Economy,” Partnership for a New American Economy, 2012, <http://www.renewoureconomy.org/research/patent-pending-how-immigrants-are-reinventing-the-american-economy-2/>.
- 23** U.S. Census Bureau. “2010 Occupation Code List,” [https://www.census.gov/people/io/files/2010\\_OccCodeswithCrosswalkfrom2002-2011nov04.xls](https://www.census.gov/people/io/files/2010_OccCodeswithCrosswalkfrom2002-2011nov04.xls)
- 24** U.S. Census Bureau, “Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2015,” [http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=PEP\\_2015\\_PEPANNRES&prodType=table](http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=PEP_2015_PEPANNRES&prodType=table)
- 25** U.S. Department of Health and Human Services, “Shortage Designation: Health Professional Shortage Areas and Medically Underserved Areas/Populations,” <http://www.hrsa.gov/shortage/>
- 26** National Center for Health Workforce Analysis, U.S. Department of Health and Human Services, “National and State-Level Projections of Dentists and Dental Hygienists in the U.S., 2012-2025”, 2015, <http://bhpr.hrsa.gov/healthworkforce/supplydemand/dentistry/nationalstatelevelprojectionsdentists.pdf>.
- 27** Vernon Lin, Xiaoming Zhang, and Pamela Dixon, “Occupational Therapy Workforce in the United States: Forecasting Nationwide Shortages,” *PM & R: The Journal of Injury, Function, and Rehabilitation* 7, No. 9, 2015: 946–54, doi:10.1016/j.pmrj.2015.02.012.
- 28** “2014 Annual Report,” Office of Foreign Labor Certification, Employment and Training Administration, United States Department of Labor, 2014, [https://www.foreign-laborcert.doleta.gov/pdf/oflc\\_annual\\_report\\_fy2014.pdf](https://www.foreign-laborcert.doleta.gov/pdf/oflc_annual_report_fy2014.pdf).
- 29** Madeline Zavodny, “Immigration and American Jobs,” The Partnership for a New American Economy and the American Enterprise Institute, 2011, [http://www.renewoureconomy.org/sites/all/themes/pnae/img/NAE\\_Im-AmerJobs.pdf](http://www.renewoureconomy.org/sites/all/themes/pnae/img/NAE_Im-AmerJobs.pdf).
- 30** Giovanni Peri, Kevin Shih, Chad Sparber, and Angela Marek Zeitlin, “Closing Economic Windows: How H-1B Visa Denials Cost U.S.-Born Tech Workers Jobs and Wages During the Great Recession,” 2014, [http://www.renewoureconomy.org/wp-content/uploads/2014/06/pnae\\_h1b.pdf](http://www.renewoureconomy.org/wp-content/uploads/2014/06/pnae_h1b.pdf).
- 31** Manuel Pastor and Justin Scoggins, “Citizen Gain: The Economic Benefits of Naturalization for Immigrants and the Economy,” 2012, <http://www.immigrationresearch-info.org/report/university-southern-Ohio/citizen-gain-economic-benefits-naturalization-immigrants-and-e>.
- 32** NAFSA, “International Student Economic Value Tool,” [http://www.nafsa.org/Explore\\_International\\_Education/Impact/Data\\_And\\_Statistics/NAFSA\\_International\\_Student\\_Economic\\_Value\\_Tool/#stateData](http://www.nafsa.org/Explore_International_Education/Impact/Data_And_Statistics/NAFSA_International_Student_Economic_Value_Tool/#stateData)

- 33** U.S. Department of Health and Human Services, “National Vital Statistics Reports, Deaths: Final Data for 2013”, 2016, [http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64\\_02.pdf](http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_02.pdf)
- 34** Department of Homeland Security, “Yearbook of Immigration Statistics: 2014 Naturalizations, Table 22 - Persons Naturalized by State or Territory of Residence: FY 2005 to 2014”, <https://www.dhs.gov/yearbook-immigration-statistics-2014-naturalizations>
- 35** Federal Election Commission. “Federal Elections 2012: Elections for the President, the U.S. Senate and the U.S. Representatives”, 2013, <http://www.fec.gov/pubrec/fe2012/federalelections2012.pdf>.
- 36** George J. Borjas, “The Labor Supply of Undocumented Immigrants,” NBER Working Paper (National Bureau of Economic Research, Inc, 2016), <https://ideas.repec.org/p/nbr/nberwo/22102.html>.

ABOUT

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