

# **The Contributions of New Americans in Massachusetts**



# Partners



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# Demographics

Although California, New York, and Texas often come to mind when people think of the states with the largest numbers of immigrants, Massachusetts has long had a powerful draw on newcomers to America. From the 1960s to the 1990s, Massachusetts was one of seven states that as a group attracted between 60 to 75 percent of all the immigrants arriving in the United States each year.<sup>1</sup> In more recent years, the state has continued to welcome many new foreign-born residents. Between 2010 and 2014, the number of immigrants in Massachusetts grew by 8.1 percent. That jump was greater than the increase in the foreign-born population in the United States as a whole during that period.

Between 2010 and 2014, the number of immigrants in Massachusetts grew by **8.1%**. That jump was greater than the increase in the foreign-born population in the United States as a whole during that period.

Today, Massachusetts is home to more than 1 million immigrants. More than one out of every seven residents of the state are foreign-born. These new Americans serve as everything from medical scientists to home health aides, making them critical contributors to Massachusetts' economic success overall.

# 1,053,605

Massachusetts residents were born abroad.



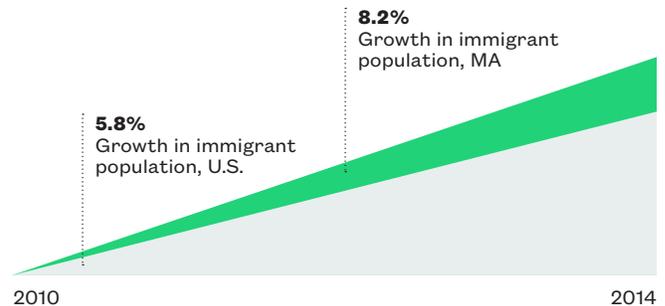
Share of Massachusetts residents born abroad



Share of U.S. residents born abroad

# 78,573

people immigrated to Massachusetts between 2010 and 2014.



# The Role of Immigrants as Entrepreneurs

## 65,373

immigrants in Massachusetts are self-employed

Immigrant-owned businesses generated **\$1.7B** in business income in 2014.



**134,477** people in Massachusetts 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>2</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>3</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>4</sup> Foreign-born entrepreneurs are also behind 51 percent of our country's billion dollar startups,<sup>5</sup> and a substantial share of our Fortune 500 firms.

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

The super-charged entrepreneurial activity of immigrants provides real and meaningful benefits to everyday Americans. In 2010, roughly one in 10 American workers with jobs at private firms were employed at immigrant-founded companies. Such businesses also generated more than \$775 billion in annual business revenue that year.<sup>6</sup> In Massachusetts, like the country as a whole, immigrants are currently punching above their weight class as entrepreneurs. Foreign-born workers currently make up 20.7 percent of all entrepreneurs in the state, despite accounting for 15.6 percent of Massachusetts' population. Their firms generated \$1.7 billion in business income in 2014.

Massachusetts firms with at least one immigrant owner also provided jobs to roughly 134,000 Americans in 2007.<sup>7</sup>

**TJX Companies, the Framingham-based Fortune 500 firm that owns TJ Maxx, HomeGoods, and Marshalls, was originally founded by Max and Morris Feldberg, immigrants from Russia.**

Immigrant entrepreneurs have long been a critical part of Massachusetts' economic success story. TJX Companies, the Framingham-based Fortune 500 firm that owns TJ Maxx, HomeGoods, and Marshalls, was originally founded by Max and Morris Feldberg, immigrants from Russia. In early 20<sup>th</sup> century, the Feldbergs, fleeing conscription into the czar's army, settled in Chelsea, Massachusetts, where they opened their first retail store.<sup>8</sup> By Max's death in 1988, his company owned hundreds of stores and generated more than \$300 million in sales.<sup>9</sup>

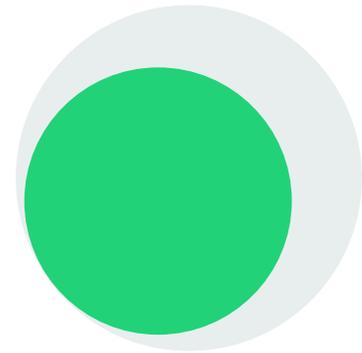
Six other Fortune 500 firms based in the state—including Staples, Thermo Fisher Scientific, and the cloud computing firm EMC—also had at least one founder who either immigrated to the United States or was the child of immigrants. Together, those seven companies employ more than 466,000 people globally and bring in almost \$137 billion in revenues each year.

All told, immigrants and their children have played a larger role founding Fortune 500 firms in Massachusetts than they have nationwide. Of the 12 Fortune 500 firms based in Massachusetts, 58.3 percent of firms had at least one founder who was an immigrant or the child of immigrants. For the country as a whole, the equivalent figure is 41.2 percent.

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>10</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.

**58%**



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

**Those firms generate \$136.8B in annual revenue, and employ 466,892 people globally.**

All told, immigrants and their children have played a larger role founding **Fortune 500** firms in Massachusetts than they have nationwide.

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.”

SPOTLIGHT ON

# Thomas Ketchell

Co-Founder & CEO of HSTRY

Thomas Ketchell hopes to transform America’s education system through a simple digital platform. The Belgian native is the CEO and co-founder of HSTRY, a tool that allows students and educators to create free interactive timelines—similar to those on Facebook or Twitter—documenting historical events. Ketchell first came up with the concept in 2012, while he and his co-founder, Steven Chiu, were living in Beijing. To bring attention to the city’s severe air pollution, they created a fictional character who “live tweeted” the 1952 Great Smog of London, a period during which 12,000 Londoners died from toxic smog exposure.

When the event was picked up widely in the British press, Ketchell and Chiu realized they could use the idea to build an innovative educational tool that would help students better understand and engage with historical events. In 2013, the pair returned to Belgium and founded HSTRY. Despite the company’s instant success in Belgium, Ketchell believed there would be even more opportunities in the United States. “America’s schools are home to 10 million tablet computers, compared to just 1,200 in Belgium,” Ketchell says, adding that there is “far more funding available for innovative education startups in America.”

Since HSTRY’s official U.S. launch in March 2015, the company has enjoyed great success, and today more than 150,000 individuals use it in 5,000 schools across the country. Through its social-media style design, HSTRY allows the 21st century student to explore and present historical content in a familiar format. In doing so, the tool helps make history education more interesting by engaging students in a way that traditional methods do not.



Since HSTRY’s official U.S. launch in March 2015, the company has enjoyed great success, and today **more than 150,000 individuals use it in 5,000 schools** across the country.

The company’s success is all the more exceptional given the obstacles Ketchell and his team have faced—and continue to face—because of the U.S. immigration system. Although Ketchell was able to secure a high-skilled H-1B visa through the Global Entrepreneur in Residence (GEIR) program—which matches foreign-born entrepreneurs with work opportunities at

universities so they can secure an H-1B visa—his two co-founders have not been as lucky and are currently based in Chile and Belgium. “This has been a huge obstacle,” Ketchell says, “For a new company like ours, it’s so important for the team to be in one place—and travel between continents is incredibly time-consuming and expensive.”

As someone who has lived in many countries, Ketchell has the experience to support his claim that the U.S. visa system doesn’t make much sense. “It’s amazing how much stress the system has put on us, given that we’re trying to come to the United States to create jobs and opportunities for U.S. students,” he says, “It’s something you have to constantly think about; how you’ll find a way to come back to the United States on a more permanent basis.”

Despite these obstacles, Ketchell and his co-founders have big plans for the future: “We already have educators using our platform in 136 countries, but we want to keep growing and eventually reach millions of educators and students across the world,” he says. “Our vision is to help students collaborate and interact in solving problems and, in the process, become better global citizens.”

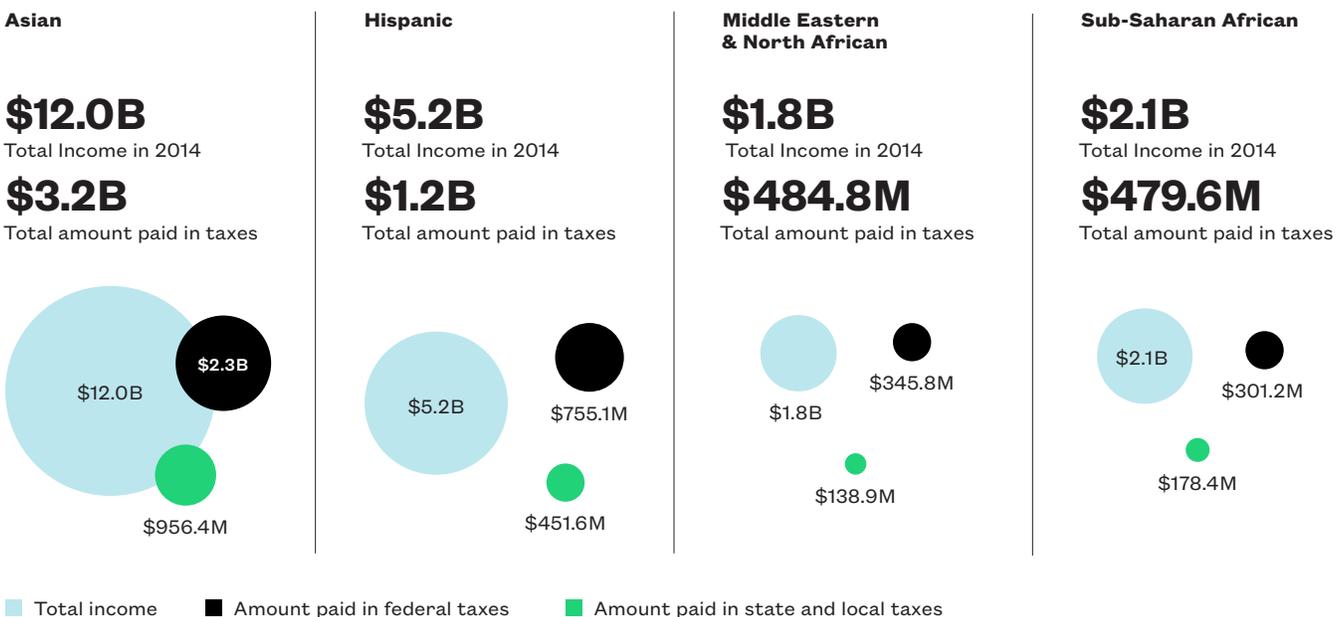
“It’s amazing how much stress the system has put on us, given that **we’re trying to come to the United States to create jobs and opportunities for U.S. students,**” he says, “It’s something you have to constantly think about; how you’ll find a way to come back to the United States on a more permanent basis.”

# Income and Tax Contributions

Immigrants in Massachusetts play an important role contributing to the state as both taxpayers and consumers. In 2014, immigrant-led households in Massachusetts earned \$36.8 billion dollars—or 15.2 percent of all income earned by Massachusettsan that year. With those earnings, the state’s foreign-born households were able to contribute more than one in every seven dollars paid by Massachusetts 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 about \$4.6 billion into the Social Security and Medicare programs that year.

By spending the money they earn at businesses such as hair salons, grocery stores, and coffee shops, immigrants also support small business owners and job creation in the communities where they live. In Massachusetts immigrants held \$27.3 billion in spending power in 2014, defined in this brief as the net income available to a family after paying federal, state, and local taxes. We highlight the spending power and tax contributions of several subsets of Massachusetts’ foreign-born population below, including Hispanics and immigrants from Northern Africa or the Middle East.

## INCOME AND TAX CONTRIBUTIONS OF KEY GROUPS WITHIN MASSACHUSETTS’ IMMIGRANT POPULATION, 2014



In 2014, immigrants in Massachusetts earned **\$36.8B**.



**\$3.0B** — Went to state and local taxes...

**\$6.5B** — Went to federal taxes...

Leaving them with **\$27.3B** in spending power.

#### ENTITLEMENT CONTRIBUTIONS

Massachusetts' immigrants also contribute to our country's entitlement programs. In 2014, through taxes on their individual wages, immigrants contributed **\$981.7M** to Medicare and **\$3.6B** to Social Security.



\$981.7M

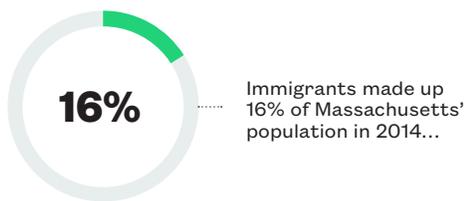
Medicare



\$3.6B

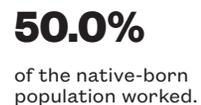
Social Security

# The Role of Immigrants in the Broader Workforce



Because they tended to be working-age,

Immigrants were **17.5%** more likely to work than native-born Massachusettsans.



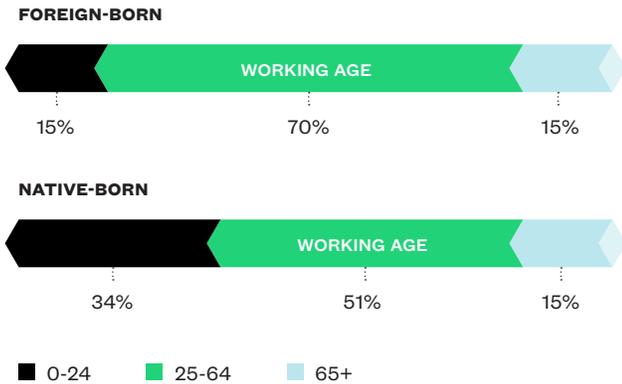
**P**eople who come to the United States often come here to work. Because of that, they often have skills that make them a good fit for our labor force—and a strong complement to American workers already here. In the country as a whole, immigrants are much more likely to be working-age than the U.S.-born.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

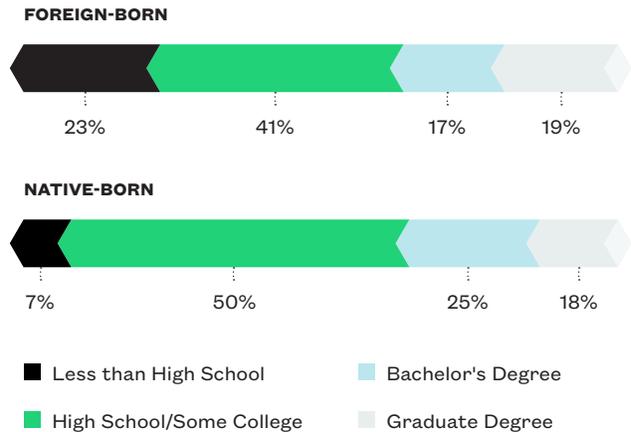
In Massachusetts, over **70%** of the foreign-born population is working aged, compared to just **50.8%** of the native-born population.

Both these dynamics are strong in the state of Massachusetts. When it comes to educational attainment, immigrants in the state are 4.2 percent more likely to hold a graduate degree than natives. They are also more than three times as likely to be educated

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



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



at less than a high-school level. The foreign-born population is also strikingly more likely to be working age, which we define in this brief as ranging in age from 25 to 64. In Massachusetts, 70.7 percent of the foreign-born population falls into that age band, while only 50.8 percent of the native-born population does. That 19.8-percentage point gap has major implications for the state’s workforce. In 2014, Massachusetts’ immigrants were 17.5 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 17.9 percent of all employed individuals in the state, despite accounting for 15.6 percent of Massachusetts’ population overall.

The immigrants who are working in Massachusetts 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 more than half of the employees in the state’s services to buildings and dwellings industry. They also account for 27.6 percent of the state’s workers in electronic components and products, contributing to Massachusetts’ sizeable computer and electronic

products manufacturing industry, which added \$15.8 billion to Massachusetts’ gross domestic product (GDP) in 2014.<sup>12</sup> Immigrants also frequently gravitate toward sectors where employers may struggle to find enough interested U.S.-born workers. Immigrants in Massachusetts, for instance, make up 39.8 percent of workers in private households, an industry that includes maids and housekeepers.

In recent decades, immigrants have also played an important role in Massachusetts’ manufacturing industry. Studies have found that the arrival of immigrants to a community can have a powerful impact creating or preserving manufacturing jobs. This is because foreign-born workers give employers access to a large and relatively affordable pool of laborers, making it less attractive for firms to move work to cheaper locations offshore. One study by the Partnership for a New American Economy and the Americas Society/Council of the Americas, for instance, found that every time 1,000 immigrants arrive in a given U.S. county, 46 manufacturing jobs are preserved that would otherwise not exist or have moved elsewhere.<sup>13</sup> The more than 975,000 immigrants who were living in the state in 2010 were responsible for creating or preserving almost 45,000 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 Massachusetts, like the country as a whole, are often overrepresented in either high-skilled or particularly labor-intensive positions. While foreign-born workers make up 17.9 percent of the state’s employed population, they account for 59.4 percent of medical and life scientists. They also make up 35.2 percent of those working as software developers for applications and systems software, and 43.9 percent of chefs and head cooks.

The more than **975,000 immigrants** who were living in the state in 2010 were responsible for **creating or preserving almost 45,000 manufacturing jobs.**

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**  
Maids and Housekeeping Cleaners



**28,376 immigrant workers**  
43,543 total workers

**2**  
Medical Scientists and Life Scientists



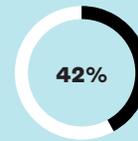
**8,752 immigrant workers**  
14,722 total workers

**3**  
Chefs and Head Cooks



**6,934 immigrant workers**  
15,789 total workers

**4**  
Physical Scientists



**6,438 immigrant workers**  
15,488 total workers

**5**  
Taxi Drivers and Chauffeurs



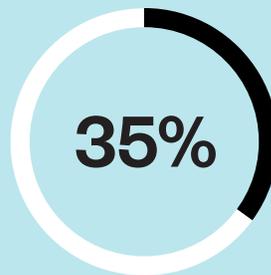
**5,204 immigrant workers**  
13,911 total workers

**6**  
Painters, Construction and Maintenance



**7,828 immigrant workers**  
22,118 total workers

**7**  
Software Developers



**21,512 immigrant workers**  
61,053 total workers

**8**  
Nursing, Psychiatric, and Home Health Aides



**25,057 immigrant workers**  
71,744 total workers

**9**  
Miscellaneous Assemblers and Fabricators



**6,493 immigrant workers**  
19,006 total workers

**10**  
Physicians and Surgeons



**9,301 immigrant workers**  
27,774 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 Massachusetts remains a leading innovator in the healthcare and scientific research industries. Despite making up 15.6 percent of the state’s population, foreign-born Massachusetts residents made up 26.6 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, 8.8 STEM jobs were advertised online in Massachusetts for every one unemployed STEM worker in the state.

Despite making up **15.6%** of Massachusetts' population, immigrants represented **26.6%** of all STEM workers in the state in 2014.

Immigrants, however, are not just a crucial piece of Massachusetts’ 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 Massachusetts’ universities, and 36.2 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 Massachusetts. A study by the Partnership for a New American Economy and

# 94,081

available STEM jobs were advertised online in 2014, compared to **10,725** unemployed STEM workers.

The resulting ratio of open jobs to available workers was

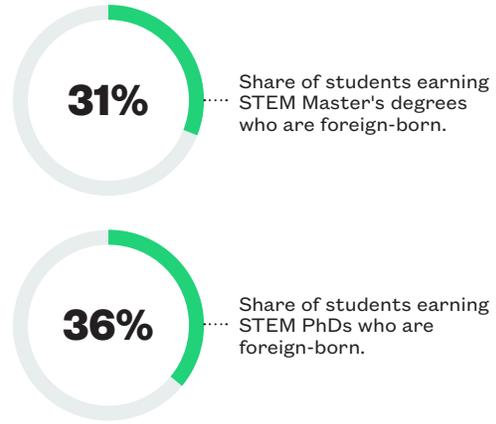
# 8.8 to 1



If half of Massachusetts' **3,608** advanced level STEM grads on temporary visas stayed in the state after graduation...

**4,726**

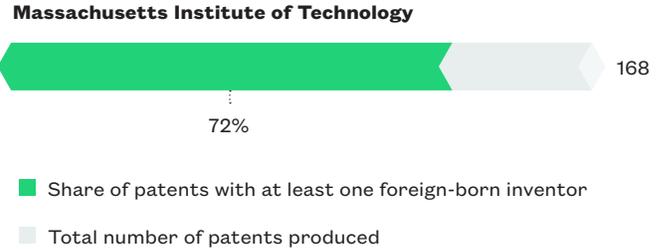
jobs for U.S.-born workers would be created by 2021.



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>15</sup> For Massachusetts, that means that retaining even half of the 3,608 graduates earning advanced-level STEM degrees in 2014 could result in the creation of more than 4,700 new positions for U.S.-born workers by 2021.

Massachusetts' immigrants also contribute to the state's economic growth and competitiveness by earning patents on cutting-edge research and products. In 2011, Massachusetts Institute of Technology (MIT) earned almost 168 patents, placing it among the top 10 most productive in the country. More than 72 percent of those patents had at least one foreign-born inventor. Such patents are licensed to existing companies or used as foundations for new companies, creating American jobs and revenue along the way.

**IMMIGRANT INVENTORS ARE GENERATING VALUABLE UNIVERSITY PATENTS**



# 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>16</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>17</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>18</sup>

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

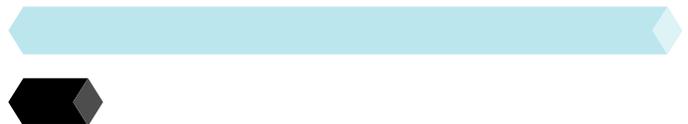
## MASSACHUSETTS HAS A SHORTAGE OF HEALTHCARE WORKERS

# 58,769

available healthcare jobs were advertised online in 2014, compared to **12,846** unemployed healthcare workers.

The resulting ratio of open jobs to available workers was

# 4.6 to 1



Additional number of psychiatrists needed now: **558**



Shortage of licensed practical nurses by 2030: **2,310**



Shortage of dentists projected by 2025: **338**



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

Foreign-Educated

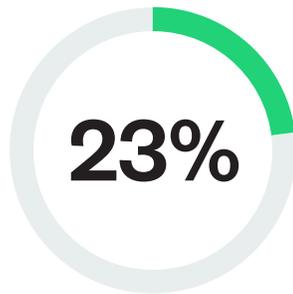
**Doctors**

8,000 graduates of foreign medical schools



**Psychiatrists**

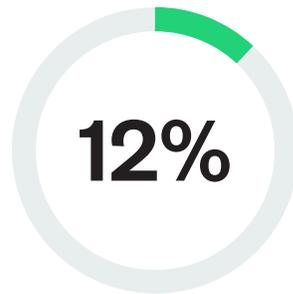
548 graduates of foreign medical schools



Foreign-Born

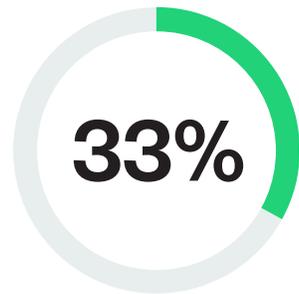
**Nurses**

10,690 foreign-born workers



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

24,649 foreign-born workers



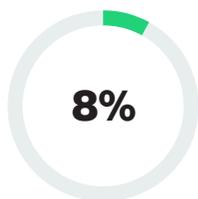
In Massachusetts, a state where more than one out of every seven residents is currently elderly, finding enough healthcare workers remains a challenge—and one that will likely worsen in the future. While the state has a healthy supply of practicing physicians, shortages impact a wide range of other healthcare fields. In 2014, 4.6 healthcare jobs were listed online in Massachusetts for every one unemployed healthcare worker in the state. Other occupations, such 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.<sup>19</sup>

Immigrants are already playing a valuable role helping Massachusetts meet some of its healthcare workforce gaps. In 2016 almost one in four physicians in Massachusetts graduated from a foreign medical school, a likely sign they were born elsewhere. Massachusetts' share of foreign-educated physicians ranks in the top 20 nationwide. Immigrant healthcare practitioners also made up 11.7 percent of the state's nurses in 2014, as well as one in three people employed as nursing, psychiatric, or home health aides.

# Agriculture

## 62.5%

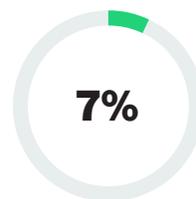
of farms in Massachusetts produced fresh fruits and vegetables in 2014.



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

## \$747M

Amount agriculture contributes to Massachusetts's GDP annually.



Share of overall agricultural workers in the state who are immigrants.

One sector that is important to Massachusetts is agriculture. In 2014, the agriculture industry contributed \$747 million to Massachusetts' GDP. Within that massive industry, fresh fruits and vegetables played a prominent role. In 2014, 62.5 percent of farms in Massachusetts grew fresh produce, a far higher share than the 31.4 percent of farms doing so nationally. Massachusetts also grew 210 million pounds and \$75.5 million worth of cranberries, more than any other state in the country except Wisconsin.<sup>20</sup> In fact, fresh fruit is Massachusetts' second largest agricultural export.

Massachusetts' 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.

The current visa system for agriculture presents many problems for states like Massachusetts. The H-2A visa program, which is designed to bring in temporary farm laborers, is too expensive and burdensome for many U.S. farms.<sup>21</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 Massachusetts 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 Massachusetts, Connecticut, New York, Rhode Island, New Hampshire, and Vermont decreased by 17.9 percent.

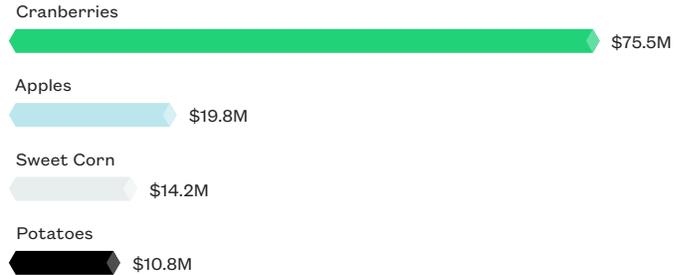
The shortage of qualified field and crop workers has made it difficult for many farmers in Massachusetts to keep pace with rising consumer demand for fresh fruits and vegetables. Between the 1998-2000 and 2010-

# \$123M

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

Massachusetts' leading agricultural exports include plant products (like sweetener and planting seeds), fresh fruits, processed fruits

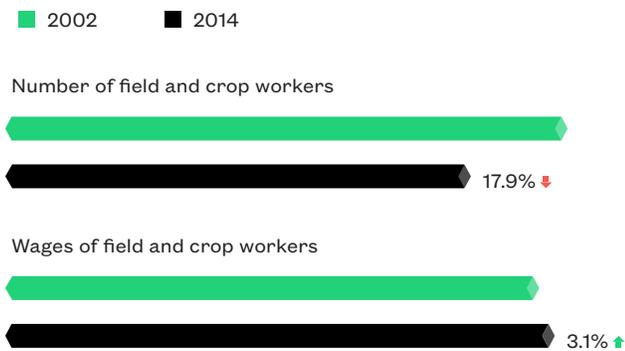
TOP FOUR FRESH PRODUCE ITEMS PRODUCED IN THE STATE, AS MEASURED BY FARM RECEIPTS



2012 time periods, for instance, the share of produce consumed by Americans that was imported from other countries grew by 79.3 percent. Labor issues explain an estimated 27 percent of that market share loss. Many farmers say a shortage of manpower has forced them to either cut back on the acres devoted to labor intensive crops or abandon expansion plans altogether.<sup>22</sup> Such moves, in Massachusetts and elsewhere, have cost the U.S. economy in recent years. If labor shortages had not been an issue, the country would have had an additional 24,000 jobs by 2012, including 17,000 in fields outside agriculture like transportation and irrigation. The U.S. economy would have had \$1.3 billion in additional farm income by 2012 as well.

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

THE SUPPLY OF FIELD AND CROP WORKERS IN MASSACHUSETTS IS DECREASING,



# 5,027 ↓

Decline in the number of field and crop workers in Massachusetts, Connecticut, New York, Rhode Island, New Hampshire, and Vermont 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.

\* Data on individual states is unavailable.

# Housing

Immigrant families have long played an important role helping to build housing wealth in the United States. One study released by the Partnership for a New American Economy and Americas Society/Council of the Americas, for instance, found that in recent decades the country's more than 40 million immigrants collectively raised U.S. housing wealth by \$3.7 trillion. Much of this was possible because immigrants moved into neighborhoods once in decline, helping to revitalize communities and make them more attractive to U.S.-born residents.<sup>23</sup>

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

households held more than \$85 billion in housing wealth in Massachusetts or more than one out of every seven dollars concentrated in real estate that year. They also paid 24.8 percent of the money Massachusettsans spent on rent, despite making up 17.2 percent of the state's households. Because Massachusetts' 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 28.7 percent of homes, immigrant families made up more than one in five new homebuyers from 2010 to 2014.

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



## 202,482

Number of immigrant homeowners in 2014

## \$85.4B

Amount of housing wealth held by immigrant households



## \$275.6M

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.

In fiscal year 2014, Massachusetts employers received DOL certification for almost 39,000 positions, including jobs across a wide variety of occupations and

## H-1B

Number of positions:

**33,473**

### Top jobs:

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

## GREEN CARD

Number of positions:

**2,285**

### Top jobs:

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

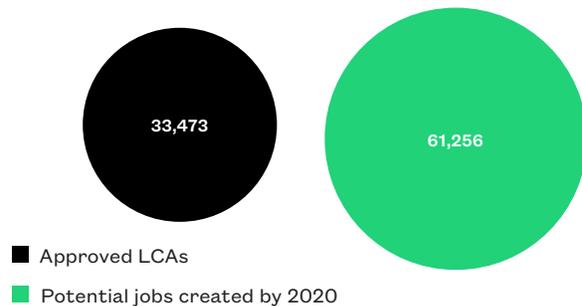
## CERTIFIED POSITIONS BY VISA TYPE, 2014



\* This includes only employment-based green cards

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

**33,473 LCAs** for H-1B workers could have created **61,256 jobs**.



## H-2A

Number of positions:

**432**

### Top crops or jobs:

- Apples
- Fruits and Vegetables
- Tobacco

## H-2B

Number of positions:

**2,798**

### Top jobs:

- Cleaners
- Food Preparation Workers
- Cooks, Restaurant

geographies within the state. They included more than 33,400 positions for potential workers on H-1B visas, as well as roughly 2,300 green cards. Federal officials also issued more than 2,800 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 Massachusetts 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>24</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>25</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>26</sup> Other academics have tied each H-1B visa award or labor request with the creation of four<sup>27</sup> or five<sup>28</sup> American jobs in the immediate years that follow.

## CITIES ARE DEMANDING VISAS ALL OVER THE STATE

### H-1B

#### Top cities:

- 1 Boston
- 2 Cambridge
- 3 Waltham

### H-2A

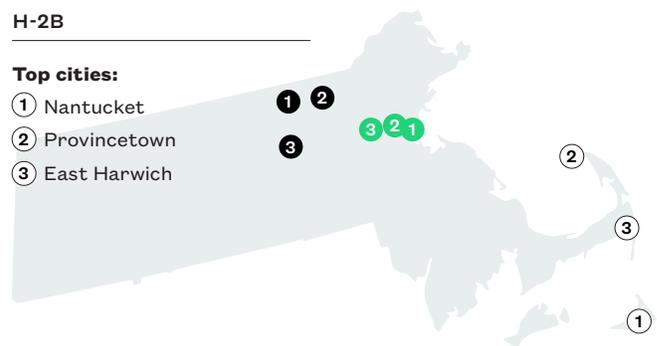
#### Top cities:

- 1 Lunenburg
- 2 Groton
- 3 Sterling

### H-2B

#### Top cities:

- 1 Nantucket
- 2 Provincetown
- 3 East Harwich



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>29</sup> On the first page of this section, we show the number of jobs that would have been created for U.S.-born workers in Massachusetts 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 Boston and Worcester metropolitan areas in 2007 and 2008 cost U.S.-born tech workers there in the two years that followed.

### BOSTON

**3,806 H-1B denials** for tech workers in the metro area cost computer workers there...

**3,176** ↓

Potential new jobs and **\$72.9M** in aggregate wage growth in the two years that followed.

### WORCESTER

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

**761** ↓

Potential new jobs and **\$14.7M** in aggregate wage growth in the two years that followed.

# Naturalization

**M**assachusetts' 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 Massachusetts are naturalizing, or becoming citizens, at considerably higher rates than they are in the country overall. In 2014, 52.1 percent immigrants in Massachusetts were already U.S. citizens. Nationally, the equivalent figure was 47.3 percent.

Like almost all parts of the country, however, Massachusetts 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>30</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>31</sup> If the average non-citizen in Massachusetts saw a wage boost at the low end of that range, or 8 percent, she would earn more than \$3,300 more per year—money that could be reinvested in the state's economy through her spending at local businesses. Multiplied by the roughly 240,000 non-citizens in Massachusetts currently eligible to naturalize, such policy initiatives could collectively boost wages in the state by almost \$800 million.

## 241,000

Number of non-citizens eligible to naturalize in 2014

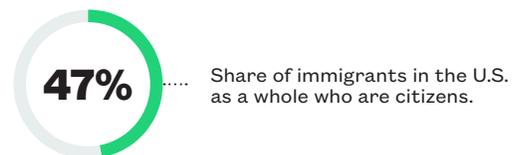
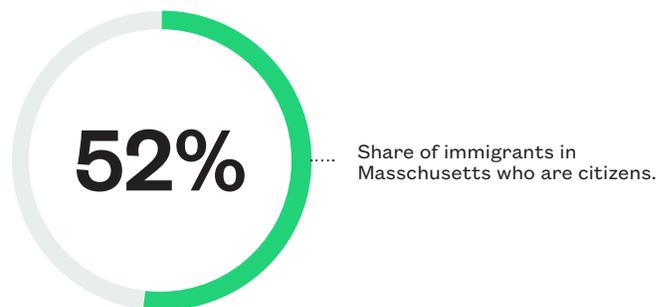


The average non-citizen in Massachusetts earns **\$41,299** per year. If they naturalized, they each could earn an average of **\$3,304 more** per year.

## \$796.2M

Aggregate additional earnings if eligible non-citizens naturalized.

### NATURALIZATION RATES IN MASSACHUSETTS



# International Students

Policymakers 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>32</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>33</sup>

In Massachusetts, the roughly 47,000 international college students studying on temporary visas make up just 9.4 percent of all college students in the state. Still, their economic contribution is enormous. They support more than 24,000 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 also **contributed more than \$30.5B** to the U.S. economy in the 2014-2015 school year and **supported more than 370,000 jobs**.

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



International students make up only **9%** of all students in Massachusetts.

**\$1.8B**

Economic contribution of international students to the state, 2015.

**24,375**

Jobs supported by international students, 2015.

# Voting Power

Immigrants in Massachusetts do not only make a difference to the state’s economy, they also play a large role at the voting booth. In 2014, Massachusetts was home to almost 515,000 foreign-born residents who were eligible to vote—a group that made up more than one in 10 of the state’s eligible voters. An estimated roughly 320,000 foreign-born Massachusettsans had also taken the step of formally registering. Although few would call Massachusetts a swing state, the sheer size of the immigrant voting bloc here means it has a meaningful impact on the way the state votes in both national and state elections. In 2012, for instance, President Barack Obama won Massachusetts by roughly 733,000 votes.

The power of immigrant voters is likely to continue to be a large factor in upcoming elections. Based on participation patterns in recent years, we would expect almost 263,000 foreign-born voters to cast formal ballots in the presidential election this year. An additional roughly 113,000 more immigrants will either naturalize or turn 18 by 2020, expanding the estimated pool of eligible new American voters in Massachusetts to almost 590,000 people.

# 514,889

Number of immigrants eligible to vote.



# 230,211

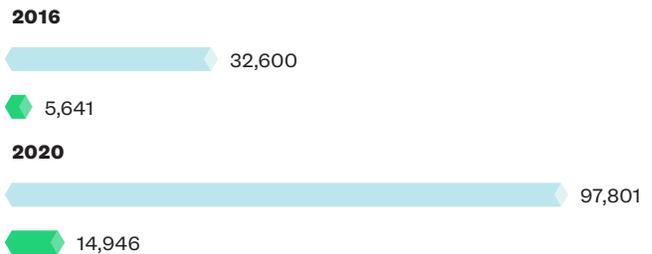
Number of immigrants registered to vote.

# 732,976

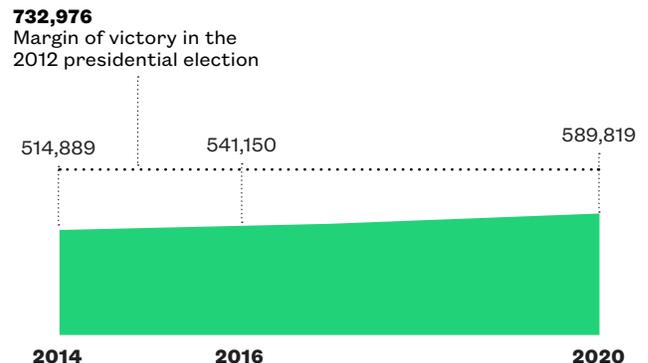
Margin of victory in the 2012 presidential election.

## THE GROWING POWER OF THE IMMIGRANT VOTE

- Immigrants who will become eligible to vote by turning 18
- Immigrants who will become eligible to vote through naturalization



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



# Undocumented Population

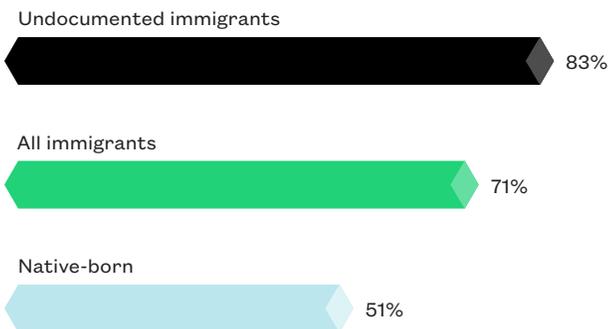
**T**he United States is currently home to an estimated 11.4 million undocumented immigrants, the vast majority of whom have lived in the United States for more than five years. The presence of so many undocumented immigrants in our country for such a long time presents many legal and political challenges 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. 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>34</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>35</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>36</sup>

One recent study found that **86.6%** 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.**

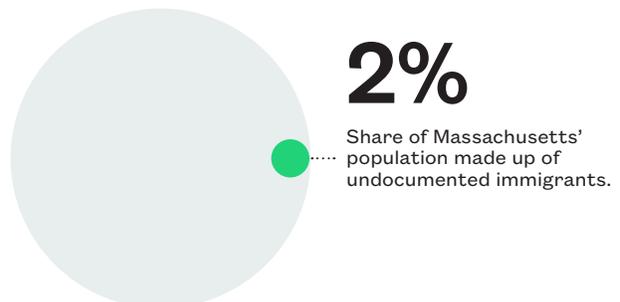
## UNDOCUMENTED IMMIGRANTS ARE MORE LIKELY TO BE WORKING-AGED THAN NATIVES OR OTHER IMMIGRANTS

Share of population ages 25-64, 2014



# 142,404

Estimated number of undocumented immigrants in Massachusetts.



# 13,220

Estimated number of undocumented entrepreneurs in Massachusetts.



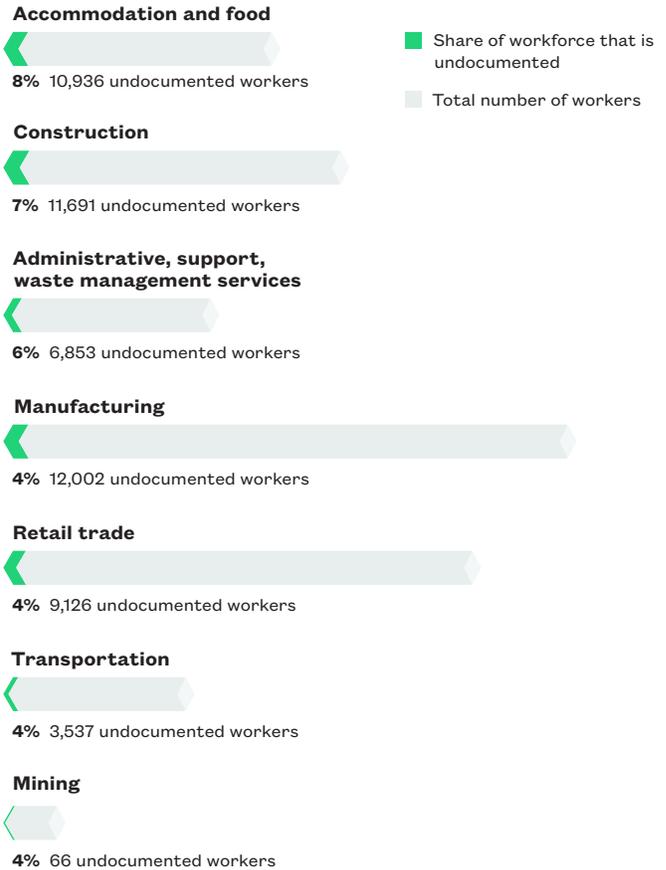
# \$244.5M

Total business income of self-employed entrepreneurs.

# 4.2%

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

## THE MASSACHUSETTS 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>37</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>38</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>39</sup>

The challenge of undocumented immigration is becoming increasingly apparent in places like Massachusetts, which have not historically been home to a large number 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 Massachusetts, 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 Massachusetts 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>40</sup> (See the Methodology Appendix for more details.)

Using this technique, we estimate that Massachusetts is home to more than 142,400 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 6.4 percent of all employees in Massachusetts’ administrative, support, and waste management services industry, a sector that includes grounds maintenance workers, janitors and building cleaners, and security guards. They also made up more than one in 13 workers employed in the accommodation and food services sector, as well as 4.2 percent of workers in the manufacturing industry. In Massachusetts, 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 Massachusetts have also managed to overcome licensing and financing obstacles to start small businesses. In 2014, an estimated 11.2 percent of the state’s working-age undocumented immigrants were self-employed—meaning Massachusetts was one of roughly two dozen states where unauthorized immigrants

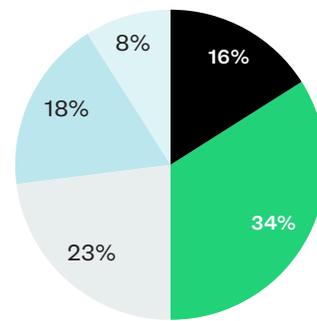
MEASURES OF ASSIMILATION AMONG MASSACHUSETTS’ UNDOCUMENTED POPULATION, 2014

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

In 2014,  
undocumented  
immigrants in  
Massachusetts  
earned **\$3.1B.**

**\$132.4M** — Went to state and local taxes...

**\$249.0M** — Went to federal taxes...

Leaving them with **\$2.7B**  
in spending power.

#### ENTITLEMENT CONTRIBUTIONS

Undocumented immigrants also contribute to our country's entitlement programs. In 2014, through taxes on their individual wages, immigrants contributed **\$65.0M** to Medicare and **\$246.5M** to Social Security.



Medicare



Social Security

boasted higher rates of entrepreneurship than either legal permanent residents or immigrant citizens of the same age group. More than 13,200 undocumented immigrants in Massachusetts 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 \$244.5 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 an incomplete picture of the impact of undocumented immigration. This is because the debate infrequently recognizes that since most undocumented immigrants are working, they make large federal and state tax contributions and frequently are net contributors to many of our most important—and most imperiled—benefits programs. Social Security’s Chief Actuary, for example, has credited unauthorized immigrants with contributing \$100 billion more to Social Security than they drew down in benefits during the last decade.<sup>41</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>42</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>43</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>44</sup> Federal government officials have also estimated that 75 percent of undocumented workers have taxes withheld from their paychecks.<sup>45</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>46</sup>

## In 2014, we estimate that Massachusetts households led by undocumented immigrants earned more than **\$3.1B** in income.

In 2014, we estimate that Massachusetts households led by undocumented immigrants earned more than \$3.1 billion in income. Of that, they paid an estimated \$249.0 million in federal taxes. They also contributed more than \$246.5 million directly to the Social Security program through taxes on their individual wages. Massachusetts’ 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 Massachusetts’ undocumented immigrants paid more than \$132.4 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>47</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 Massachusetts have largely assimilated into the United States, making it less likely that mass deportation will ever be a realistic option. We estimate that 69.8 percent of the state's undocumented population has been in the United States for five or more years. Approximately 73.4 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>48</sup> The labor market outcomes and educational levels of their children increase with time as well.<sup>49</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 Aaron Terrazas, "Immigrants in New-Destination States," Migration Policy Institute, 2011, <http://www.migrationpolicy.org/article/immigrants-new-destination-states>.
- 2 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>.
- 3 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>.
- 4 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>.
- 5 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>.
- 6 Fairlie, "Open For Business."
- 7 This is the most recent year for which data on employment is available.
- 8 "PASSINGS : Max Feldberg; Co-Founder of Zayre Department Stores - Latimes," Los Angeles Times, 1988, [http://articles.latimes.com/1988-04-29/news/mn-2279\\_1\\_max-feldberg](http://articles.latimes.com/1988-04-29/news/mn-2279_1_max-feldberg).
- 9 "History of The TJX Companies, Inc," FundingUniverse, accessed July 6, 2016, <http://www.fundinguniverse.com/company-histories/the-tjx-companies-inc-history/>.
- 10 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).
- 11 Craig Montuori, email message to author, June 23, 2016.
- 12 U.S. Department of Commerce, "Gross Domestic Product (GDP) by State," accessed July 2, 2016, <http://www.bea.gov/national/Index.htm>.
- 13 Jacob Vigdor, "Immigration and the Revival of American Cities," 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 "Employment Projections."

- 17** Katherine Grace Carman, Christine Eibner, and Susan M. Paddock, “Trends in Health Insurance Enrollment, 2013-15,” *Health Affairs*, 2015, [http://www.rand.org/pubs/external\\_publications/EP50692.html](http://www.rand.org/pubs/external_publications/EP50692.html).
- 18** Sean P. Keehan et al., “Age Estimates in the National Health Accounts,” *Health Care Financing Review* 26, no. 2 (2004): 1-16.
- 19** “The Future of the Nursing Workforce: National- and State-Level Projections, 2012-2025” (U.S. Department of Health and Human Services, 2014), <http://bhpr.hrsa.gov/healthworkforce/supplydemand/nursing/workforceprojections/nursingprojections.pdf>.
- 20** Agnes Perez and Kristy Plattner, “Fruit and Tree Nuts Outlook” (U.S. Department of Agriculture, Economic Research Service, 2015), <http://www.ers.usda.gov/media/1910543/fts-360.pdf>.
- 21** 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>.
- 22** 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>.
- 23** Vigdor, “Immigration and the Revival of American Cities.”
- 24** “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>.
- 25** Zavodny, “Immigration and American Jobs.”
- 26** 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>.
- 27** Matthew J. Slaughter, “Job Clocks Backgrounder,” 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).
- 28** “NFAP Policy Brief: H-1B Visas by the Numbers,” National Foundation for American Policy, 2009, <http://www.nfap.com/pdf/1003h1b.pdf>.
- 29** 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/>.
- 30** 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.
- 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-california/citizen-gain-economic-benefits-naturalization-immigrants-and-e>.

- 32** 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>.
- 33** “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/).
- 34** 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>.
- 35** 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>.
- 36** Ryan Honeywell, “How Language Fits Into the Immigration Issue,” *Governing*, 2012, <http://www.governing.com/topics/public-workforce/gov-how-language-fits-into-the-immigration-issue.html>.
- 37** 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>.
- 38** 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>.
- 39** Scott A. Wolla, “The Economics of Immigration: A Story of Substitutes and Complements,” Page One Economics Newsletter, 2014, 1-5.
- 40** Borjas, “The Labor Supply of Undocumented Immigrants.”
- 41** 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>.
- 42** 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>.
- 43** Emily Eisenhauer et al., “Immigrants in Florida: Characteristics and Contributions,” Research Institute on Social and Economic Policy, Florida International University, 2007, [https://risep.fiu.edu/research-publications/immigration/immigration-in-florida/2007/immigrants-in-florida-characteristics-and-contributions/immigrants\\_spring\\_2007\\_reduced.pdf](https://risep.fiu.edu/research-publications/immigration/immigration-in-florida/2007/immigrants-in-florida-characteristics-and-contributions/immigrants_spring_2007_reduced.pdf).
- 44** 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>.
- 45** 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>.
- 46** 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.”

- 47** 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/>.
- 48** 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.
- 49** 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-california/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/federalections2012.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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The Partnership for a New American Economy brings together more than 500 Republican, Democratic and Independent mayors and business leaders who support sensible immigration reforms that will help create jobs for Americans today. Visit [www.renewoureconomy.org](http://www.renewoureconomy.org) to learn more.

