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CEE Policy Series

Number 36

2019

The Best of Both Skills: U.S. Immigration, Work Visas, and Local Labor Shortages in Missouri

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ABSTRACT

In spite of political rhetoric condemning immigrants' contributions to the United States, scholars have persistently demonstrated positive social and economic contributions of immigrants. Studies such as these pose important policy implications for Missouri. To what extent does immigration contribute to recent Missouri economic outcomes? How are immigrant workers distributed across Missouri? Are there positive economic outcomes associated only with immigration of high-skilled workers? My analysis shows that higher per capita personal income and higher employment in certain industrial sectors are not solely attributed to high-skill workers. The results here suggest that economic productivity in Missouri is attributed to having a mix of high and low-skilled workers, and not solely one or the other.

1. INTRODUCTION

According to the Missouri Department of Economic Development (MDED), Missouri's unemployment in 2018 reached its lowest point since 2000.¹ MDED also showed that, starting in 2013, statewide labor participation rates began to diverge from the nation's rates, outperforming the U.S. by 1.1% in 2013, 1.8% in 2014, and 2.3% in 2015. Even though labor participation rates have decreased since 2016, MDED observed that the labor market in Missouri, particularly those regions with large metropolitan areas and more diverse local economies, have tightened.

Theory predicts that tighter labor markets will lead to more competition among prospective employees while employers look to increase production to meet new economic demands. Studies also have shown that tighter labor markets have prompted employers to recruit high-skilled immigrants to foster innovation and maintain productivity.² In spite of political rhetoric condemning immigrants' contributions to the United States, scholars have persistently demonstrated positive social and economic contributions of immigrants. Studies such as these pose important policy implications for Missouri. To what extent does immigration contribute to recent Missouri economic outcomes? How are immigrant workers distributed across Missouri? Are there positive economic outcomes associated only with immigration of high-skilled workers?

I use immigrant worker visa data from the Office of Foreign Labor Certifications (OFLC) in the U.S. Department of Labor (USDOL). Looking at the OFLC data for the years 2002 through 2018 provides a basis to answer some important questions. First, the OFLC, in coordination with state workforce agencies (SWA), is charged with admitting temporary immigrant workers to address labor shortages in local markets. Temporary labor decisions are ultimately the jurisdiction of the DOL. Even so, SWAs, local businesses, educational institutions, non-governmental organizations, and state/local government agencies must also apply for workers. As such, temporary labor certifications can be leveraged to measure efforts to remove local labor shortages. Second, OFLC data can also be used to determine the distribution of specific skills throughout the state. This is because OFLC data records the location in which migrants will work. Third, OFLC data also delineates migrant labor by skill, industry in which the labor is to be performed, and job title.

Using the OFLC and other data, the focus of this study is to examine the variation of foreign labor certifications across Missouri counties and compare two main channels of foreign labor: H1-b and

H2-b work visas, colloquially referred to as “high-skilled” and “low-skilled” migrant labor, respectively. The results of my analysis show that as unemployment rates decreased in most Missouri counties between 2002 and 2018, H1-b certifications increased. The evidence indicates that larger H1-b workforces are associated with metropolitan areas that have more diverse economies. Yet, what my analysis also shows is that higher per capita personal income and higher employment in certain industrial sectors are not solely attributed to high-skill workers. The results here suggest that economic productivity in Missouri is attributed to having a mix of high and low-skilled workers, and not solely one or the other.

2. TEMPORARY LABOR CERTIFICATIONS

The responsibility of the OFLC is outlined in the Immigration and Nationality Act (INA) for the Secretary of Labor. It is to protect U.S. workers against any adverse impact on their wages or working conditions by ensuring U.S. employer compliance with statutory requirements when these firms hire foreign workers to fill workforce shortages. The U.S. Department of Homeland Security categorizes temporary immigrant workers as nonimmigrants, who are foreign nationals granted permission to enter the U.S. for business or pleasure, academic or vocational study, temporary employment, or serving as a representative of a foreign government or international organization. Whereas the U.S. immigration system is historically known for its actions to reunify families, U.S. immigration is also characterized by temporarily admitting foreigners to fulfill U.S. labor needs.

Temporary immigrant workers most commonly gain admission to the U.S. through H1-b and H2-b work visas.³ The H2-b visa program allows an employer to employ foreign workers to perform temporary non-agricultural services or labor on a one-time, seasonal, peak load or intermittent basis. The most common H2-b occupations are in the forestry, landscaping, hospitality, construction, and outdoor amusement industries. Most occupations offered through H2-b visas require minimal to no education and minimal work training, although there are occupations, such as operators of combines and child care, that require a specialized body of knowledge to perform tasks. Even so, these typically are not considered “highly-skilled” jobs in popular discourse.

H1-b visas are reserved for immigrants who federal authorities deem as possessing a specialty skill. H1-b visas require people to work in an occupation that requires a bachelor’s degree or its equivalent in education and/or experience in the specific specialty, such as Science, Medicine and Healthcare,

Education, Biotechnology, and Business Specialties. The Science, Technology, Engineering, and Math (STEM) field is also included in specialty occupations. Researchers find foreign-born workers disproportionately fill these positions.⁴ OFLC data for FY2016 demonstrates an increase in demand for job opportunities for H1-B workers who are educated and skilled in specialized occupations compared to 2015.⁵ Consistent with other fiscal years, the top three occupations for positions certified were all computer-related occupations, with computer Systems Analysts representing 24 percent of the total H1-b positions certified. H1-b worker applications also come from educational employers, which accounted for 5 percent of the total positions certified in FY 2011. Of the positions certified for educational employers, approximately 75 percent were requested by colleges and universities, while 18 percent were requested by elementary and secondary schools.⁶

While the occupations of H1-b workers are distinct from H-2a and H2-b workers, the demand for H1-b workers also set them apart. According to the OFLC's Fiscal Report for 2016, current law limits the number of foreign workers who may be issued a new H1-B visa to 65,000 each fiscal year, with certain exceptions.⁷ An additional 20,000 visas are designated for those possessing advanced degrees earned at U.S. institutions. No ceiling exists for awarding H2-b visas, however. A limited supply of H1-b visas has fueled a competition over skilled labor, as employers have recently filled the H1-b cap more rapidly than past years,⁸ particularly in U.S. metropolitan areas.⁹

3. HYPOTHESES

Research has found that policymakers calibrate work enforcement mechanisms to local labor market conditions.¹⁰ As labor markets tighten, state and local policymakers adopt programmatic rules to encourage and maintain employment, despite the needs of the labor force.¹¹ In a similar fashion, it appears that policymakers relax immigration rules and increase noncitizen employment as labor markets tighten over time.¹²

Research findings suggest that tighter labor markets prompt employers to increase economic production by hiring more H1-b workers. Studies overwhelmingly show that an increase in the number of immigrants is associated with an increase economic growth. In particular, highly-skilled immigrants increase innovation.¹³ Others find that those U.S. states and localities that attract more high-skilled foreign labor often see faster rates of growth in labor productivity.¹⁴ Some findings also indicate that an increase in the number of H1-b workers contribute to higher firm profits.¹⁵ To this end,

I would expect the data to show that economic productivity is associated with more H1-b certifications over time.

Evidence for the positive economic impact of lower-skilled immigrants is more mixed, however. Some researchers find that low-skilled labor depresses the wages of native-born counterparts.¹⁶ Part of the public's animosity toward undocumented immigration is the perception that a wave of low-skilled workers would replace native-born workers and, given the demand for such workers, depress wages. In contrast, a 2007 Congressional Budget Office (CBO) report references an array of studies have found that states tend to collect more in taxes from unauthorized immigrants than they spend to provide social services and education for undocumented adults or children.¹⁷ Others find undocumented immigrants do contribute to the economies of federal, state, and local governments through increased tax revenues and can stimulate job growth.¹⁸ These studies raise challenges in estimating a national aggregate economic effect due to the lack of reliable and consistent data, and because the cost of providing law enforcement, health care, and education impacts federal, state, and local governments differently. Nevertheless, others suggest that low-skilled immigrant workers contribute to local economies by improving natives' purchasing power of nontraded services, such as housekeeping, gardening, landscaping, personal care, and services for buildings and dwellings.¹⁹ These services tend to be disproportionately provided by low-skilled immigrants. As such, I anticipate that areas with higher levels of per capita income also are likely to have more H2-b certifications over time.

4. DATA

Using OFLC disclosure and performance data between 2002 and 2018, I have assembled a dataset of H1-b and H2-b certifications across all Missouri counties. OFLC data provide a rich source of information on foreign-labor certifications, including a person's employer, the number of positions requested, the number of positions certified, occupation, worksite, and hourly wage. Some OFLC records provide the number of positions requested and certified at the county-level. What is more common, however, is the number of positions by the city in which the work is to be performed. I verify the city names in each annual performance report so that the same set of cities are represented across reports. I then match each city with its county. This process allows me to add up all the certified positions annually in each Missouri county.

I also have constructed a measure of per capita H1-b and H2-b certifications using the OFLC data base. Per capita measures aim to adjust for population size: Larger counties may have more certifications simply because they have more employers who are requesting foreign labor. Yet, their large foreign workforce may still represent a small proportion of the total county population. In contrast, foreign labor certifications may comprise a larger proportion of some smaller counties. To measure economic productivity, I use a variety of indicators provided by the Bureau of Labor Statistics data and the U.S. Census American Community Survey (ACS) 2013-2017 American Community Survey 5-Year Estimates. Using a county's population, I create per capita measures of its foreign-born population, personal income, and employment in the following eight ACS industry categories: Arts, Entertainment, Recreation, Accommodations, Food Preparation; Construction; Education, Healthcare, Social Services; Financial, Insurance, Real Estate; Information Services; Manufacturing; Professional, Sciences, Management, Administration; and, Retail.

3. NATIONAL

For the United States as a whole, the OFLC processed 775,979 employer applications for 1,699,957 positions for temporary and permanent labor certifications in FY2016. This represents a nine percent increase in the overall number of processed applications from the previous year, and a seven percent increase in job opportunities.²⁰ The number of H1-b and H2-b workers vary across the United States, with the most H1-b workers certified in California (227,039) and the least in Wyoming (183). Recruiting H1-b workers is highly competitive among employers. Businesses in high-growth industries and with the most organizational resources that allow them to file as many work visa applications possible are likely to push other businesses with fewer resources out of the market for highly skilled immigrants. This has subsequently led to a disproportionate number of H1-b workers on the Western and Eastern coasts of the U.S., leaving a shortage in the Midwest and South. Such regional disparities have prompted policymakers and business leaders to evaluate the extent to which firms could diminish work shortages in the Midwest and south through raising salaries benefits as well as creating jobs with upward mobility. The most H2-b workers—recall that H2-b workers tend to have lower skill sets than H1-b workers—were certified in Texas (18,002). The least were certified in the District of Columbia (0).

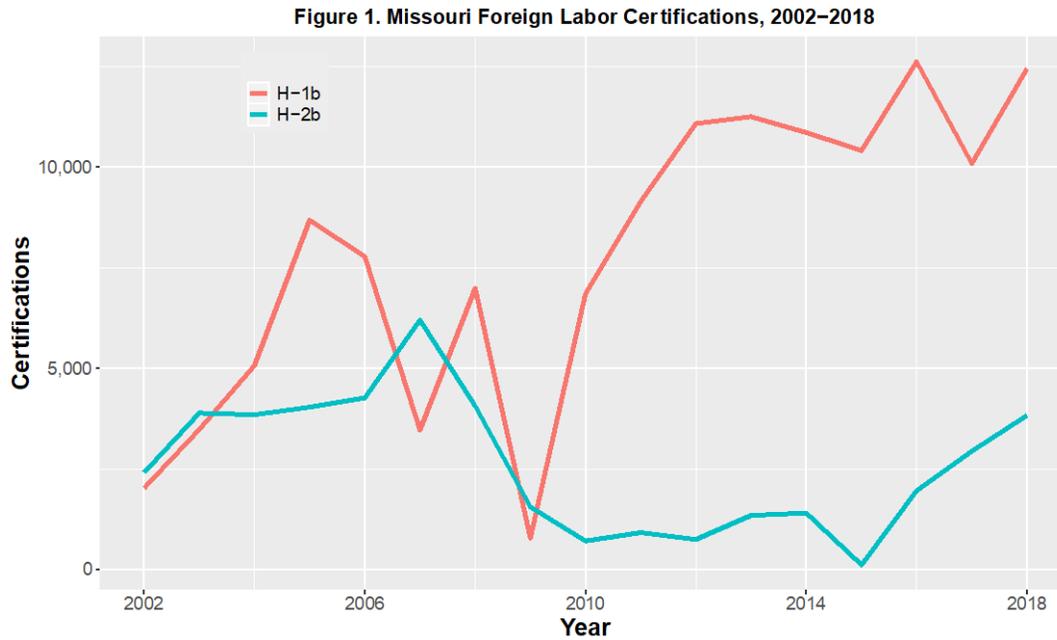
Table 1 in the appendix shows the distribution of H1-b and H2-b workers across the states, in terms of its raw size and its size as a percentage of state population.²¹ I also rank each state according to

its size and percentage of state population. The median H1-b and H2-b certifications in the United States are 6,227 and 1,752, respectively. The difference in scale of H1-b and H2-b certifications is stark. In FY2016, the United States certified 1,197,853 H1-b workers compared to 119,219 H2-b workers. Comparing the two states that had the most foreign labor certifications in 2016, the H1-b workforce in California was more than twelve times more than the H2-b workforce in Texas. Further, there were 18 states that had more H1-b certifications than H2-b certifications in Texas. Yet, foreign temporary certified workers still comprise a small percentage of state total population. The District of Columbia had the largest share of H1-b workers at just over 1 percent and Texas had the largest share of H2-b workers at 0.45 percent. Further, some states shift in ranking when using raw workforce size as opposed to per capita measures. For example, Florida, which had the 8th largest H1-b workforce and 2nd largest H2-b workforce in FY2016, drops to 25th and 24th, respectively, after accounting for its population. H1-b workers comprised of a larger percentage of state population in smaller states such as Delaware and Connecticut as well as in the District of Columbia. H2-b workforce size in states such as Alaska, Maine, the Dakotas, Vermont, and Mississippi are ranked higher after accounting for population.

4. MISSOURI AT THE STATE-LEVEL

There were 12,691 H1-b certifications in 2016. This number is well-above the U.S. median (6,227). Missouri also had 2,776 H2-b workers, which also is above the U.S. H2-b median (1,752). Missouri's per capita H1-b (0.21 percent) and H2-b (0.046) workforces are at and above the U.S. median, respectively. In comparison with states that share a border with Missouri, only Illinois had more H1-b workers, both in terms of raw size and percentage of population. Missouri also have more H2-b workers than adjacent states, with the exception of Arkansas which had a larger per capita H2-b workforce.

Missouri's H1-b workforce has grown at a higher rate than the H2-b workforce (see Figure 1). The H1-b workforce has grown over five times in size from 2002 (2,024) and 2018 (12,452). The number of H1-b workers in Missouri have steadily increased over time, dramatically increasing after the housing market crash in 2008. H1-b certifications more than doubled between 2002 (2,024) and 2008 (6,988). H1-b certifications reached a 15-year low of 784 certifications in 2009, but then grew fourteen times in size and reached 12,452 certifications in 2018.



The H2-b workforce also grew in size, but at a slower rate (60.1%). While experiencing a less dramatic increase, H2-b certifications have also grown since 2008. The H2-b workforce in Missouri is much smaller in size. Between 2002 and 2018, H2-b certifications reached a high of 6,200 in 2007 and a low of 709 in 2010. The housing market crash similarly affected H2-b certifications: Between 2002 and 2008, H2-b certifications increased by 69% while increasing 146% between 2009 and 2018.

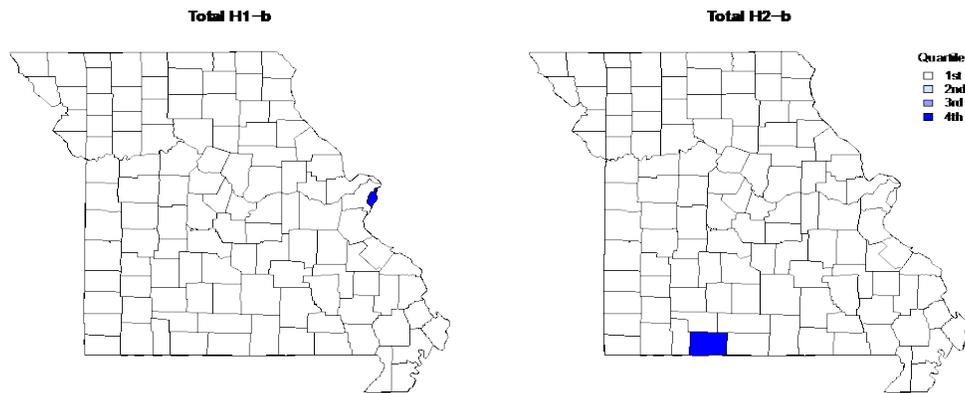
5. MISSOURI AT THE COUNTY-LEVEL

H1-b and H2-b certifications vary across the state. Figure 2 shows how the growth in the total number of H1-b and H2-b certifications between 2002 and 2018 varied across Missouri counties. I plot aggregate certifications as a percentage of each county’s population according to U.S. Census 5-year population estimates in 2017. The color shading in each map signifies the density of certifications based on quantiles, with darker colors indicating that certifications comprise a larger proportion of county population. For reference, Figure A-1 in the Appendix provides the raw number of certifications across Missouri counties while Figure A-2 ranks each Missouri County based on its per capita H1-b and H2-b workforce population.

H1-b and H2-b workers have comprised a small proportion of a county’s current population. Across 16 years, St. Louis City had the largest proportion of H1-B workers (17.25 percent), followed by Cole County (5.99), Jackson (4.12), St. Charles (3.64), Christian (2.76), Boone (1.77), St. Louis

County (1.63), Phelps (1.46), Jasper (1.30), Putnam (1.25). These areas comprise the 90th percentile of H1-B certifications. For H2-B workers, the following comprise the 90th percentile of H2-B certifications. Taney County had the largest proportion of H2-b workers (5.74 percent), followed by Camden (4.00), St. Charles (2.46), St. Louis City (2.26), Christian (2.04), St. Francois (1.65), Scott (1.18), Montgomery (1.16), St. Louis County (1.14), and Warren (1.01).

Figure 2. MO Per Capita Foreign-Labor Certifications, 2002-2018



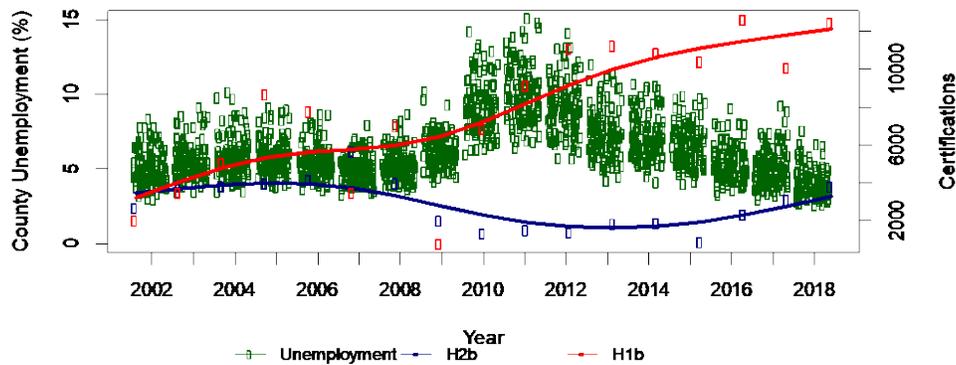
When Figures 2 and A-1 are taken together, I find that larger per capita H1-b and H2-b workforce populations tend to be centered near major Missouri cities (e.g., Kansas City, Columbia, St. Louis City, Springfield, St. Joseph, Cape Girardeau, Joplin, and Branson). H2-b workers typically tend to work in the areas surrounding major Missouri cities. With some exceptions, fewer H2-B workers are certified to work in northern, southeastern, and south-central parts of Missouri. Many of these outlying rural areas are at the lower end of the H2-b certification distribution (symbolized by the lightest shade of purple). Additionally, the H2-b distribution is highly skewed toward zero. Half of the distribution of H2-b certifications comprise of counties that had at most one H2-b worker between 2002 and 2018.

These results generally align with other studies on metropolitan areas and economic growth.²² For example, Hafer and Rogers (2019) find that substantial economic growth in Missouri since 1969 has occurred primarily in counties associated with the Saint Louis and Springfield Metropolitan Statistical Areas (MSAs), specifically, Saint Charles County and Christian County. These are also

the same areas that have attracted relatively more H1-b workers. In contrast, Hafer and Rogers (2019) also find slower economic progress in the northern and southeast regions on Missouri. These are mostly the same areas that that receive fewer H1-b and H2-b workers, suggesting that economic growth in Missouri is associated with having a mix of high-skilled and low-skilled immigrant labor.

Tightening labor markets are associated with increasing temporary foreign labor certifications, regardless of skill level. In Figure 3, I plot the annual county unemployment rate (represented by green dots) against the number of certified H1-b (red trend line) and H2-b workers (blue trend line) between 2002 and 2018.²³ Following the housing market crash of 2008, unemployment increased in a majority of Missouri counties. The median county unemployment rate in 2007 was 5.2% and increased to 9.8% in 2010. This compares to national unemployment rates of 4.6% and 9.6% in 2007 and 2010, respectively. Starting in 2011, though, the unemployment rate gradually decreased across Missouri counties. By 2015, median county unemployment rate returned to 5.2% (5.3% nationally) and continued to decrease to 3.9% (4.4% nationally) in 2017.

Figure 3. Missouri Foreign-Labor Certifications and Unemployment Rates



6. THE DISTRIBUTION OF FOREIGN-LABOR SKILLS ACROSS MISSOURI

The growth of foreign labor certifications in Missouri has mostly been driven by the areas in the 90th percentile of total H1-b and H2-b certifications between 2002 and 2018, which are listed in Table 1. The geographic patterns of foreign-labor certifications can also be in part explained by work skills. Among H1-b workers certified to work in Missouri in 2016, computer science occupations

were certified the most. Four out of the top five most certified H1-b applications involved positions for Computer Systems Analysts (3,483), Software Developers (1,982), all other computer occupations (1,501), and computer programmers (1,329). The next largest H1-b certified group were Accountants and Auditors (743).

Some skills are specific to Missouri areas. Recently, St. Louis City was hailed for its inclusive tech climate and community (Alvarez 2018). Other national reports lauded Kansas City for educational and skill gains in its workforce (Collins 2018). H1-b jobs are also found in higher education, research, and healthcare, which pulls them toward the areas with colleges, universities, hospitals, and health-related organizations. The variety of industries in which high-skilled immigrant labor work also highlights that having a college or university as the sole job producer in an area is not enough to attract such workers. Places like Kirksville in Adair County is the home of Truman State University, and Cape Girardeau in the boot heel is home of Southeast Missouri State University. While these are major universities in Missouri and contribute positively in many ways to their local areas, they still attract relatively fewer H1-b workers.

Table 1. Missouri Areas in 90th percentile of Total H1-b and H2-b Certifications between 2002 and 2018

H1-b	H2-b
St. Louis City	Taney
Cole	Camden
Jackson	St. Charles
St. Charles	St. Louis City
Christian	Christian
Boone	St. Francois
St. Louis County	Scott
Phelps	Montgomery
Jasper	St. Louis County
Putnam	Warren

Note: Areas listed in decreasing order.

H2-b certifications are mainly occupations involving landscaping and grounds keeping services (2,332). The next biggest group consists of Maids and Housekeeping Cleaners (158), followed by Amusement and Recreation Attendants (89); Helpers–Brickmasons, Blockmasons, Stonemasons (55); and Dining Room and Cafeteria Attendants and Bartender (33). Major metropolitan areas also pull H2-b laborers who perform work related to professional and collegiate sports and home improvement and personal services businesses. Taney County has received relatively more H2-b workers in Missouri. This may be partly attributed to Branson as a popular tourism and entertainment hub for Missouri. The work performed by H2-b visa holders are vital to local economies that rely on providing services, dining, entertainment, and hospitality to attract out-of-town visitors. Branson’s entertainment and tourism industry may also draw a considerable number of H1-b workers (see Christian County) who work in engineering and computer system fields to maintain the technological aspects of amusement parks and concert venues.

Areas in Missouri with specific industries also tend to have more foreign workers. Following I plot each area by its 2017 per capita foreign-born population and per capita employment in the eight ACS industry categories.²⁴ In each plot, I highlight (in blue) the areas that are in the 90th percentile of foreign labor certifications compared to the rest (in gray) between 2002 and 2018. In Table 2, I document the names of the counties and cities (i.e., St. Louis City) that are also in the 90th percentile of per capita foreign-born population.

Table 2. Per Capita Area Foreign-born Population and Industry Concentration

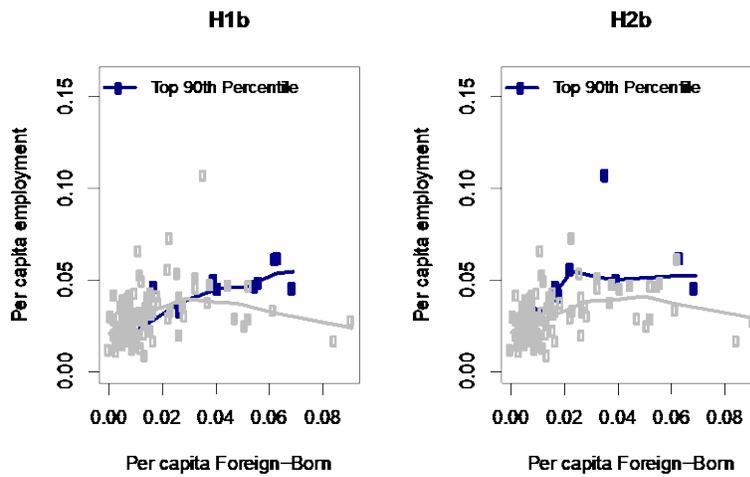
ACS Industry Category	Missouri Area in 90th Percentile of Per Capita Foreign Born Population
Arts, Entertainment, Recreation, Accommodation and Food Preparation	Taney, Nodaway, Stone, St. Louis City, Boone, Camden, Cape Girardeau, Miller, Greene, and St. Charles
Financial, Insurance, and Real Estate	St. Charles, St. Louis, Platte, Boone, Clay, Cass, Jackson, Jefferson, Vernon, and Christian

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Information Services	Linn, Platte, Chariton, Adair, St. Charles, Jackson, Mercer, St. Louis, and St. Louis City
Professional, Sciences, Management, Administration	Platte, St. Louis, Jackson, Clay, St. Charles, Taney, St. Louis City, Cass, Jefferson, and Greene
Manufacturing	Sullivan, Perry, Gasconade, Laclede, St. Genevieve, Franklin, Pettis, Barry, Clark, and McDonald
Construction	Warren, St. Genevieve, Scotland, Worth, Lincoln, Franklin, Bates, Washington, Daviess, and Miller
Retail	Miller, McDonald, Taney, Randolph, Morgan, Schuyler, St. Charles, Christian, Jasper, and Boone

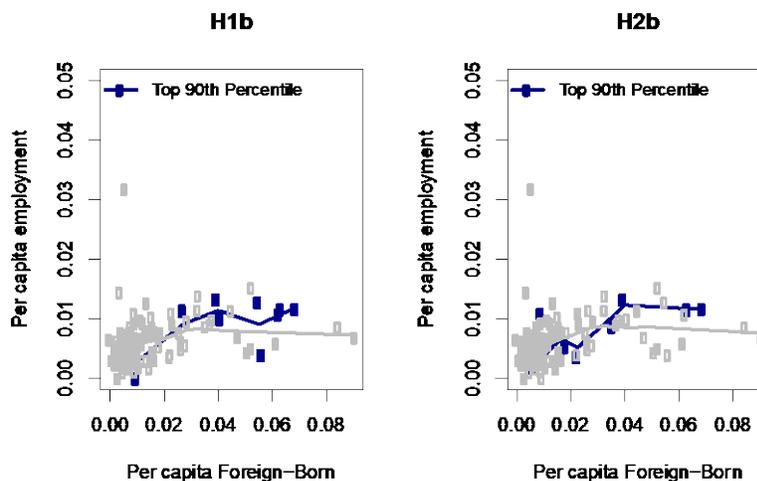
In most industry categories, the association between employment and foreign-born population of an area is mixed. Yet, I find a clearer relationship when accounting for which areas also have attracted relatively more foreign-born certifications over time. For example, areas with more workers in arts, entertainment, recreation, accommodation, and food preparation also were areas that were in the 90th percentile of per capita H1-b and H2-b workforces. While the relationship between foreign-born population and employment is slightly curvilinear, it is relatively more positive among the H1-b 90th percentile areas. H2-b 90th percentile areas also tend to have higher per capita employment than most other Missouri areas.

Arts, Entertainment, Recreation, Accommodations, Food Preparation

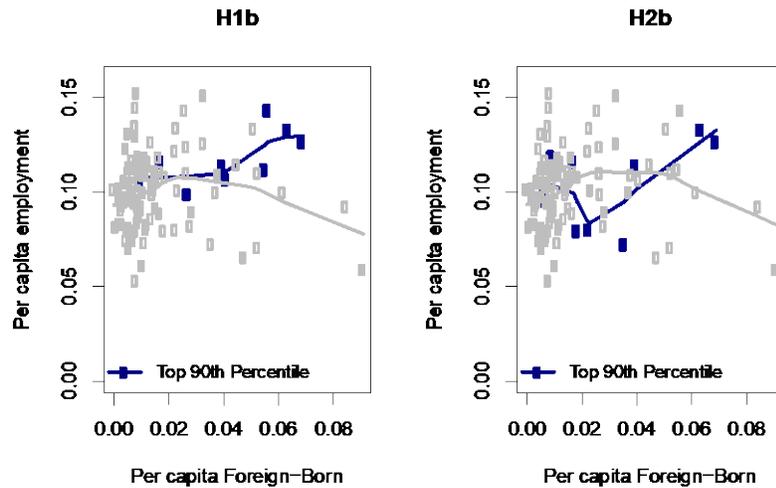


A similar pattern is found in the information services industry. The relationship between foreign-born population and employment is generally flat. When I highlight the H1-b and H2-b 90th percentile areas, I find a slightly more positive association. Most H1-b 90th percentile areas have higher per capita employment in the information services industry, which makes sense when considering the information and technology skills that some H1-b workers have. The results provide more mixed evidence that H2-b 90th percentile areas also contribute to higher per capita employment. In the education, healthcare and social services industries, the relationship between foreign labor certification and employment is clearer for areas that attracted more H1-b workers over time.

Information Services

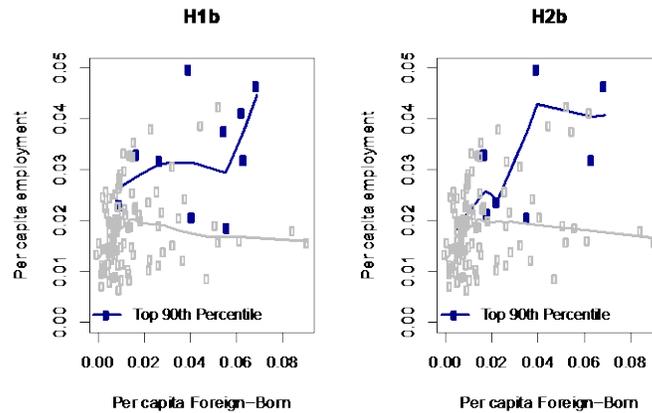


Education, Healthcare, Social Services

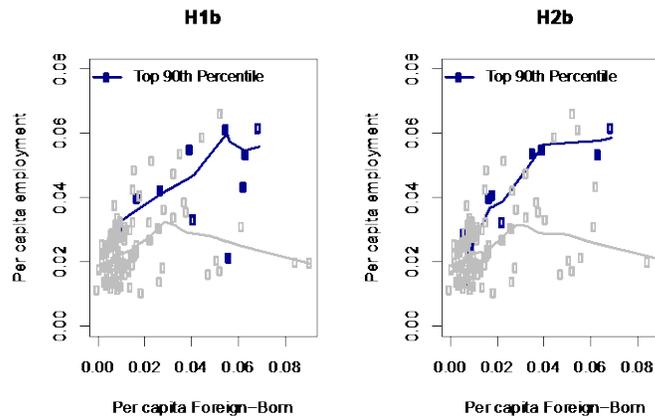


There are other industries where both kinds of foreign labor certifications have a clearer relationship with industry employment. In the financial, insurance, and real estate industries, for example, areas that are in the 90th percentile of H1-b and H2-b workforce size have relatively higher industrial employment than most other Missouri areas. A similar pattern is found for work in professional services, management, administration, and sciences. In most Missouri counties, foreign-born population size is not associated with higher levels of per capita employment in those industries. These results lend more support for the argument that specialized industries need both kinds of skilled labor in order to increase productivity. A conventional assumption is that business increase profits by specializing its workforce, in which H1-b workers are hired to contribute. Yet, the skills of H2-b laborers are also important in supplementing and contributing to productive working environments, in which H2-b workers provide maintenance and services that are vital in managing a business and buttressing employee productivity, satisfaction, and safety at their workplace.

Financial, Insurance, Real Estate



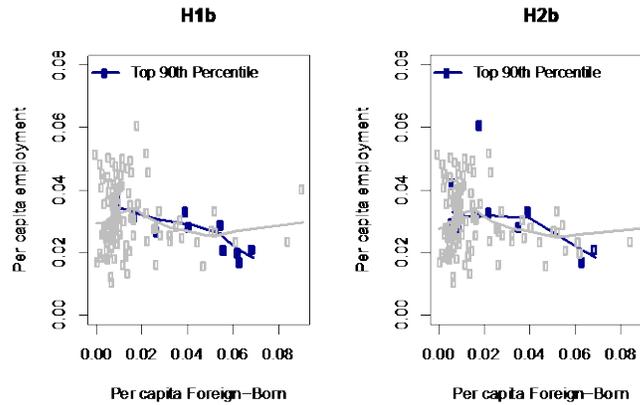
Professional, Sciences, Management, Administration



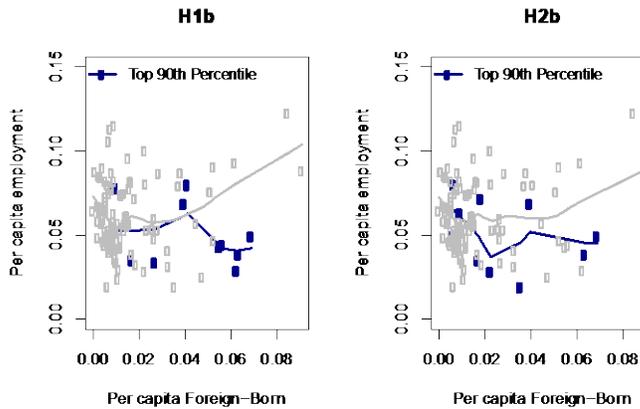
In contrast, there are also industries such as retail, manufacturing, and construction in which foreign-labor certifications contribute minimally to employment. In the construction industry, per capita employment does not generally increase across per capita foreign-born population. Further, employment in areas with larger H1-b and H2-b workforce size also does not increase. There is also some evidence to suggest that the construction and manufacturing industries in areas in the top distribution of H1-b and H2-b workers tend to not depend on foreign-labor certifications. This does not necessarily mean that the such industries do not employ immigrants who are looking to work in construction. According to Passel and Cohn (2016), undocumented immigrants hold a disproportionate share of construction jobs and a lower share of share of maintenance, management, professional, sales and office support jobs than their share of the workforce overall.²⁵ They estimate 5% of civilian workforce are undocumented immigrants. In comparison, 13% and 6% of construction

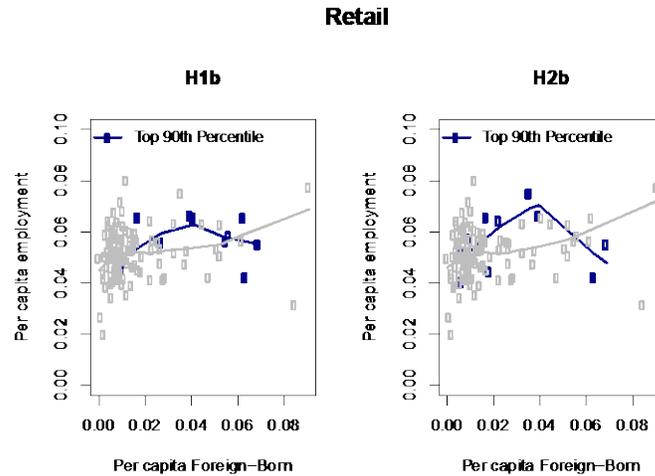
and manufacturing workers, respectively, have undocumented status. These results suggest a shift in federal and state economic priorities from building local economies dependent on manufacturing and retail trade to ones focused on services.²⁶

Construction



Manufacturing





7. DISCUSSION AND CONCLUSION

Scholars have shown that public perception over the economic consequences of increasing U.S. immigration are polarized across partisan and ideological beliefs; some have also shown that negative perceptions are often attributed to class differences and fears of U.S. workers being displaced by immigrants who are willing to work for lower wages.²⁷ Yet, others find that public animosity toward immigration has also been shown to transcend immigrant skill-level.²⁸ In his presidential campaign, Donald Trump criticized the H1-b program, vowing to end it upon taking office.²⁹ Nevertheless, political leaders often show case H1-b workers who receive college degrees and work in high-skilled industries or STEM fields. Some politicians also have relaxed employment verification rules to manage employment needs of their local economies.³⁰

In the context of political leaders talking about the importance and growth of STEM fields in the U.S. economy, the steady growth of skilled immigrant workers in Missouri is not surprising. Yet, the data show that only counties with serviced-based economies, higher education institutions, and companies focusing on healthcare and technology are motivated to recruit more H1-b workers. Without such industries, Missouri employers have little reason to apply for H1-b workers. This partly explains the lower H1-b certifications in areas away from the regional economic centers.

Second, the results add to other research studies that aim to dispel the notion that higher economic productivity is solely attributed to high-skilled immigrant workers. In a variety of industries, counties with the most foreign labor certifications, regardless of skill level, also had higher per capita

employment. Counties with the most H1-b and H2-b workers tended to also have higher per capita personal income. The results presented here suggest that economically productive areas of Missouri may have become economically successful because of their intentional recruitment of high- and low-skilled workers to that area. Mainstream discourse often positively constructs highly skilled and educated immigrant workers.³¹ American children are often socialized to want to become doctors and lawyers while careers in science, engineering, and entrepreneurship have also become more socially desirable.³² Yet, the contributions of low-skilled immigrants - providing goods and services, contributing to local government coffers through sales, income, and property taxes - tend to be overlooked. H2-b visa holders work in industries that not only support and facilitate local commercial interests, but also take part in creating vibrant and stable communities in which Missourians—and others from outside the state—want to live.

The results here also present issues for Missouri policymakers, business leaders, community leaders, and migrant advocates. First, it is unclear whether H1-b certifications will continue to increase nationally or in Missouri. Due to the Trump Administration's opposition to the H1-b work visa program and support for imposing more restrictions on U.S. immigration, it is expected that foreign labor certifications to decrease after 2018. As current discourse has shown, policymakers in cities across Missouri have aimed to rebrand the state away from its manufacturing-based economy to a technology-based one. Trump's "Buy American, Hire American" platform has conflicted with many companies, especially tech firms, hospitals, and universities that use H1-b workers to fill their workforces.

Second, while employers as well as political and community leaders must strive to intentionally create an immigrant workforce with a mix of skill levels, rather than exclusively recruiting immigrants in STEM fields. Currently, the Missouri state legislature has fostered a hostile and stigmatizing environment for immigrants. Missouri voluntarily participates in E-Verify that requires state contractors and private employers to confirm the identity and eligibility of workers, which political elites have hailed as a measure to curb undocumented immigration. Republican leaders in the state legislature have also attempted to create a state ban on sanctuary policies, which allows cities and municipalities to pledge protection of undocumented immigrants from prosecution. Missouri Republicans have also consistently proposed bills that would deny immigrants financial assistance to pay for higher education. In addition, federal laws have encouraged state and local law

enforcement agencies to cooperate with Department of Homeland Security (DHS) to apprehend and detain immigrants suspected of having unauthorized status. More research is needed to further understand the “supplemental” economic contributions from low-skilled immigrant workers (e.g. improving natives’ purchasing power of nontraded services; see Cortes, 2008).

The prospect of anti-immigration legislation and resolutions should raise public concerns about some current elected leaders potentially harming the state economy. Additionally, the results should also remind immigration progressives that the Missouri economy can also suffer if their policy agenda only promotes the recruitment of high-skilled immigrants while marginalizing the contributions and interests of low-skilled immigrant workers.

Third, industries that employ H2-b workers, who attain legal status through a work visa program, are also likely to hire undocumented immigrants. Potentially, the state’s restrictive laws that target undocumented immigrants could damage the Missouri economy in various ways. First, anti-immigration legislation could dissuade immigrant workers who have attained legal status through a work visa from coming to Missouri. During current economic conditions with lower unemployment, this could adversely affect employers who are trying to maintain current production and innovation. Second, the enforcement of laws targeting undocumented immigrants may unnecessarily affect H2-b workers. To this end, law enforcement agents, employers, and the community-at-large must understand that H2-b work visas provide lawful status. In addition, employers must maintain strong lines of communication with their H2-b workers to ensure that they do not violate the terms of their work visa. Lastly, federal lawmakers are interested in penalizing employers who hire undocumented immigrants. Employers in industries that are dependent on low-skilled immigrants may be less inclined to hire, thus avoiding any scrutiny or sanctions.

In conclusion, the future of Missouri’s economy will depend in large part on creating and strengthening communities where all people can thrive. This includes welcoming immigrants who are specifically hired by U.S. companies to perform labor. In this paper, I presented results showing that Missouri has experienced a growth of H1-b and H2-b immigrant workers who work in industries requiring high- and low-skills, respectively, over time. The STEM movement has increased the demand for H1-b workers nationally. Missouri’s foreign labor certifications also follow national trends, and also its total H1-b workers certified between 2002 and 2018 is above the national median. This growth has occurred even as labor markets tightened. This study also showed the extent to which H1-b workers

are unevenly distributed across the state and typically cluster around regional economic centers. The results also show that H2-b workers have also increased, albeit at a lower rate. Missouri's total H2-b certifications between 2002 and 2018 is also above the national median. The distribution of H2-b workers also clusters around regional economic centers, which suggests that Missouri's economic productivity involves having a mix of high and low-skilled workers. H1-b and H2-b workers have and will continue to play key roles in maintaining productivity and fostering innovation.

When taken together, though, the results indicate only a few areas in Missouri that have been able to capitalize on the economic benefits of having both kinds of skilled workforces. To strengthen the Missouri economy in the years to come, policymakers and community leaders must strive to ensure that current and emerging regional economies have the capacity to support the welfare of immigrant workers, regardless of skills.

Adriano Udani is an Associate Professor in the Department of Political Science, University of Missouri – St. Louis. Funding for this study was provided by the Hammond Institute's Center for Economics and the Environment, Lindenwood University.

A version of this study appeared in the Spring/Summer issue of the Missouri Policy Journal. It is accessible at <https://www.lindenwood.edu/academics/beyond-the-classroom/publications/missouri-policy-journal/number-8-spring-summer-2019/>

NOTES

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³ The H-2a nonimmigrant program is designed to provide U.S. farms with short-term agricultural labor when there is not adequate numbers of available domestic workers. H-2a labor visas generally are granted for 10 months or less, and there is no limit on the number of foreign workers who may be issued an H-2a visa.

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Appendix

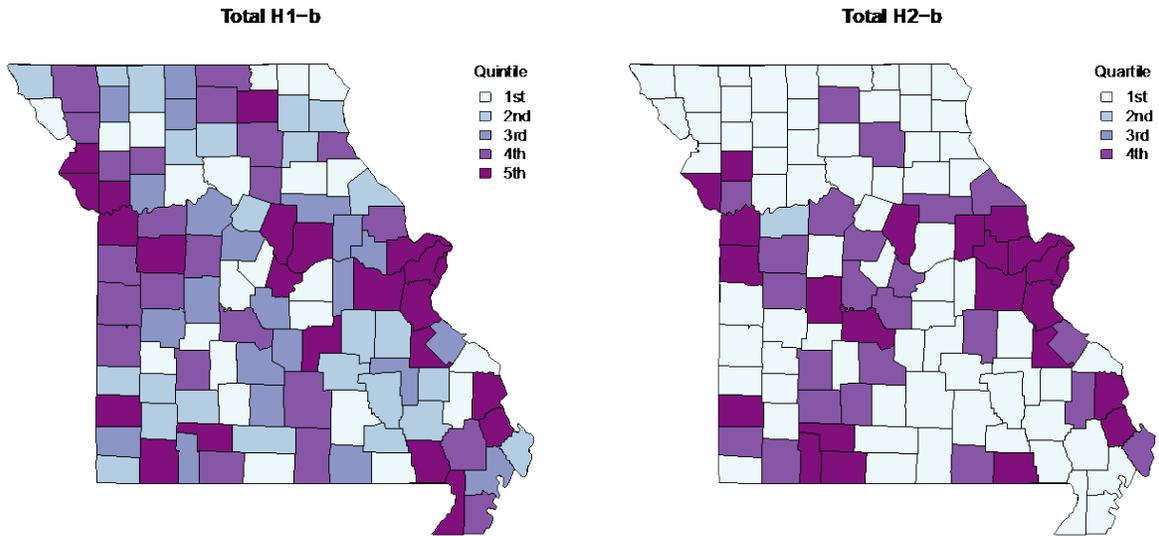
Table A-1. Foreign–Labor Certifications by State, FY2016

State	H1-b	H1-b (rank)	H2-b	H2-b (rank)	% H1- b of state pop	% H1-b of state pop (rank)	% H2-b of state pop	% H2-b of state pop (rank)
Alabama	2,508	39	1,882	23	0.05	47	0.039	27
Alaska	331	50	3,250	13	0.04	49	0.441	1
Arizona	16,834	17	3,826	9	0.25	22	0.057	17
Arkansas	5,476	30	2,078	22	0.18	29	0.070	10
California	227,039	1	2,130	21	0.59	8	0.006	49
Colorado	13,103	20	6,179	3	0.24	23	0.115	6
Connecticut	21,864	15	547	41	0.61	5	0.015	43
Delaware	6,227	26	419	46	0.67	3	0.045	21
DC	6,716	25	0	51	1.02	1	0.000	51
Florida	43,642	8	7,955	2	0.22	25	0.040	24
Georgia	44,061	7	2,404	19	0.44	12	0.024	38
Hawaii	726	47	37	50	0.05	48	0.003	50
Idaho	1,233	42	1,103	33	0.08	41	0.067	11
Illinois	70,515	6	1,790	24	0.55	9	0.014	45
Indiana	10,772	23	1,226	31	0.16	31	0.019	40
Iowa	5,059	31	573	40	0.16	32	0.018	41
Kansas	3,932	32	1,159	32	0.14	33	0.040	23
Kentucky	5,811	29	869	37	0.13	35	0.020	39
Louisiana	2,674	37	4,434	5	0.06	45	0.095	7
Maine	1,180	43	2,378	20	0.09	40	0.179	2
Maryland	15,178	19	3,408	12	0.25	21	0.057	16
Massachusetts	42,118	9	4,480	4	0.62	4	0.066	14
Michigan	32,794	13	2,621	17	0.33	15	0.026	34
Minnesota	18,177	16	1,434	29	0.33	14	0.026	35
Mississippi	1,274	41	2,520	18	0.04	50	0.084	8
Missouri	12,691	21	2,776	15	0.21	26	0.046	20
Montana	595	49	421	45	0.06	44	0.041	22
Nebraska	3,755	34	468	43	0.20	27	0.025	36
Nevada	2,535	38	837	38	0.09	39	0.029	32
New Hampshire	3,545	35	441	44	0.27	19	0.033	29
New Jersey	77,688	4	2,715	16	0.87	2	0.030	31
New Mexico	1,509	40	180	49	0.07	42	0.009	48

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New York	99,932	3	3,420	11	0.51	10	0.017	42
North Carolina	32,820	12	3,950	8	0.33	16	0.040	25
North Dakota	735	46	1,065	34	0.10	37	0.145	4
Ohio	32,444	14	2,812	14	0.28	18	0.024	37
Oklahoma	3,757	33	1,534	27	0.10	38	0.040	26
Oregon	9,371	24	1,488	28	0.24	24	0.037	28
Pennsylvania	75,685	5	4,195	6	0.59	7	0.033	30
Rhode Island	3,449	36	534	42	0.33	17	0.051	18
South Carolina	6,017	27	3,498	10	0.12	36	0.072	9
South Dakota	599	48	1,414	30	0.07	43	0.166	3
Tennessee	11,417	22	1,752	26	0.17	30	0.027	33
Texas	120,479	2	18,002	1	0.45	11	0.067	13
Utah	5,826	28	1,788	25	0.20	28	0.061	15
Vermont	831	45	881	36	0.13	34	0.141	5
Virginia	34,546	11	4,124	7	0.42	13	0.050	19
Washington	41,902	10	1,044	35	0.59	6	0.015	44
West Virginia	1,045	44	181	48	0.06	46	0.010	47
Wisconsin	15,253	18	606	39	0.27	20	0.011	46
Wyoming	183	51	391	47	0.03	51	0.067	12
Median	6,227		1,752		0.21		0.040	

Figure A-1. MO Foreign-Labor Raw Certifications, 2002-2018



Note: The quintile thresholds for H1-b certifications are: 0 - 7.8, 7.8 - 17.0, 17.0 - 50.8, 50.8 - 105.0, and 105 - 54,504.0. The quartile thresholds for H2-b certifications are: 0, 1, 1 - 7.48, and 7.48 - 9,050.76. The distribution of H2-b certifications were measured in quartiles due to the number of counties that had 1 or fewer H2-b certifications.

Figure A-2. Foreign-Labor Certifications by Missouri County (Per Capita), 2002–2018

