



DIGITAL

ENFORCEMENT



Effects of E-Verify on Unauthorized
Immigrant Employment and Population

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EXECUTIVE SUMMARY

E-VERIFY DIGITALLY CHECKS workers' documentation against official records. Although the federal government requires its own agencies and contractors to use E-Verify, it does not require that other employers use it. A number of states have stepped into this void and required that some or all employers use E-Verify. As a result, E-Verify has become increasingly prevalent, with half of newly hired workers nationwide vetted through the system in 2015.

With discretion left to the states, there is large regional variation in E-Verify laws and usage. Twenty-one states required use of the program as of December 2016. Most states only require public-sector employers or contractors to use E-Verify; only eight states have universal mandates covering all employers.

Alabama, Arizona, Georgia, Mississippi, North Carolina, South Carolina, Tennessee and Utah have mandated that virtually all employers use the system to screen new hires. This study examines the impact of E-Verify requirements on the number of likely unauthorized immigrants living and working in seven of those states. (Tennessee adopted its universal E-Verify mandate relatively recently and isn't included in this study.)

Our analysis indicates that the number of unauthorized immigrants and/or unauthorized immigrant workers fell below what would have been expected absent E-Verify in five states—Alabama, Arizona, Georgia, Mississippi and Utah. This is based on counterfactual projections using states with characteristics resembling those studied.

In addition to these relative declines, the actual numbers of likely unauthorized immigrants living and working in Arizona and Mississippi were, as of 2015, below the levels at the time of implementation in 2008. In Alabama and Utah, they are about the same or slightly higher than when those states' laws took effect in 2012 and 2010, respectively. Meanwhile, four years after Georgia implemented E-Verify in 2012, there were fewer than the projected number of unauthorized immigrant workers but no measurable change in the unauthorized immigrant population. Finally, there was no statistically discernable change in the number of likely unauthorized immigrants living or working in North Carolina and South Carolina.

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EFFECTS OF E-VERIFY ON UNAUTHORIZED IMMIGRANT EMPLOYMENT AND POPULATION

OVERVIEW

THE 1986 IMMIGRATION REFORM and Control Act prohibited employers from knowingly hiring unauthorized workers. In the ensuing decades, government at all levels and private employers have pursued various strategies to ensure a legal workforce. One tool created as part of those efforts is an online federal system, E-Verify. It enables employers to digitally check eligibility documents provided by new hires against federal records. The federal government requires its own agencies and contractors to use E-Verify, with requirements for other employers left to the discretion of the states. Firms not subject to a government rule may still choose to use the system. As of December 2016, at least some employers in 21 states had to use E-Verify.

In 14 states—Colorado, Florida, Idaho, Indiana, Louisiana, Michigan, Minnesota, Missouri, Nebraska, Oklahoma, Pennsylvania, Texas, Virginia and West Virginia—E-Verify requirements only apply to certain public-sector agencies or contractors. Another eight states—Alabama, Arizona, Georgia, Mississippi, North Carolina, South Carolina, Tennessee and Utah—currently have universal mandates that require all or nearly all employers to use the system to screen new hires. States have tended to phase in requirements, beginning with larger employers and then extending to smaller ones; some states with universal mandates exempt very small employers. Louisiana requires employment verification but does not mandate the use of E-Verify for that purpose. Use of the system has increased steadily and, in 2015, the share of newly hired workers nationwide run through the system reached 50 percent.

This report estimates the effects of state E-Verify requirements on the number of likely unauthorized immigrants living and working in seven states with

universal requirements. (Tennessee’s requirement began too recently to examine its effects.) It contrasts the actual changes in population and employment levels over time with projections of what would have happened in each state absent the E-Verify requirement. The analysis includes testing of statistical significance, or whether estimated effects are likely to be distinguishable from zero. Effects are examined over a range of three to eight years, depending on the elapsed time between when each state’s law took effect and the latest available data. Compared with the projections, the analysis found:

- Reductions in the number of likely unauthorized immigrants living and working in four states: Alabama, Arizona, Mississippi and Utah.
 - Alabama’s population of likely unauthorized immigrants was 10 percent below the projection three years after its mid-2012 implementation, while its number of likely unauthorized immigrant workers was 57 percent below the projected level.
 - Eight years after Arizona’s 2008 implementation, its population of likely unauthorized immigrants and number of likely unauthorized immigrant workers were 28 percent and 33 percent below projected levels, respectively.
 - Mississippi implemented universal E-Verify in mid-2008, and seven years later, its population of likely unauthorized immigrants was 70 percent below its projected level, while its number of likely unauthorized workers was 83 percent below projection.
 - Five years after Utah’s mid-2010 implementation, its population of likely unauthorized immigrants and number of likely unauthorized immigrant workers were 30 percent and 34 percent below their projected levels, respectively.

- Fewer likely unauthorized immigrants working in Georgia but no significant impact on the likely unauthorized population in that state. Four years after Georgia's implementation in 2012, there was no measurable change in its population of likely unauthorized immigrants, but the number of likely unauthorized immigrant workers was 14 percent below projection.
- In addition to these relative declines, the actual numbers of likely unauthorized immigrants living and working in Arizona and Mississippi were, as of 2015, below their implementation levels. In Alabama and Utah, they were about the same or slightly higher than when those states' laws took effect. In Georgia, the actual number of likely unauthorized immigrants working was the same as when that state's law took effect.
- Greater impact on the number of likely unauthorized immigrant workers than on the overall likely unauthorized population in the five states. Consistent with the intent of E-Verify laws to target unauthorized workers, the mandates typically have larger effects on employment of likely unauthorized immigrants than on their population.
- Statistically insignificant changes in likely unauthorized immigrant population and employment in North Carolina and South Carolina. This suggests that the E-Verify laws in these states have had no measurable effect.

Because this research explores the seven states with a universal E-Verify mandate consistently and across a longer time horizon than any previous study, it provides new insight into the requirement's effects on unauthorized immigrants living and working in those jurisdictions. Where results were statistically significant, the duration of the E-Verify requirement's impact was mixed. Policymakers can use this information to consider the short- and medium-term effects on a state's likely unauthorized population and employment and to identify fiscal and economic impacts associated with population shifts that may warrant further study.

BACKGROUND ON E-VERIFY

E-VERIFY IS A FREE ONLINE SYSTEM operated by U.S. Citizenship and Immigration Services in the Department of Homeland Security (DHS). It allows businesses to electronically check employees' eligi-

bility to legally work in the United States by comparing information provided by a new hire with federal records.¹ The digital system has its roots in the Immigration Reform and Control Act of 1986, which made it illegal to knowingly employ people who are not allowed to work in the United States and required that employers review eligibility documents for all new hires.

To address concerns about widespread availability of fraudulent eligibility documents, Congress mandated the creation of a system to authenticate worker-provided records as part of the Illegal Immigration Reform and Immigrant Responsibility Act of 1996.² E-Verify's precursor, the Basic Pilot Program, became available in 1997 to employers in five states with large immigrant populations—California, Florida, Illinois, New York and Texas. It expanded to Nebraska in 1999 and to all other states in 2003. The program was renamed E-Verify in 2007.

The federal government has used E-Verify to check the work eligibility of its employees since 2007 and has required certain contractors to do so since 2009. States and localities have authority to regulate the use of E-Verify by all other public and private employers.³

The E-Verify system confirms work eligibility by comparing documentation that newly hired workers provide to their employers with federal government records. It is generally intended only for checking the status of new hires; certain government contractors must apply it retroactively to existing employees. The process, which employers are only permitted to use after an applicant accepts an offer of employment, begins with online entry of information provided on Employment Eligibility Verification Form I-9.⁴

All employers, regardless of whether they use E-Verify, are required to complete and retain a Form I-9 for each new hire using information from a list of acceptable documents presented by the employee, such as a passport, permanent resident card, driver's license or employment authorization document. E-Verify then compares that information with Social Security Administration and, if needed, DHS records and notifies the employer whether the information matches that of an eligible worker. Employers are required to inform workers whose information does not match and give them eight federal workdays to resolve the discrepancy before terminating employment.

E-Verify ensures that the information a worker provides is accurate, not that he or she is, in fact, the person identified by the documents. In response to

concerns about the use of other people’s identities, U.S. Citizenship and Immigration Services added a photo-matching tool for federally issued employment authorization documents, permanent resident cards and U.S. passports. However, photo matching is not available for driver’s licenses, the most commonly presented form of photo identification.⁵

State-Level Policies

States began requiring some employers to use E-Verify in 2006.⁶ Georgia passed a law requiring public employers and government contractors to use E-Verify; Colorado passed a requirement for government contractors; and North Carolina passed a requirement for state agencies and universities. The following year, Arizona became the first state to require that all employers—not just public employers and government contractors—use E-Verify, a mandate upheld by state and federal courts in 2008 and 2009 and affirmed by the U.S. Supreme Court in 2011.⁷

Over the next few years, more states required some or all public employers and government contractors to use E-Verify, and seven other states—Alabama, Georgia, Mississippi, North Carolina, South Carolina, Tennessee and Utah—adopted mandates that apply to all or nearly all employers.⁸ Excepting Mississippi, those states initially required public employers and/

or government contractors to use E-Verify before expanding coverage to most or all other employers. (For a full list of state E-Verify requirements, see Appendix A.) As of December 2016, 21 states had E-Verify requirements of varying scope (*see Map*).

Experts and policymakers disagree about the value of E-Verify requirements, and states have made different choices regarding the system. A few states have discontinued their requirements or prohibited mandatory use of E-Verify.

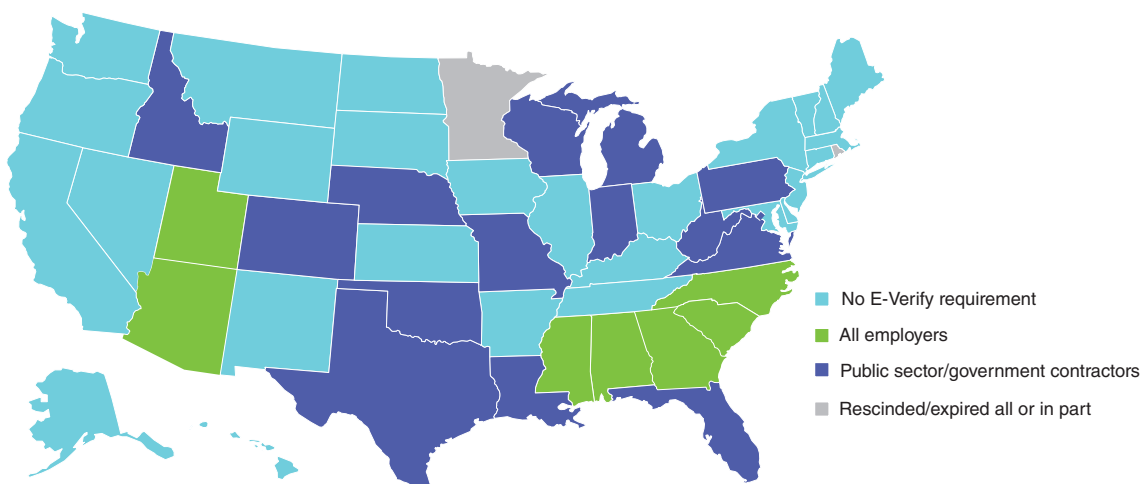
Compliance Mechanisms, Take-Up Rates

The Immigration Reform and Control Act of 1986 made it illegal to hire unauthorized workers but reserved enforcement of that law to the federal government. In doing so, it limited the civil and criminal sanctions that state and local governments can impose on employers for hiring unauthorized immigrants.⁹ Most laws that require universal use of E-Verify punish noncompliant employers by suspending or revoking their business licenses, while those covering only government contractors typically cancel existing contracts and prohibit future ones. Some laws, such as Utah’s universal mandate, do not enumerate consequences for noncompliance.¹⁰

The extent of compliance with E-Verify requirements is unknown. However, several studies of Arizo-

Map

MORE THAN ONE-THIRD OF STATES REQUIRED E-VERIFY IN 2016



NOTE: Mandates are as of December 2016.

SOURCES: Data compiled from legal firms, other research, advocacy organizations and personal communications with government officials; “E-Verify 3.0, Self-Check, and I-9 Changes on the Horizon,” LawLogix by Hyland, May 11, 2010, www.lawlogix.com/e-verify; “Immigration,” Troutman Sanders, www.troutmansanders.com/immigration.

na's enforcement soon after implementation found that only about half of new hires from October 2008 through September 2009 were screened and that as of April 2010, just three employers had been indicted for violating the law.¹¹ Among the states with universal mandates, only South Carolina randomly audits employers for compliance.¹²

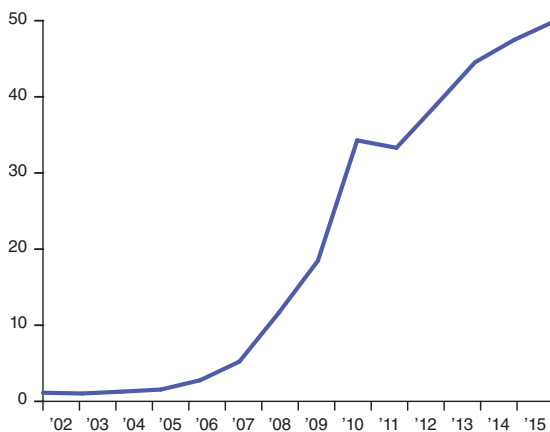
Employers that are otherwise not required to use E-Verify may still have an incentive to voluntarily do so. For example, businesses operating in multiple states, including at least one that requires E-Verify, may choose to use the system for all of their establishments to ensure uniformity. Further, some states allow firms to cite use of E-Verify as an affirmative defense against charges of knowingly employing an unauthorized worker.

The numbers of employers enrolled and cases run through the system have grown considerably (*Chart 1*). More than 600,000 employers were participating as of July 2015, and nationwide, half of all new hires in fiscal year 2015 were screened using the system.

Chart 1

HALF OF NEWLY HIRED U.S. WORKERS SCREENED WITH E-VERIFY BY 2015

Share of workers, percent



NOTES: Figures are based on a comparison of the number of cases run through E-Verify with data on new hires from Job Openings and Labor Turnover Survey (JOLTS). Before 2007, data are for Basic Pilot, the E-Verify predecessor.

SOURCES: U.S. Citizenship and Immigration Services, "What Is E-Verify," www.uscis.gov/e-verify/what-e-verify (last modified Feb. 26, 2016); U.S. Citizenship and Immigration Services, "Estimated Costs and Timeline to Implement Mandatory E-Verify," <https://goo.gl/XJOCyg> (published June 10, 2016); U.S. Citizenship and Immigration Services, "History and Milestones," www.uscis.gov/e-verify/about-program/history-and-milestones (last updated March 11, 2016); and Bureau of Labor Statistics, "Job Openings and Labor Turnover (JOLTS)," www.bls.gov/jlt/data/htm.

METHODOLOGY

Modeling E-Verify Requirements' Impact

This report estimates the effect of universal E-Verify mandates on the population and employment levels of likely unauthorized immigrants in seven states with such requirements by comparing actual levels with those projected absent the E-Verify policy. A proxy group was used to identify likely unauthorized immigrants, namely Mexican and Central American immigrants ages 20–54 who are not naturalized U.S. citizens and have at most a high school education. The analysis used a synthetic control method to create projected counterfactuals to demonstrate what would probably have occurred in each state had it not implemented universal E-Verify and compared those projections to what actually happened.¹³ The counterfactuals were developed by identifying the set of states with the most similar demographic and economic characteristics to each of the seven studied states before they enacted their E-Verify policies. The states in each set were aggregated and weighted via an algorithm explained briefly below and in greater detail in Appendix B.

The synthetic control methodology was previously used to examine the effect of the universal E-Verify requirement in the state of Arizona, but this is the first study to apply it to multiple states with similar mandates. This analysis also examines a longer time period than the previous studies of Arizona, which are discussed in more detail later in this report.

Two important events must be considered when examining the effect of an E-Verify law—the date the law was adopted and the date it took effect. The laws may have different effects in the near term after they are adopted relative to the period following implementation. For example, unauthorized immigrants and their employers may not immediately react to a policy's adoption but instead might wait until it takes effect.

The method used here allows researchers to trace the impact of E-Verify laws over time to see if their impact grew or diminished in the years after taking effect. This analysis was conducted twice, first using the laws' adoption dates and then their implementation dates. Because the results indicated few differences between the outcomes from the two dates, the report only shows outcomes relative to the implementation dates.¹⁴ If E-Verify requirements affect population or employment levels before they

take effect, the results here will understate their overall impact.

When examining the results, it is important to take into account the confidence bands around the findings, which are wider for states with smaller unauthorized immigrant populations. Arizona, the state with the largest such group in this analysis, was home to approximately 350,000 working-age likely unauthorized immigrants when its E-Verify requirement took effect. On the other end of the spectrum is Mississippi, whose likely unauthorized immigrant population numbered around 30,000. However, the findings are consistent with predicted outcomes and prior research.

This report focuses on two outcomes: changes in working-age population and in employment of likely unauthorized immigrants. Both would be expected to fall after a state begins requiring widespread use of E-Verify. With regard to population, inflows of unauthorized immigrants to an E-Verify state may decline and outflows increase as migrants within and outside the state experience or anticipate reduced employment opportunities. Employment of unauthorized immigrants also should decline as the number of jobs available to these workers falls.

The results highlight changes to each state's likely unauthorized immigrant population and employment levels according to three measures:

- The percent difference between the actual outcome and the projection in 2015
- The projected percent change, absent the E-Verify requirement, from the implementation year starting point
- The actual percent change from the starting point

The magnitude of these changes is likely to depend on a number of factors that vary across states, such as size and composition of the unauthorized workforce, employer compliance, whether a state's neighbors have E-Verify requirements, the size of states' informal labor markets and the share of firms exempt from the mandates.

Synthetic Control Method

Because the studied states enacted their laws in different years, the available length of their post-implementation periods varies. Although universal E-Verify mandates began taking effect as the U.S. entered the Great Recession, the synthetic control methodology used in this report implicitly controls

for business cycles and national policy changes common across states; this ensures to the extent possible that the seven studied states and the states used to create the counterfactuals reflect similar trends.¹⁵

The synthetic control method's major advantage is that the comparison group is selected via a data-driven process. A computer algorithm creates the combination of states that best mirrors the treatment state during the pre-intervention period instead of a researcher choosing ad hoc which states should compose the comparison group.

This synthetic control method involves creating a counterfactual of what might have occurred in a state absent the policy change (the "control") and then comparing that counterfactual to what actually occurred in that state (the "treatment"). The counterfactual is created by identifying the set of states that is the most similar to the treatment state before the policy change (the "intervention") and then creating a weighted average of outcomes in those states. In essence, this method compares the actual outcome after a state implements an E-Verify law with the projected outcome had the state not implemented the law. The difference between the actual and counterfactual gives an estimate of the effect of the E-Verify law.

The first step in the synthetic control method is to identify states that can be used to create the counterfactual, or the "donor pool."¹⁶ In this study, the donor pool is the other 43 states and the District of Columbia, which had not enacted a universal E-Verify law.

The second step is to combine states in the donor pool that are most similar to the treatment state during the pre-intervention period. For this analysis, the combination was based on several characteristics or predictor variables that are important when considering unauthorized immigration:

- The outcome under examination (likely unauthorized immigrant population or employment)
- The share of the population ages 20–54 composed of likely unauthorized immigrants
- Four measures of business-cycle conditions: real gross domestic product per capita, the unemployment rate, single-family construction starts per capita and single-family construction permits per capita¹⁷

The last two variables proxy for the extent of construction activity in a state. The construction sector is a major employer of unauthorized immigrants and collapsed after experiencing rapid growth in many

states during the period examined. The analysis also includes several demographic characteristics of likely unauthorized immigrants in the state as predictor variables: the shares that are female, from Mexico and have not completed high school.

The synthetic cohort method assigns each state in the potential donor pool a relative weight. The relative weights minimize the mean-squared prediction error (the squared deviations between the outcome for the treatment state and the synthetic control unit totaled over all pre-intervention periods). The relative weights total to 100 percent across the donor pool. Appendix Tables B1 and B2 indicate the states that received positive weight in each specification. The pre- and post-intervention values for the synthetic control were then created by applying the weights to the donor states' population and employment levels during each period and calculating percent changes.

Statistical significance can be measured in several ways when using the synthetic cohort method. This report focuses on results that are statistically significant—meaning that a researcher has a reasonable degree of confidence that they are not due to mere chance—using difference-in-differences regressions, as explained in Appendix B.

Data Source

This analysis uses data from the Census Bureau's Current Population Survey (CPS) to examine the population and employment effects of E-Verify requirements. The large, nationally representative survey is administered monthly and captures information about respondents' places of residence, labor market outcomes and demographic characteristics. It captures all workers employed and does not distinguish between formal and informal sectors. The CPS includes all U.S. residents regardless of legal status and does not indicate whether someone is an unauthorized immigrant. This report therefore focuses on a group of survey respondents who meet all of the following criteria:

- Non-U.S. citizens
- Born in Mexico or Central America
- Ages 20–54
- Possessing at most a high school education

When analyzing datasets such as the CPS, these characteristics are typically used to define the unauthorized population. According to the Pew Research Center, among working-age unauthorized immi-

grants, 47 percent lack a high school diploma and another 27 percent are high school graduates but have not attended college. Additionally, 70 percent of all unauthorized immigrants were born in Mexico or Central America.¹⁸ Although not all people who meet these criteria are unauthorized immigrants, many are, and economic researchers commonly use this group as a proxy for unauthorized immigrants.¹⁹

This report refers to this population as “likely unauthorized immigrants.” Because this baseline does not capture more educated unauthorized immigrants or those born outside of Mexico and Central America and may include some legal immigrants, the analysis may understate the impacts of requiring E-Verify use.

Previous Research

Several analyses have examined the impacts of Arizona's universal E-Verify law and another anti-immigrant measure adopted there. The state has the largest unauthorized population among those with universal requirements and was the first to implement a universal mandate. Using the synthetic control method, the first study to examine the effects of Arizona's 2008 E-Verify law found that it led to a substantial decline in the number of likely unauthorized immigrants living in the state.²⁰ Subsequent research confirmed that finding.²¹ However, two studies found that Arizona's 2010 omnibus immigration law, Support Our Law Enforcement and Safe Neighborhoods Act (S.B. 1070), which aimed to further reduce the number of unauthorized immigrants, appears to have had little additional long-run effect.²² Arizona's E-Verify mandate also had a substantial negative impact on employment among likely unauthorized immigrants and prompted a large share to shift into self-employment from wage-and-salary employment.²³

Previous research found evidence of a significant drop in the number of likely unauthorized immigrants across the seven states with universal E-Verify mandates in place by 2012.²⁴ Rather than employing the same synthetic control method used here and in research specific to Arizona, that analysis conducted fixed-effects regressions, which measured how much the number of likely unauthorized immigrants changed within states after they required E-Verify, controlling for the time trend in those states' unauthorized immigrant populations. The regressions did not compare changes in states that required E-Verify with those that did not. The ability to do so is a key advantage

of the synthetic control method, although it requires assuming that a treatment state would have looked like its synthetic control absent the policy change.

LIKELY E-VERIFY IMPACT OBSERVED IN SEVERAL STATES

IN FOUR OF THE SEVEN studied states—Alabama, Arizona, Mississippi and Utah—the number of likely unauthorized immigrants is substantially lower than the projected counterfactual, suggesting that universal E-Verify led to a much smaller unauthorized immigrant population than if the policy had not been enacted. Employment among the likely unauthorized was also far lower than the projected counterfactuals in five of the seven states—the above-named four states plus Georgia. The shortfall in employment was larger than that of population in all cases, suggesting as one might expect, that the laws more closely target workers than the population at large.

The analysis also shows, however, that mandatory E-Verify does not always result in an actual reduction in the likely unauthorized population over time. Policies in Arizona and Mississippi resulted in lower actual populations of likely unauthorized immigrants in those states, but Utah's likely unauthorized population hovered around its original size immediately after that state's requirement was implemented. And in Alabama, the likely unauthorized population actually increased slightly over time.

Similarly, the number of likely unauthorized immigrants working in these five states was lower than the projected counterfactual, but as with the population levels, those decreases did not necessarily indicate an actual decline in likely unauthorized workers over time. The number of likely unauthorized immigrant workers was lower in Arizona and Mississippi, slightly higher in Alabama and higher in Utah relative to pre-E-Verify levels.

In all of these states, the likely unauthorized immigrant population and number of workers were lower than they would have been without the E-Verify requirements. However, in Georgia, the likely unauthorized immigrant population was unaffected, and in North Carolina and South Carolina, there were no statistically significant effects. This section first presents the results for the five states with a significant effect on population or employment and then the results for the two states with no significant effects.

ALABAMA

Effects on Likely Unauthorized Population (Chart 2A)

- The actual number of likely unauthorized immigrants in the state was 10 percent below the projected level three years after the 2012 implementation.
- The model projects that without universal E-Verify, the likely unauthorized population would have grown 16 percent between 2012 and 2015.
- The actual number of likely unauthorized immigrants dropped in the first 12 months after implementation and remained below that level for a year, before rebounding. By 2015, it was 4 percent higher than in 2012.

Effects on Likely Unauthorized Workers (Chart 2B)

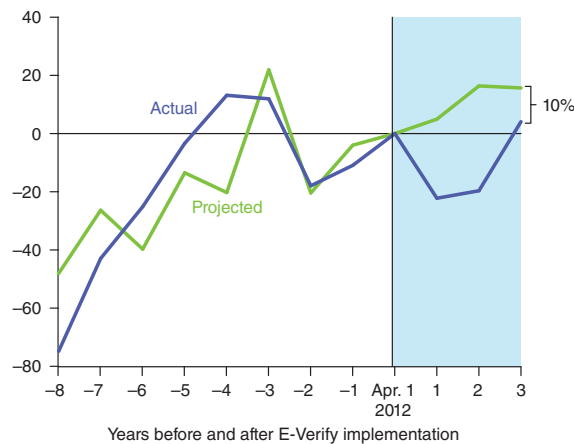
- The actual number of likely unauthorized workers was 57 percent below the projected level three years after the 2012 implementation.
- The model projects that without universal E-Verify, the number of likely unauthorized workers would have grown 137 percent between 2012 and 2015.
- The actual number of likely unauthorized workers initially declined but then recovered. It ultimately increased 3 percent between 2012 and 2015.

Chart 2

ALABAMA: MANDATORY E-VERIFY CORRESPONDS WITH DECLINE, SLOWER GROWTH IN NUMBER OF LIKELY UNAUTHORIZED IMMIGRANTS

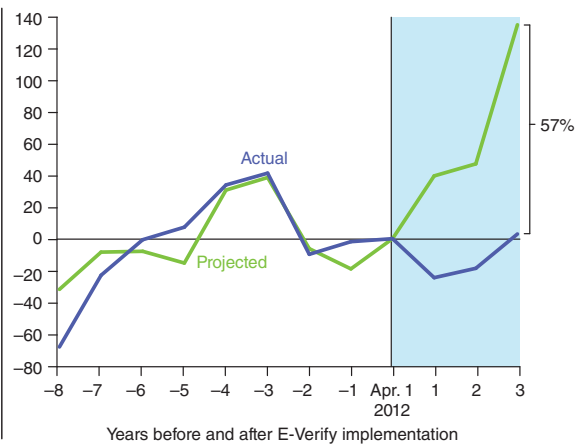
A. Population: Likely unauthorized immigrants living in Alabama

Percent change since implementation



B. Employment: Likely unauthorized immigrants working in Alabama

Percent change since implementation



NOTES: Alabama's E-Verify law took effect April 1, 2012. Each year represents pooled data from the preceding 12 months. Bracketed number denotes the percent shortfall in the actual number in 2015 relative to the projection. Shaded area represents years after law took effect.
SOURCES: Census Bureau, Current Population Survey, 2003–15.

ARIZONA

Effects on Likely Unauthorized Population (Chart 3A)

- The actual number of likely unauthorized immigrants was 28 percent below the projected level eight years after the 2008 implementation.
- The model projects that without universal E-Verify, the likely unauthorized population would have grown 15 percent through the end of 2015.
- The actual number of likely unauthorized immigrants declined for the first five years after implementation and has since grown but remains 17 percent lower than in 2008.

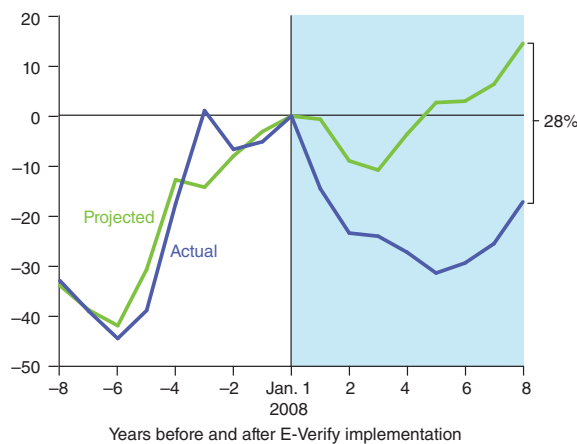
Effects on Likely Unauthorized Workers (Chart 3B)

- The actual number of likely unauthorized workers was 33 percent below the projected level eight years after the 2008 implementation.
- The model projects that without universal E-Verify, the number of likely unauthorized workers would have grown 13 percent between 2008 and 2015.
- The actual number of likely unauthorized workers initially dropped and is recovering, remaining 24 percent lower than in 2008.

Chart 3
ARIZONA: MANDATORY E-VERIFY CORRESPONDS WITH DROP
IN NUMBER OF LIKELY UNAUTHORIZED IMMIGRANTS

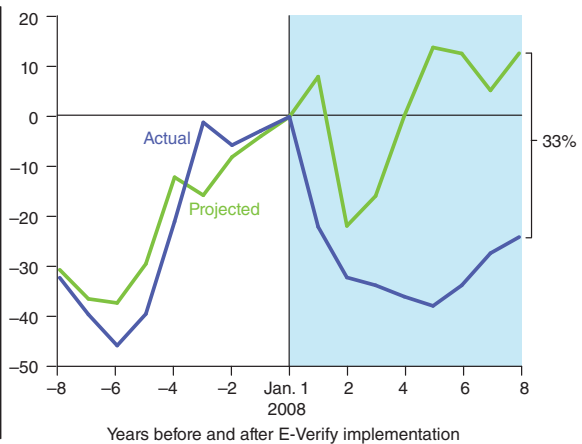
A. Population: Likely unauthorized immigrants living in Arizona

Percent change since implementation



B. Employment: Likely unauthorized immigrants working in Arizona

Percent change since implementation



NOTES: Arizona's E-Verify law took effect Jan. 1, 2008. Each year represents pooled data from the preceding 12 months. Bracketed number denotes the percent shortfall in the actual number in 2015 relative to the projection. Shaded area represents years after law took effect.
SOURCES: Census Bureau, Current Population Survey, 1999–2015.

GEORGIA

Effects on Likely Unauthorized Population (Chart 4A)

- The actual number of likely unauthorized immigrants was not different from the projected level four years after the 2012 implementation. Georgia was the only state in which there was a significant impact on one but not both of the metrics examined.
- The model projects that without universal E-Verify, the likely unauthorized population would have grown about 6 percent through the end of 2015, which is not significantly different from the actual growth of about 8 percent.
- The actual number of likely unauthorized immigrants declined the first year after implementation but then rose.

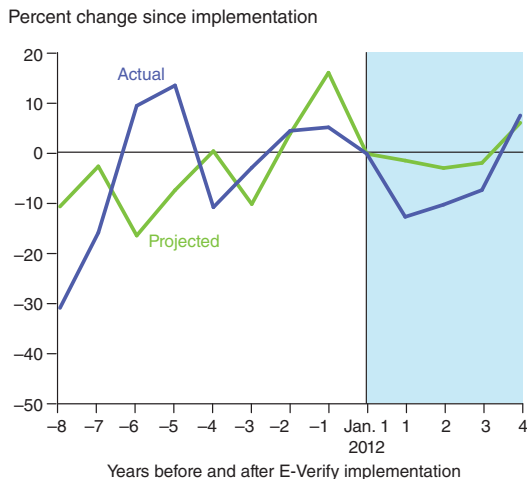
Effects on Likely Unauthorized Workers (Chart 4B)

- The actual number of likely unauthorized workers was 14 percent below the projected level four years after the 2012 implementation.
- The model projects that without universal E-Verify, the number of likely unauthorized workers would have grown 15 percent between 2012 and 2015.
- The actual number of likely unauthorized workers dropped in the year following the law's implementation. It then rebounded over the next three years, ending about 1 percent below its level at the time of implementation.

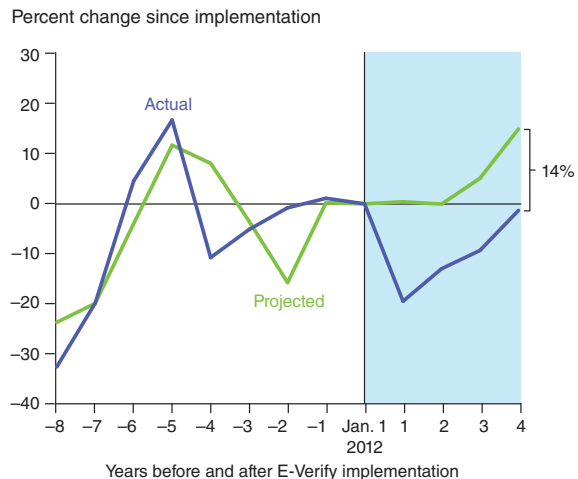
Chart 4

GEORGIA: MANDATORY E-VERIFY HAS LITTLE EFFECT ON NUMBER OF LIKELY UNAUTHORIZED IMMIGRANTS BUT EMPLOYMENT DECLINES

A. Population: Likely unauthorized immigrants living in Georgia



B. Employment: Likely unauthorized immigrants working in Georgia



NOTES: Georgia's E-Verify law took effect Jan. 1, 2012. Each year represents pooled data from the preceding 12 months. Bracketed number denotes the percent shortfall in the actual number in 2015 relative to the projection. In Chart A, no shortfall is denoted because there is no statistically significant effect of E-Verify. Shaded area represents years after law took effect.
SOURCES: Census Bureau, Current Population Survey, 2003–15.

MISSISSIPPI

Effects on Likely Unauthorized Population (Chart 5A)

- The actual number of likely unauthorized immigrants was 70 percent below the projected level seven years after the 2008 implementation.
- The model projects that without universal E-Verify, the likely unauthorized population would have grown 93 percent between 2008 and 2015.
- The actual number of likely unauthorized immigrants grew slightly in the year after implementation but then fell substantially beginning in the second year. Despite a small recent rebound, the total remains 43 percent below 2008 levels.

Effects on Likely Unauthorized Workers (Chart 5B)

- The actual number of likely unauthorized immigrant workers was 83 percent below the projected level seven years after the 2008 implementation.
- The model projects that without universal E-Verify, the number of likely unauthorized workers would have grown 145 percent between 2008 and 2015.
- The actual number of likely unauthorized workers fell 59 percent since 2008.

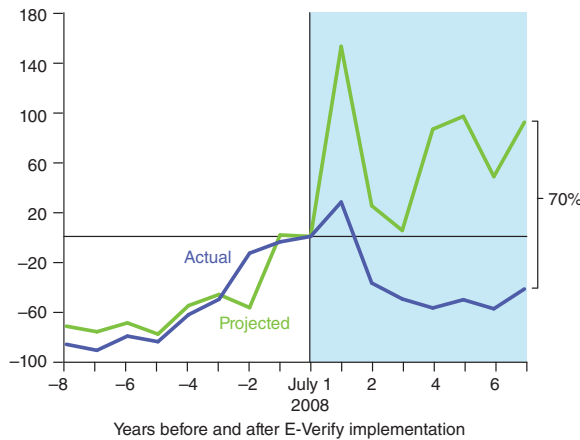
Mississippi has far fewer unauthorized immigrants than the other states studied, so estimates may be less reliable. However, the data are consistent with a sizable and enduring decline in the state's unauthorized immigrant population.

Chart 5

MISSISSIPPI: MANDATORY E-VERIFY CORRESPONDS WITH DROP IN NUMBER OF LIKELY UNAUTHORIZED IMMIGRANTS

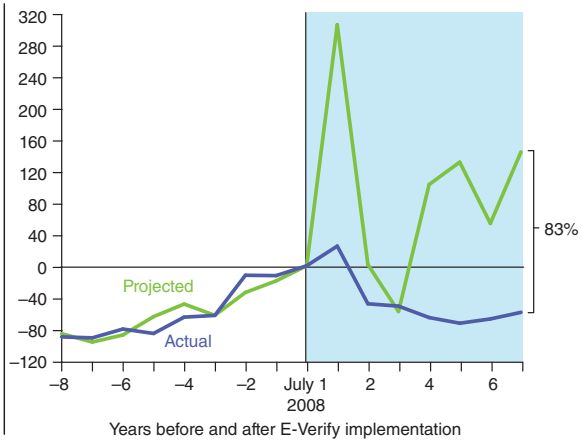
A. Population: Likely unauthorized immigrants living in Mississippi

Percent change since implementation



B. Employment: Likely unauthorized immigrants working in Mississippi

Percent change since implementation



NOTES: Mississippi's E-Verify law took effect July 1, 2008. Each year represents pooled data from the preceding 12 months. Early spikes in the projections are the result of a small likely unauthorized population in Vermont, which was included in the set of states that determined Mississippi's counterfactual. Bracketed number denotes the percent shortfall in the actual number in 2015 relative to the projection. Shaded area represents years after law took effect.

SOURCES: Census Bureau, Current Population Survey, 1999–2015.

UTAH

Effects on Likely Unauthorized Population (Chart 6A)

- The actual number of likely unauthorized immigrants was 30 percent below the projected level five years after the 2010 implementation.
- The model projects that without universal E-Verify, the likely unauthorized population would have grown 43 percent between 2010 and 2015.
- The actual number of likely unauthorized immigrants dipped in the year after implementation but then rose steadily for three years before dropping back to 2010 levels.

Effects on Likely Unauthorized Workers (Chart 6B)

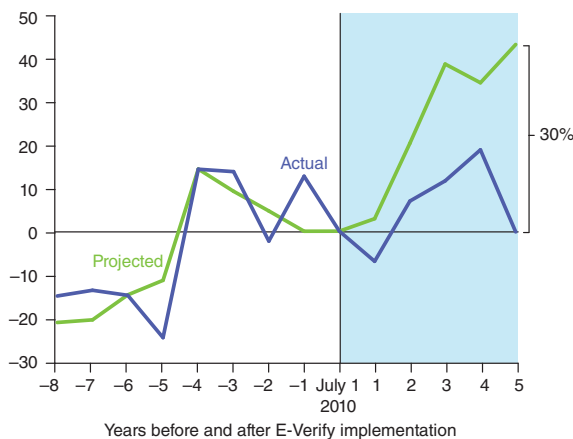
- The actual number of likely unauthorized immigrant workers was 34 percent below the projected level five years after the 2010 implementation.
- The model projects that without universal E-Verify, the number of likely unauthorized workers would have grown 74 percent between 2010 and 2015.
- The actual number of likely unauthorized workers grew between 2011 and 2014. It then declined sharply in 2015 but remained 15 percent higher than in 2010.

Chart 6

UTAH: MANDATORY E-VERIFY CORRESPONDS WITH SLOWER GROWTH IN NUMBER OF LIKELY UNAUTHORIZED IMMIGRANTS

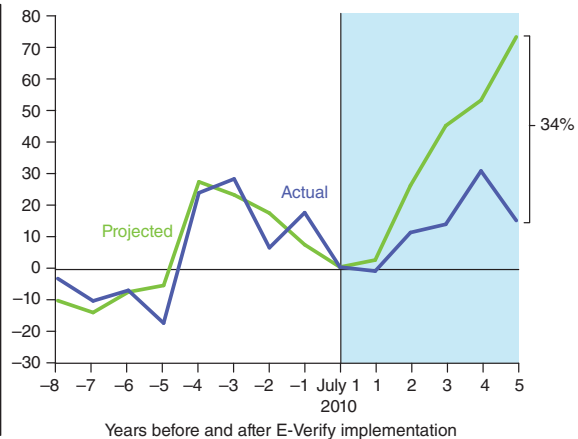
A. Population: Likely unauthorized immigrants living in Utah

Percent change since implementation



B. Employment: Likely unauthorized immigrants working in Utah

Percent change since implementation



NOTES: Utah's E-Verify law took effect July 1, 2010. Each year represents pooled data from the preceding 12 months. Bracketed number denotes the percent shortfall in the actual number in 2015 relative to the projection. Shaded area represents years after law took effect.

SOURCES: Census Bureau, Current Population Survey, 2001–15.

NORTH CAROLINA & SOUTH CAROLINA

In North Carolina and South Carolina, changes resulting from E-Verify were not statistically significant, meaning that E-Verify requirements appear to have had no measurable effect. Population results are shown in Charts 7A and 8A, and employment results are shown in Charts 7B and 8B for North Carolina and South Carolina, respectively.

Actual population and employment of likely unauthorized immigrants in North Carolina spiked following implementation of E-Verify, while projected levels initially rose more slowly. Three years after implementation, however, the actual numbers were slightly lower than projected levels, although the difference is not statistically significant (*Appendix B*).

In South Carolina, actual and projected levels of unauthorized immigrants living and working there tracked one another closely, strongly suggesting the law had no impact. Four years after the law, actual numbers spiked above the projected, contrary to the expected E-Verify effect.

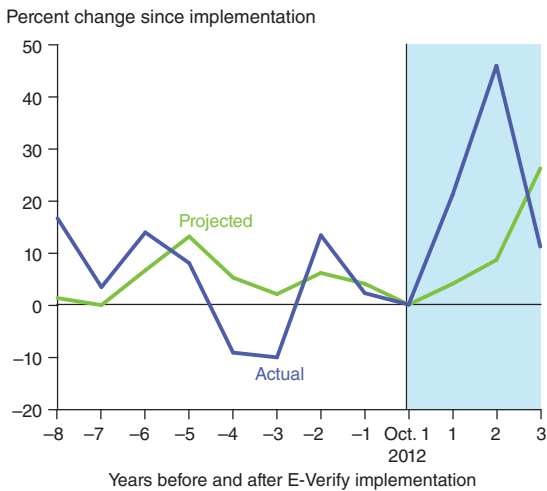
Several factors may explain these findings. First, employer compliance with E-Verify mandates or unauthorized immigrants' perception of their vulnerability may have been lower in North Carolina and South Carolina than in the other states with universal requirements. Second, North Carolina and South Carolina may have larger informal labor markets, enabling unauthorized immigrants to continue to work off the books while still being counted in CPS.

Further, the Carolinas were among the last states to implement universal requirements, so the effects may have been muted by the presence of E-Verify policies in several nearby states or because employers with operations in other states might already have been using E-Verify—making it harder to detect an effect. In addition, North Carolina's law was phased in based on employer size and exempts small employers, which may reduce the impact. This analysis is unable to distinguish between these or other potential explanations.

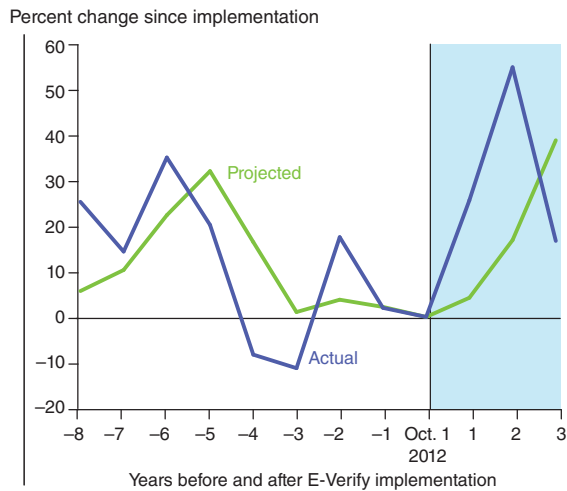
Chart 7

NORTH CAROLINA: MANDATORY E-VERIFY HAS NO SIGNIFICANT IMPACT ON NUMBER OF LIKELY UNAUTHORIZED IMMIGRANTS

A. Population: Likely unauthorized immigrants living in North Carolina



B. Employment: Likely unauthorized immigrants working in North Carolina



NOTES: North Carolina's E-Verify law took effect Oct. 1, 2012. Each year represents pooled data from the preceding 12 months. No shortfall is denoted because there is no statistically significant effect of E-Verify. Shaded area represents years after law took effect.

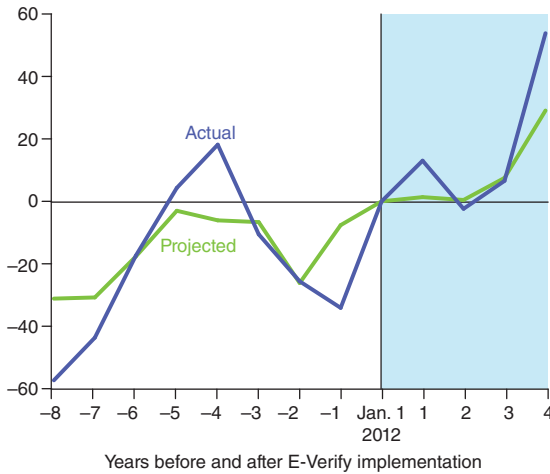
SOURCES: Census Bureau, Current Population Survey, 2003–15.

Chart 8

SOUTH CAROLINA: MANDATORY E-VERIFY HAS NO SIGNIFICANT IMPACT ON NUMBER OF LIKELY UNAUTHORIZED IMMIGRANTS

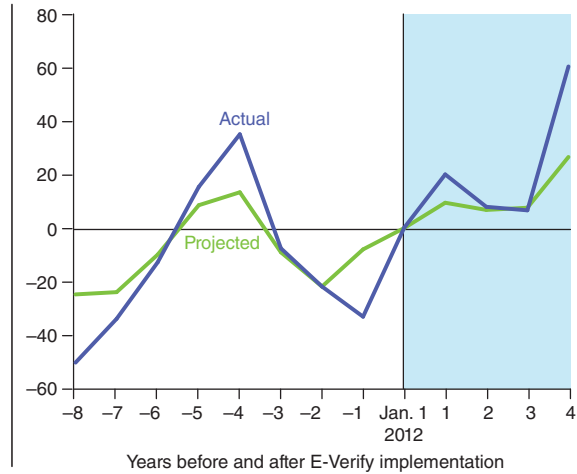
A. Population: Likely unauthorized immigrants living in South Carolina

Percent change since implementation



B. Employment: Likely unauthorized immigrants working in South Carolina

Percent change since implementation



NOTES: South Carolina's universal E-Verify law took effect Jan. 1, 2012. Each year represents pooled data from the preceding 12 months. No shortfall is denoted because there is no statistically significant effect of E-Verify. Shaded area represents years after law took effect. SOURCES: Census Bureau, Current Population Survey, 2003–15.

UNAUTHORIZED IMMIGRANT EMPLOYMENT MORE AFFECTED THAN UNAUTHORIZED POPULATION

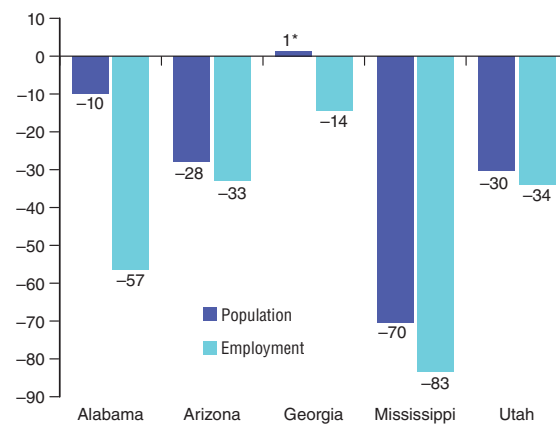
IN THE FOUR STATES WHERE effects were seen on both the likely unauthorized population and workers (as discussed previously), the levels were consistently below the projections, suggesting that requiring E-Verify drove down the number of likely unauthorized immigrants living and working in these states (*Chart 9*).

However, in each state, the decline in workers was greater than the drop in population. This suggests that the E-Verify requirement has a bigger impact on workers than on the population, which makes sense given that the system and the mandates for its use focus on worksites. The larger drop in the number of likely unauthorized workers than in the likely unauthorized population probably means that a smaller share of these immigrants is working.

Chart 9

FIVE MANDATORY E-VERIFY STATES SAW LARGER DECLINES IN LIKELY UNAUTHORIZED WORKERS THAN AMONG OVERALL UNAUTHORIZED POPULATION

Percent difference between actual and projected by immigrant group, since implementations



*Change in the unauthorized population in Georgia was not statistically different from zero.

SOURCES: Census Bureau, Current Population Survey, 1999–2015.

ECONOMIC EFFECTS AND POLICY IMPLICATIONS

THE FINDINGS OF THIS ANALYSIS show that the numbers of unauthorized immigrants living and working in a state tend to fall after adoption of a universal E-Verify law compared with what those counts would have likely been without the requirement. This suggests the laws can be effective in reducing the population and employment of unauthorized immigrants. However, these laws may have broader economic and fiscal effects and policy implications that warrant further study.

When the numbers of unauthorized immigrants or workers in a state change, government revenue collections and spending are also likely to change. For example, most unauthorized workers have income and payroll taxes withheld from their paychecks and file tax returns using individual tax identification numbers or borrowed or false Social Security numbers.²⁵ If unauthorized immigrants and their families work less and earn less income, they will pay less in taxes to the local, state and federal governments. Further, demand for public assistance could also increase. Although unauthorized immigrants themselves are ineligible for most cash and noncash assistance programs, their U.S.-born children would qualify, assuming they meet income and other eligibility criteria.

Changes in unauthorized immigrant populations or employment can also have broader economic impacts. For example, unauthorized immigrants are a small share of the labor force in most of the states examined in this study, but they have represented an outsized share of labor force growth in recent decades. If universal E-Verify requirements affect immigrant inflows or outflows, they could also affect the supply of labor, and in turn, economic activity. In addition, if unauthorized workers leave the state or turn to self-employment, jobs they once held could be available to low-skilled native and legal immigrant workers. However, if legal workers hold jobs that complement and rely on, rather than compete with, unauthorized immigrants, then those legal workers could be adversely affected by changes in unauthorized immigrant employment.

The cost of doing business also may be affected by unauthorized population or employment changes. For example, some companies might incur costs associated with longer searches for authorized workers, hiring and then replacing workers E-Verify iden-

tifies as ineligible, and delays in filling vacancies due to mismatches in the system.

Current federal policy requires only the federal government and its contractors use E-Verify; however, Congress has considered expanding the mandatory use of E-Verify or a similar verification system several times in the past few years, including in the Border Security, Economic Opportunity and Immigration Modernization Act of 2013 that the Senate passed in June 2013 and the Accountability Through Electronic Verification Act introduced in the Senate in January 2017.²⁶ A nationwide E-Verify requirement would probably have a larger economic impact than state laws because it would reduce opportunities for unauthorized immigrants or their employers to avoid the mandate by relocating to another state. While state laws may displace some economic activity, lowering it in one area while raising it in another, a national policy would not have such offsetting potential.

CONCLUSION

THIS ANALYSIS SHOWS THAT, compared with what would probably have otherwise occurred, states with universal E-Verify policies typically experienced large reductions in the number of likely unauthorized immigrants and even greater declines in the number of unauthorized workers. The impact on the number of employed likely unauthorized immigrants outweighed the effect on the likely unauthorized population in all five states with statistically significant results, suggesting that though some unauthorized immigrants may choose to avoid or leave a state with a mandate, job opportunities for those who do reside there decrease. In addition, although the laws corresponded with fewer unauthorized immigrants and workers compared with projected estimates absent the E-Verify requirements, in some cases, the mandates appear to have succeeded only in slowing growth rather than producing a lasting reduction in the actual number of likely unauthorized immigrants living or working in a state.

Taken together, these findings suggest that these laws' primary impact is preventing or delaying growth in the number of unauthorized immigrants living and working in a state. The fiscal and economic implications for the state as a whole are unclear and warrant more research.

APPENDIX A: STATE E-VERIFY REQUIREMENTS

AS OF DECEMBER 2016, 21 states had some type of E-Verify policy, ranging from universal in the seven states examined in this analysis to those that only require a subset of government contractors to use E-Verify.

Previous research has found limited effects of

E-Verify laws that apply only to public employees or government contractors, in part, because they affect only the small share of unauthorized immigrants who work in the public sector.²⁷ Additionally, public employers and government contractors are likely to require identification documents confirming citizenship or lawful immigration status even in the absence of an E-Verify requirement.

Table A1

STATES WITH E-VERIFY REQUIREMENTS

State	Law/Policy (enacted date)	Effective Date and Employers Covered
Alabama	H.B. 56 (June 9, 2011)	Jan. 1, 2012; government contractors April 1, 2012; all employers
Arizona	H.B. 2779 (July 2, 2007)	Jan. 1, 2008; all employers
Colorado	H.B. 06-1343 (June 6, 2006)	Aug. 7, 2006; state government contractors Amended by S.B. 08-193 (May 13, 2008)
Florida	E.O. 11-02 (Jan. 4, 2011)	Jan. 4, 2011; executive branch agencies and (Jan. 4, 2011) government contractors; superseded by E.O. 11-116
	E.O. 11-116 (May 27, 2011)	May 27, 2011; executive branch agencies and government contractors
Georgia	S.B. 529 (April 17, 2006)	July 1, 2007; public employers and government contractors, with size phase in
	H.B. 87 (May 13, 2011)	Jan. 1, 2012; all employers with more than 10 employees, with size phase in
Idaho	E.O. 2009-10 (May 29, 2009)	July 1, 2009; state agencies and state government contractors
Indiana	S.B. 590 (May 10, 2011)	July 1, 2011; state and local governments and government contractors
Louisiana	H.B. 342 (June 30, 2011)	Jan. 1, 2012; government contractors
	H.B. 646 (July 1, 2011)	Aug. 15, 2011; private employers must use E-Verify or retain a copy of certain documents
Michigan	H.B. 5365 (June 26, 2012)	March 1, 2013; state agencies and contractors
Minnesota	E.O. 08-01 (Jan. 7, 2008)	Jan. 29, 2008; executive branch agencies and state government contractors; expired April 4, 2011
	S.F. 12 (July 20, 2011)	July 21, 2011; state government contractors
Mississippi	S.B. 2988 (March 17, 2008)	July 1, 2008; all employers, with size phase in
Missouri	H.B. 1549 (July 7, 2008)	Jan. 1, 2009; public employers and government contractors
Nebraska	L.B. 403 (April 8, 2009)	Oct. 1, 2009; public employers and government contractors
North Carolina	S.B. 1523 (Aug. 23, 2006)	Jan. 1, 2007; state agencies and universities
	H.B. 36 (June 23, 2011)	Oct. 1, 2011; county and city governments Oct. 1, 2012; all employers with 25 or more employees, with size phase in
Oklahoma	H.B. 1804 (May 8, 2007)	Nov. 1, 2007; state and local governments July 1, 2008; state contractors (enjoined until Feb. 2, 2010)
Pennsylvania	S.B. 637 (July 5, 2012)	Jan. 1, 2013; public works contractors
South Carolina	H.B. 4400 (June 4, 2008)	Jan. 1, 2009; public employers
	S.B. 20 (June 27, 2011)	Jan. 1, 2012; all employers
Texas	E.O. RP-80 (Dec. 3, 2014)	Dec. 3, 2014; executive branch agencies and contractors; superseded by S.B. 374
	S.B. 374 (June 10, 2015)	Sept. 1, 2015; state agencies and universities

Table A1 (Continued)

State	Law/Policy (enacted date)	Effective Date and Employers Covered
Utah	S.B. 81 (March 13, 2008)	July 1, 2009; public employers and government contractors
	S.B. 251 (March 31, 2010)	July 1, 2010; all employers with 15 or more employees
Virginia	H.B. 737 (April 11, 2010)	Dec. 1, 2012; state agencies
	H.B. 1859 (March 25, 2011)	Dec. 1, 2013; government contractors
West Virginia	S.B. 659 (April 2, 2012)	June 10, 2012; new hires working in the Capitol Complex

SOURCES: LawLogix (www.lawlogix.com/e-verify) and Troutman Sanders (www.troutmansanders.com/immigration).

APPENDIX B: DATA AND METHODS

Data Source

This analysis uses data from the Current Population Survey (CPS) for 1999 to 2015. The CPS is a nationally representative survey administered monthly by the Census Bureau and the U.S. Bureau of Labor Statistics, which includes information about respondents' places of residence, labor market outcomes and demographic characteristics. About 60,000 households participate each month.

Because the monthly CPS sample sizes are small for some states, this study used data collapsed into 12-month periods for which the start date depends on when a law took effect. For example, Alabama's universal E-Verify mandate took effect in April 2012, so the 12-month periods run from April to March for that state.

The CPS includes all U.S. residents regardless of legal status but does not indicate whether someone is an unauthorized immigrant. Few government surveys ask about legal status. This report therefore focuses on a group that research has shown predominately consists of unauthorized immigrants: immigrants from Mexico and Central America ages 20–54 (prime-working-age adults) who have at most a high school education and are not naturalized U.S. citizens. This report refers to this population as “likely unauthorized immigrants,” and the subset of these who are employed are considered “likely unauthorized workers.”

Interpretation of the Data

The main analysis in this report examines population and employment levels. The figures given reflect the percentage change in the number of likely unauthorized immigrants living and working in each studied state and the synthetic control relative to the year before a state's E-Verify law took effect. Because population and employment levels vary considerably across states, these variables were normalized to one in the 12-month period before an E-Verify law took effect. Population or employment levels in other years were then scaled relative to that baseline, creating the percentage differences shown.

Assumptions of the Synthetic Control Method

The synthetic control method requires making several important assumptions:

First, the method assumes that, absent the policy change, outcomes in the treatment state would have

evolved in the same manner as in the counterfactual. This study created the counterfactual based on how similar states' economic conditions and demographic characteristics were before a policy change occurred. If that similarity did not hold after the policy change for reasons unrelated to the E-Verify policy, then comparing the treatment state with the counterfactual should not be used to assess the impact of the E-Verify requirement.

Second, the synthetic control method assumes that the policy change in a given state did not spill over into the states that compose the counterfactual. The states used to create a counterfactual to those with universal requirements were selected because of their similar demographic characteristics and economic conditions. They represented the best fit in the eight years before E-Verify implementation. Few states that border on E-Verify states contributed to the synthetic controls, reducing concerns about possible spillover. For southern states, most of their neighbors were not in the donor pool because of the regional concentration of universal mandates.

If there were spillover effects, the synthetic control method is likely to have overestimated the effect of an E-Verify law since population and employment levels would be moving in opposite directions in the treatment state and in the states that compose the counterfactual. Previous research suggests that universal E-Verify requirements may divert some newly arriving unauthorized immigrants to nearby states, but they do not appear to cause unauthorized immigrants already present in the United States to move to other states, although some appear to leave the country.²⁸ Previous analyses of Arizona concluded that spillovers to other states did not appear to bias results using the synthetic control method.²⁹ None of the remaining states that have enacted universal E-Verify laws had sufficiently large numbers of unauthorized immigrants to create sizable spillovers to other states, further reducing this concern.

Statistical Significance

The estimated differences between the treatment and synthetic control states resulting from E-Verify laws are visually apparent, but the law's effects can be measured more formally by testing the differences for statistical significance. To do so, this analysis measured the “difference-in-differences,” the average gap between the treatment and the synthetic con-

trol in the post-intervention period minus the average gap in the pre-intervention period.

The statistical significance of this difference-in-differences can be measured in two ways: by estimating regressions using the data for the treatment state and its synthetic control and generating traditional estimates for the E-Verify requirement's effect, or by applying the synthetic control method to every state that does not have a universal E-Verify mandate and generating placebo estimates. The latter is akin to a falsification test; it examines whether states that did not implement an E-Verify law experienced population or employment changes, relative to their own synthetic control, that coincided with the timing of the E-Verify law. If several states experienced difference-in-differences as large or larger than the E-Verify state did, it suggests that the analysis is not measuring a causal effect of the E-Verify law. These two methods differ somewhat in their approaches.

The first method estimates traditional difference-in-differences ordinary least squares regressions with the data on population and employment in each of the seven target states as compared with their synthetic counterparts to determine whether the relative difference between the two is statistically significant. It is based on classical inference testing, the traditional way economists test hypotheses, while also incorporating the synthetic control.

These regressions combine observations for the treatment state and its synthetic control and include indicator variables for the treatment state, the post-intervention period and an interaction among those variables.³⁰ The estimated coefficient on the interaction is the difference-in-differences, that is, the average change in the number of likely unauthorized immigrants living or working in a state before and after E-Verify implementation compared with the counterfactual. That coefficient relative to its standard error gives a measure of whether the difference-in-differences is statistically significant. The difference-in-differences parameters and their standard errors are reported in Appendix Tables B1 and B2.

The second method assesses statistical significance by using the same synthetic control method to generate placebo estimates for each state in the donor pool and then calculating how many of those estimates are at least as large as the estimated difference-in-differences for the treatment state.³¹ It compares the difference between the E-Verify state and its synthetic control with

the analogous difference for every other state that has not implemented a universal E-Verify requirement—even those that are not part of the synthetic control. In other words, the placebo estimates incorporate states that are very different from the E-Verify state.

This method provides a ranking of states' difference-in-differences, which indicates the number and share of states with a difference-in-differences at least as large as that of the E-Verify state. If the change in enough other states is at least as large as in the treatment state, it suggests that the difference-in-differences for the treatment state is not statistically significant. In that case, the observed change in the treatment state is unlikely to be due to its E-Verify law but instead is probably the result of other factors shared across several states, such as changes in economic conditions. Appendix Tables B1 and B2 rank the treatment states by the resulting difference-in-differences estimates. In essence, the placebo difference-in-differences form a sampling distribution for the treatment states' difference-in-differences, allowing for inference testing under the assumption that E-Verify laws are randomized across states. Statistical significance can be gauged based on the *p*-value from a one-tailed test of a state's rank; these *p*-values are a state's rank divided by the total number of states included in the ranking.

This is classical inference testing only if the intervention—the E-Verify law—is randomized across states, which may not be the case.³² Further, the ranking says little about the relative magnitudes of the difference-in-differences.

Using this placebo method, just a few of the estimates in this analysis are statistically significant at conventional levels. Mississippi is the only state with a significant relative change in its population of likely unauthorized immigrants; none of the states that did not implement a universal E-Verify policy had a larger relative change in the number of likely unauthorized immigrants around the time that Mississippi's law took effect. Alabama and Mississippi both experienced significant relative declines in the number of likely unauthorized workers.

Because this analysis relies on states that are dissimilar to the state with the universal requirement as well as those that comprise the counterfactual, it uses the traditional difference-in-differences to assess statistical significance.

As discussed in the main text, previous studies of Arizona using the synthetic control method found

Table B1

ESTIMATED IMPACT OF UNIVERSAL E-VERIFY LAWS ON NUMBER OF LIKELY UNAUTHORIZED IMMIGRANTS

State	Average Pre-Intervention Difference	Average Post-Intervention Difference	Difference-in-Differences (Standard Error)	Rank Among Placebos	States Contributing to Synthetic Control
Alabama	0.001	-0.248	-0.249 (0.089)	7/43	AR (4.5%), FL (17.7%), KY (39.8%), MI (10.8%), MD (8.5%), VT (16.1%), WV (2.5%)
Arizona	-0.000	-0.245	-0.245 (0.039)	15/45	ID (23.5%), NV (47.3), ND (7%), TX (22.2%)
Georgia	-0.001	-0.057	-0.056 (0.060)	20/44	DE (11.1%), FL (17.2%), ID (2.3%), KY (24.5%), ME (7.3%), NV (34.2%), WV (3.4%)
Mississippi	-0.022	-1.119	-1.097 (0.156)	1/45	KY (52.6%), LA (8.8%), ND (28.8%), TN (2.8%), VT (7%)
North Carolina	0.001	0.133	0.132 (0.140)	35/44	FL (28.6%), ID (13.1%), ME (2.3%), MI (4.8%), NV (32.4%), WA (18.7%)
South Carolina	-0.043	0.082	0.124 (0.083)	30/44	FL (24.2%), ID (26.3%), KY (15.3%), MI (33.5%), VT (0.8%)
Utah	0.011	-0.219	-0.230 (0.065)	8/43	ID (33.1%), NE (16%), NV (22.7%), MI (26.6%), WV (1.6%)

NOTES: The difference-in-differences is the average post-intervention difference (the average difference between the treatment state indicated and its synthetic control during the post-intervention period) minus the average pre-intervention difference. The standard error for the difference-in-differences is calculated from an ordinary least squares regression using observations for the treatment state and its synthetic control. The rank is the treatment state in a lowest-to-highest ordering of the difference-in-differences estimates for the treatment state and the placebos.

SOURCE: Authors' calculations.

Table B2

ESTIMATED IMPACT OF UNIVERSAL E-VERIFY LAWS ON NUMBER OF LIKELY UNAUTHORIZED IMMIGRANTS EMPLOYED

State	Average Pre-Intervention Difference	Average Post-Intervention Difference	Difference-in-Differences (Standard Error)	Rank Among Placebos	States Contributing to Synthetic Control
Alabama	-0.003	-0.887	-0.884 (0.211)	2/44	FL (2.8%), ID (4.9%), KY (33.4%), MI (25.1%), NV (11.7%), ND (15.7%), VT (6.5%)
Arizona	-0.015	-0.331	-0.316 (0.055)	15/45	ID (35.3%), NV (25.3%), TX (28.7%), VT (0.6%)
Georgia	0.000	-0.161	-0.161 (0.037)	21/42	DE (17.8%), FL (21.1%), KY (26.8%), NV (30.6%), VA (3.7%)
Mississippi	-0.001	-1.465	-1.465 (0.374)	1/45	ME (2.6%), MT (17.4%), ND (38.8%), TN (10.6%), VT (12.8%)
North Carolina	0.006	0.131	0.125 (0.170)	33/43	FL (28.4%), ID (9.8%), ME (1.1%), MI (10%), NV (36.7%), WA (13.6%)
South Carolina	-0.038	0.112	0.150 (0.092)	33/42	FL 38.8%), ID (47.3%), KY (13.9%)
Utah	-0.000	-0.264	-0.264 (0.094)	12/44	ID (31.8%), NE (2.5%), NV (22.5%), MI (24.3%), NM (12.1%), ND (0.8%), OK (6%)

NOTES: The difference-in-differences is the average post-intervention difference (the average difference between the treatment state indicated and its synthetic control during the post-intervention period) minus the average pre-intervention difference. The standard error for the difference-in-differences is calculated from an ordinary least squares regression using observations for the treatment state and its synthetic control. The rank is the treatment state in a lowest-to-highest ordering of the difference-in-differences estimates for the treatment state and the placebos.

SOURCE: Authors' calculations.

a significant drop in the state's population of likely unauthorized immigrants, whereas the drop is not significant here when evaluated using the placebo method (although it is using the difference-in-differences regression method). There are several methodological differences between this and earlier research that can explain this seeming disparity in significance levels. Most notably, this study examined the number of likely unauthorized immigrants relative to the year before an E-Verify law took effect, whereas other research has focused on the population share

of likely unauthorized immigrants.³³ Using either measure, the unauthorized immigrant population in Arizona fell after the state's E-Verify law took effect, but the drop is statistically significant only when using population share, not when using the level.³⁴ In short, the statistical significance of the placebo results for Arizona depends on the preferred measure of the unauthorized population—the number or the proportion.³⁵ Importantly, however, both measures suggest a substantial decline in unauthorized immigration in the state after implementation.

NOTES

¹ “About E-Verify,” U.S. Citizenship and Immigration Services, www.uscis.gov/e-verify/about-program (last modified Feb. 11, 2014).

² For a discussion of E-Verify’s history, see “Electronic Employment Eligibility Verification,” by Andorra Bruno, March 2013, Congressional Research Service report R40446, www.fas.org/sgp/crs/misc/R40446.pdf.

³ At least 19 cities and counties in Alabama, California, Colorado, Florida, Nebraska, Pennsylvania, Utah and Washington have enacted E-Verify laws that cover some or all workers. These city- or county-level E-Verify requirements typically apply either to all firms or only to government contractors. Conversely, California state lawmakers in 2011 invalidated at least six local laws that required all employers or local government contractors to use E-Verify. Because of the difficulty of accurately ascertaining local E-Verify policies across the country, this report focuses on state-level policies only.

This discussion of local laws relies on information generously provided by Huyen Pham and Pham Hoang Van and by LawLogix, www.lawlogix.com/e-verify-map/. For details of how Pham and Van created their database of policies, see “Measuring the Climate for Immigrants: A State-by-State Analysis,” by Huyen Pham and Pham Hoang Van in *Strange Neighbors: The Role of States in Immigration Policy*, eds. Carissa Byrne Hessick and Gabriel J. Chin, New York: New York University Press, 2014, pp. 21–39.

⁴ “What’s the Hire Date for E-Verify,” U.S. Citizenship and Immigration Services, www.uscis.gov/e-verify/employers/verification-process/whats-hire-date-e-verify (last modified May 19, 2011).

⁵ “Driver’s License Verification,” U.S. Department of Homeland Security, www.uscis.gov/e-verify/employers/drivers-license-verification (last modified May 17, 2017).

⁶ At that time, E-Verify was still called Basic Pilot. Although the name was changed to E-Verify in 2007, the tenets of the program remained the same.

⁷ *Chamber of Commerce of the United States of America v. Whiting*, 563 U.S. 582 (2011).

⁸ Utah’s 2010 law (S.B. 251) allows employers to use either E-Verify or the Social Security Number Verification Service, a similar online verification process implemented by the United States Social Security Administration. This analysis considers the alternative to be equivalent to E-Verify because, in each case, the employer is made aware of an invalid Social Security number. Colorado’s law applies to government contractors and was amended in 2008 under S.B. 08-193 (May 13, 2008) to allow an alternative “Department Program,” in which the state’s Department of Labor and Employment investigates complaints and may conduct random audits. South Carolina’s 2008 law (H.B. 4400) required government contractors to use E-Verify or employ only workers with a valid driver’s license or identification card; for the purposes of this analysis, this is not considered equivalent to mandating use of E-Verify. Tennessee’s 2011 law (H.B. 1378) directs employers to either use E-Verify or require all newly hired employees to provide an identity and employment authorization document from a specified list of documents, an either-or approach. Louisiana’s 2011 law (H.B. 646) also has a similar either-or approach.

⁹ 8 U.S.C. §1324a(h)(2).

¹⁰ Utah S.B. 251 (March 31, 2010).

¹¹ “Did the 2007 Legal Arizona Workers Act Reduce the State’s Unauthorized Immigrant Population?” by Sarah Bohn, Magnus Lofstrom and Steven Raphael, *Review of Economics and Statistics*, vol. 96, no. 2, 2014, pp.258–69.

¹² South Carolina S.B. 20 (June 27, 2011).

¹³ The canonical study using the synthetic control method is “Synthetic Control Methods for Comparative Case Studies: Estimating the Effect of California’s Tobacco Control Program,” by Alberto Abadie, Alexis Diamond and Jens Hainmueller, *Journal of the American Statistical Association*, vol. 105, no. 490, 2010, pp. 493–505.

¹⁴ Previous research on the timing of the effect of E-Verify laws reaches mixed conclusions. “The Labor Market Impact of Mandated Employment Verification Systems,” by Catalina Amuedo-Dorantes and Cynthia Bansak, *American Economic Review: Papers & Proceedings*, vol. 102, no. 3, 2012, pp. 543–48, concludes that the laws reduced employment among likely unauthorized immigrants soon after they were adopted, with no additional impact after they went into effect. “The Impact of E-Verify Mandates on Labor Market Outcomes,” by Pia M. Orrenius and Madeline Zavodny, *Southern Economic Journal*, vol. 81, no. 4, 2015, pp. 947–59, suggests that employers may adapt to laws during the period between passage and implementation because the effects on labor market outcomes are somewhat smaller when examining implementation dates than when studying adoption dates. Finally, “Do State Work Eligibility Verification Laws Reduce Unauthorized Immigration?” by Pia M. Orrenius and Madeline Zavodny, *IZA Journal of Migration*, vol. 5, no. 1, 2016 (<http://izajom.springeropen.com/articles/10.1186/s40176-016-0053-3>), found that universal E-Verify laws reduced the population of likely unauthorized immigrants more a year after implementation as opposed to immediately after the laws took effect.

¹⁵ See note 13.

¹⁶ Tennessee is included as a donor state since it had not yet enacted its universal mandate. In some specifications, the number of likely unauthorized immigrants observed in the data for certain states during each 12-month period was too small for those states to be included in the donor pool. Appendix Tables B1 and B2 report the number of states in the donor pool in each specification.

¹⁷ The population and demographics data are calculated from the Census Bureau’s Current Population Survey. The real gross domestic product per capita data are from the Bureau of Economic Analysis. The unemployment rate data are from the Bureau of Labor Statistics. The construction starts and permits data are proprietary data from Haver Analytics. “Regional Economic Accounts,” Bureau of Economic Analysis, <https://bea.gov/regional/index.htm>; “Local Area Unemployment Statistics,” Bureau of Labor Statistics, www.bls.gov/lau/.

¹⁸ “A Portrait of Unauthorized Immigrants in the United States,” by Jeffrey S. Passel and D’Vera Cohn, Pew Research Center, April 2009, www.pewhispanic.org/2009/04/14/a-portrait-of-unauthorized-immigrants-in-the-united-states/.

¹⁹ For examples of papers that use this proxy, see note 14, “The Labor Market Impact of Mandated Employment Verification Systems”; “Employment Verification Mandates and the Labor Market Outcomes of Likely Unauthorized

and Native Workers,” by Catalina Amuedo-Dorantes and Cynthia Bansak, *Contemporary Economic Policy*, vol. 32, 2014, pp. 671–80; “On the Effectiveness of S.B. 1070 in Arizona,” by Catalina Amuedo-Dorantes and Fernando Lozano, *Economic Inquiry*, vol. 53, 2015, pp. 335–51; “The Response of the Hispanic Noncitizen Population to Anti-Illegal Immigration Legislation: The Case of Arizona S.B. 1070,” by Gonzalo E. Sánchez, unpublished paper, Texas A&M University Department of Economics, 2015.

²⁰ See note 11, “Did the 2007 Legal Arizona Workers Act Reduce the State’s Unauthorized Immigrant Population?”

²¹ See note 19, “On the Effectiveness of S.B. 1070 in Arizona.”

²² See note 19, “On the Effectiveness of S.B. 1070 in Arizona,” and “The Response of the Hispanic Noncitizen Population to Anti-Illegal Immigration Legislation: The Case of Arizona S.B. 1070.”

²³ “Employment Effects of State Legislation,” by Sarah Bohn and Magnus Lofstrom, in *Immigration, Poverty, and Socioeconomic Inequality*, eds. David Card and Steven Raphael, New York, Russell Sage Foundation, 2013, pp. 282–314.

²⁴ See note 14, “Do State Work Eligibility Verification Laws Reduce Unauthorized Immigration?”

²⁵ See, for example, Congressional Budget Office, “The Impact of Unauthorized Immigrants on the Budgets of State and Local Governments,” December 2007, www.cbo.gov/sites/default/files/110th-congress-2007-2008/reports/12-6-immigration.pdf. The size of the Social Security Administration’s Earnings Suspense File—over \$1.2 trillion—also suggests that a large number of unauthorized immigrants have taxes withheld from their paychecks.

²⁶ See S. 744 of the 113th Congress (2013–14), www.congress.gov/bill/113th-congress/senate-bill/744/text; S. 179, 115th Congress (2017), www.congress.gov/115/bills/s/179/BILLS-115s179is.pdf.

²⁷ See, for example, note 14, “The Impact of E-Verify Mandates on Labor Market Outcomes,” and “Do State Work Eligibility Verification Laws Reduce Unauthorized Immigration?” Only 1 percent of likely unauthorized immigrants who work report being in the public sector, compared with 14 percent of all workers (authors’ calculations from 2005–06 Current Population Survey from Merged Outgoing Rotation Group data).

²⁸ “Piecemeal Immigration Enforcement and the New Destinations of Interstate Undocumented Migrants: Evidence from Arizona,” by Catalina Amuedo-Dorantes and Fernando Lozano, unpublished paper, Pomona College and San Diego State University (2014); see note 14, “Do State Work Eligibility Verification Laws Reduce Unauthorized Immigration?”

²⁹ See note 11, “Did the 2007 Legal Arizona Workers Act Reduce the State’s Unauthorized Immigrant Population?”

³⁰ The regressions also include year fixed effects and are estimated with robust standard errors. Several recent studies examining the effect of the influx of Cuban migrants as a result of the Mariel boatlift also take this traditional regression difference-in-differences approach in addition to doing placebo difference-in-differences testing. See “The Wage Impact of the Marielitos: A Reappraisal,” by George J. Borjas, National Bureau of Economic Research Working Paper no. 21588, 2015; “The Wage Impact of the Marielitos: Additional Evidence,” by George J. Borjas, National Bureau of Economic Research Working Paper no. 21850, 2016;

“The Labor Market Effects of a Refugee Wave: Applying the Synthetic Control Method to the Mariel Boatlift,” by Giovanni Peri and Vasil Yassenov, National Bureau of Economic Research Working Paper no. 21801, 2015.

³¹ Other studies that use the synthetic control method to examine the effect of E-Verify laws also generate placebo estimates to gauge statistical significance. The universal E-Verify mandate states, including the treatment state, are not included in the donor pool to avoid biasing the placebo estimates. See note 11, “Did the 2007 Legal Arizona Workers Act Reduce the State’s Unauthorized Immigrant Population?” for a discussion.

³² For further discussion, see “Synthetic Control Methods for Comparative Case Studies: Estimating the Effect of California’s Tobacco Control Program,” by Alberto Abadie, Alexis Diamond and Jens Hainmueller, *Journal of the American Statistical Association*, vol. 105, no. 490, pp.493–505.

³³ This study also examines a longer time period after the law went into effect, uses a slightly different donor pool and uses a somewhat different set of variables to determine which states compose the synthetic control. However, these differences do not appear to drive the difference in significance levels.

³⁴ If we examine the population share of likely unauthorized immigrants instead of the relative level using the same time period, donor pool and predictor variables as in this analysis, the difference-in-differences for Arizona ranks third out of 45 states, which is statistically significant below the 10 percent level. Only two states—California and Nevada—experienced a larger drop in their population shares of likely unauthorized immigrants compared with their counterfactuals during the period examined here.

³⁵ The statistical significance of the population results for the other states are not sensitive to whether levels or shares are examined, with one exception: Unlike the results for its population level, Mississippi’s population share of likely unauthorized immigrants rose relative to its synthetic control, but the increase is not statistically significant using the placebo method (ranking 26th out of 45 states).

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