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Do Work Eligibility Verification Laws Reduce Unauthorized Immigration?*

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Abstract: During the 2000s, several states adopted laws requiring employers to verify new employees' eligibility to work legally in the United States. This study uses data from the 2005-2013 American Community Survey to examine how such laws affect likely unauthorized immigrants' locational choices. The results indicate that having an E-Verify law reduces the number of less-educated prime-age immigrants from Mexico and Central America living in a state. The effect appears to be primarily due to a combination of less in-migration from abroad and more out-migration abroad, not due to less in-migration from other states or more out-migration to other states. E-Verify laws generally do not affect the locational choices of less-educated U.S. natives or more-educated immigrants from Mexico and Central America.

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Introduction

U.S. states and localities adopted an unprecedented number of laws regarding immigrants during the late 2000s and early 2010s. Many of these laws were aimed at reducing the unauthorized immigrant population, with state lawmakers claiming they were responding to inaction by the federal government. One of the most commonly-adopted laws requires employers to verify new employees' eligibility to work legally in the United States. These provisions, commonly called "E-Verify laws" because they require employers to use the federal E-Verify system, may reduce the number of unauthorized immigrants living in a state by making it harder for them to find or switch jobs.

Understanding the effect of E-Verify laws on the number and locational choices of unauthorized immigrants is important given this population's size. About 11.2 million unauthorized immigrants lived in the United States in 2012, accounting for 3.5 percent of the U.S. population and more than 5 percent of the labor force.[1] Slightly more than one-quarter of immigrants living in the United States were unauthorized. Despite these sizable numbers, the unauthorized immigrant population has shrunk in recent years. In 2007, before the Great Recession, it totaled 12.2 million and 30 percent of all immigrants living in the United States.

The recession likely was the major cause of the decline in the unauthorized immigrant population, which fell by almost one million between 2007 and 2009. The drop appears to have been comprised of both a decline in new arrivals and an increase in departures from the United States (Passel, Cohn and Gonzalez-Barrera 2012). Stricter enforcement policies, including implementation of E-Verify requirements in several states as well as record numbers of

[1] All estimates of the number and share of unauthorized immigrants reported here are from Passel and Cohn (2014) unless otherwise noted.

deportations and removals from the country, may have played a role in the unauthorized immigrant population's drop and failure to rebound even as the economic recovery has gained steam. The decline and subsequent stagnation in the unauthorized immigrant population coincides with the adoption of E-Verify mandates and other enforcement measures at the federal and state levels.

Previous research generally shows that stricter enforcement policies, including state E-Verify laws, have a negative effect on likely unauthorized immigrants' labor market outcomes. The wage penalty experienced by unauthorized immigrant workers from Mexico rose after the 1986 Immigration Reform and Control Act (IRCA) first made it illegal to hire unauthorized immigrants (Donato and Massey 1993). Employment and earnings fell among likely unauthorized immigrants as border and interior enforcement ramped up in the United States in the wake of the 9/11 terrorist attacks (Orrenius and Zavodny 2009). After Arizona became the first state to require virtually all employers to verify new hires' eligibility to work in the United States, wage-and-salary employment fell among non-U.S. citizen Hispanics there while self-employment rose (Bohn and Lofstrom 2013). Nationwide, likely unauthorized immigrants' employment and earnings tended to fall in states that adopted E-Verify laws, although there is also some evidence of positive effects on earnings and labor force participation (Amuedo-Dorantes and Bansak 2012, 2014; Orrenius and Zavodny 2015). The creation of a 287(g) program, which allowed participating state and local law enforcement officers to enforce federal immigration laws, appears to have had little net impact on employment (Bohn and Santillano 2011).

Evidence on the effects of stricter enforcement policies on the number and locational choices of unauthorized immigrants is mixed. Arizona's population of non-naturalized citizens

fell dramatically after the state's E-Verify mandate went into effect in 2007 (Bohn, Lofstrom and Raphael 2014; Amuedo-Dorantes and Lozano 2015). The decrease was concentrated among less-educated and Hispanic immigrants. Estimates suggest that many of these immigrants left the United States altogether rather than moved to other states, perhaps because they were deported (Amuedo-Dorantes and Lozano 2014). It is unclear whether a later anti-unauthorized immigration law (SB 1070) passed in Arizona in 2010 further reduced the population of unauthorized immigrants there. A survey of undocumented migrants in Mexico suggests that the flow of undocumented migrants planning to enter the state fell by 30 to 70 percent after the bill was passed, but undocumented immigrants already living in Arizona did not return to Mexico in large numbers (Hoekstra and Orozco-Aleman, 2014). U.S. population data suggest little effect of SB 1070 on the population of likely unauthorized immigrants in Arizona (Amuedo-Dorantes and Lozano, 2015).

Evidence across the United States, not just in Arizona, is also mixed. State omnibus immigration laws, many of which included a universal E-Verify mandate, appear to have resulted in a sizable drop in the population of likely unauthorized immigrants in states that adopted them (Good 2013). One study concludes that the creation of a 287(g) program has little effect on the population of likely unauthorized immigrants, although the population of Mexican immigrants fell in Dallas, Los Angeles, Riverside and Phoenix after those areas created such a program (Parrado 2012). Another study, however, concludes that 287(g) programs nearly double the propensity of immigrants to move within the United States; surprisingly, the effect is greatest among college-educated immigrants, who are not likely to be unauthorized immigrants (Watson, 2013). In addition, growth in the number of Hispanic students slows in areas that create a 287(g) program if local labor market conditions worsen (O'Neil 2011).

This paper examines the effect of state E-Verify mandates on the population of likely unauthorized immigrants. The next section explains how E-Verify works and where it has been implemented. We then discuss the data and empirical methodology. In addition to examining population size, we look at population dynamics to try to understand whether any observed population changes are due to interstate or international mobility. Previous research has not examined these questions beyond the case of Arizona, whereas we examine all states that have adopted a universal E-Verify mandate. Our results indicate that requiring employers to use E-Verify has a large negative effect of the number of likely unauthorized immigrants in a state. The effect appears to be largely due to a combination of less in-migration to those states from abroad and more out-migration abroad from those states.

Background on E-Verify

The employment eligibility verification laws that we examine require virtually all employers to use E-Verify. E-Verify is a free online system created and managed by the federal government. It was first rolled out to several states in 1997 under the name Basic Pilot. It became available to employers in all states in 2003, but participation remained voluntary.[2] Employers who use E-Verify enter the new worker's information on the employment eligibility form ("Form I-9"), and E-Verify compares that information with Social Security Administration (SSA) and, if needed, Department of Homeland Security (DHS) records. If there is a discrepancy, the employer is notified of a tentative nonconfirmation and is told to notify the worker, who then has 10 federal work days to contest the discrepancy. During those 10 days, the employer cannot fire the worker because of the discrepancy; however, the employer must fire the worker if the discrepancy is not resolved after that period.

[2] Since 2011, individuals have been able to use E-Verify Self Check to check their own employment eligibility.

Employers are not allowed to ask applicants about their employment eligibility or verify their eligibility before making them a job offer. Unauthorized workers can pass E-Verify only by committing identity fraud—supplying another person's valid Social Security number and name. In response to this concern, DHS added a photo matching tool in 2009 and now requires the employer, when possible, to verify that the photo in E-Verify is identical to the photo the employee presented when completing Form I-9. However, driver's licenses—which most workers present as their photo identification—are not currently included in the DHS database.

In 2007, Arizona became the first state to require virtually all employers to use E-Verify. Six other states later adopted universal E-Verify laws, as listed in Table 1. These laws require employers to use E-Verify for new hires, not for existing employees. In 2009, the federal government began requiring some government contractors and subcontractors to use E-Verify for new and existing workers assigned to a federal contract. Several other states have adopted E-Verify laws that cover state and local government employees and/or state government contractors, which are not listed in the table and are not our focus. Laws that cover government employees are considerably less likely to affect unauthorized immigrants than universal laws since relatively few immigrants work in the public sector. E-Verify laws that cover government contractors have greater potential than laws that cover government employees to affect unauthorized immigrants, but less than universal laws.

Data

We use data from the 2005-2013 American Community Survey (ACS), a large-scale survey of the U.S. population.[3] The ACS surveys about 1 percent of U.S. households each year; it replaced the long-form decennial census but is administered on a continuous basis instead of every 10

[3] We use IPUMS data from Ruggles et al. (2010).

years. Households answer questions about members' demographic characteristics, including country of birth, year of entry into the United States and U.S. citizenship status.

Because the ACS does not ask about legal status, we infer whether immigrants are likely to be unauthorized based on their age, education, country of birth and U.S. citizenship status. Most unauthorized immigrants to the United States are prime-aged because they migrate in order to work. Most have relatively little education because they are from countries with low average levels of educational attainment. In addition, unauthorized immigrants are typically only able to get jobs in less-skilled sectors, such as agriculture, construction, and manufacturing. This reduces the incentive for more-educated people to migrate illegally. About three-quarters of adult unauthorized immigrants have no more education than a high school degree (Passel and Cohn 2009). Because of geographic proximity and poor economic and social conditions at home, as well as extensive migrant networks, more than two-thirds of unauthorized immigrants in the United States are from Mexico and Central America. Unauthorized immigrants are not eligible for U.S. citizenship.[4]

We define likely unauthorized immigrants here as immigrants aged 20-54 who have at most completed high school, are from Mexico or Central America and are not U.S. citizens. Of course, some people in this group are legally present in the United States. Our estimates therefore may be lower bounds of the effect of E-Verify laws. However, migration often occurs as a family unit. Legal immigrants who are married to unauthorized immigrants may also move in response to E-Verify laws. More than three-quarters of married-with-spouse-present, less-

[4] Although some unauthorized immigrants probably report being naturalized citizens in the ACS, we do not examine naturalized citizens since the share who are likely to be unauthorized immigrants is presumably very low. We do not include people whose place of birth or citizenship status was imputed by the ACS. We also do not include people born abroad to U.S.-citizen parents since they are usually eligible for U.S. citizenship at birth.

educated, prime-aged, non-U.S. citizen immigrants from Mexico or Central America in the ACS are married to another likely unauthorized immigrant.

In addition to reporting estimates for all likely unauthorized immigrants, we report estimates for those who are recent arrivals, defined as those who have arrived within the last five years, and for new arrivals, defined as those who have arrived within the last year. Recent immigrants are more likely to be unauthorized than long-term U.S. residents. We therefore expect that any effects of E-Verify on locational choices are larger among recent immigrants. In addition, conditional on having the same legal status as earlier immigrants, recent immigrants' locational choices are more likely to respond to E-Verify mandates. Recent immigrants have not yet put down as many roots that limit mobility, such as having children enrolled in school and owning a house. New immigrants' locational choices are likely to be particularly sensitive to E-Verify mandates since they also have relatively few roots in the United States and they need to find a job. As Borjas (2001) points out, new arrivals tend to be more responsive to geographic differences in economic opportunities because they have a lower marginal cost than earlier immigrants or U.S. natives of moving to any particular state since they are coming from abroad.

We also report baseline regression results below for immigrants who have at least attended some college and for less-educated U.S. natives. For comparability with our sample of likely unauthorized immigrants, we include only prime-aged adults in these groups, and the sample of more-educated immigrants is restricted to those from Mexico and Central America. These groups serve as a check on whether we are capturing effects of E-Verify laws instead of other factors. Finding similar effects among likely unauthorized immigrants and these groups would suggest we are capturing something other than the effects of E-Verify laws. However, E-Verify laws may have an indirect effect on these groups if employers turn to them instead of to

unauthorized immigrants. We therefore may observe in-migration effects among more-educated immigrants or for less-educated natives if E-Verify laws lead to better labor market opportunities for those groups. On the other hand, effects may not be positive for U.S.-born Hispanics if E-Verify laws lead to discrimination against U.S.–born Hispanics. There is a precedent for this; labor market outcomes worsened among U.S.-born Hispanics after the 1986 IRCA made it illegal to hire unauthorized immigrants (Dávila, Pagán and Grau 1998). In addition, some more-educated immigrants or less-educated natives may move in response to E-Verify laws that affect an unauthorized-immigrant spouse.

Table 2 shows the average annual percentage change across states in the population of likely unauthorized immigrants. States and years are divided into three categories in the table: "before E-Verify" reports the average population growth rate in states that implemented a universal E-Verify law during 2005-2013 but had not yet done so; "after E-Verify" reports the average population growth rate in those states after they implemented E-Verify; and "no E-Verify" is states that did not implement a universal E-Verify law during that period. As the first entry in column 1 shows, the population of likely unauthorized immigrants rose at an average annual rate of more than 4 percent in the seven states that implemented E-Verify laws before they put the laws into effect. After the laws went into effect, the population of likely unauthorized immigrants fell at an average annual rate of almost 5 percent in those states. In states that never implemented E-Verify, the population of likely unauthorized immigrants changed little, in contrast. As columns 2 and 3 show, average population growth rates are negative for recent and new arrivals. This is not surprising since the period 2005-2013 witnessed the Great Recession and stricter immigration enforcement. As discussed earlier, the recession likely resulted in smaller immigrant inflows into the United States and larger immigrant outflows

from the United States, and stricter immigration enforcement may have contributed to those trends. Nevertheless, the pre-post differences in states that implemented E-Verify laws are even larger when looking at recent arrivals or new arrivals, as are the differences between post-E-Verify and no-E-Verify states.

The pattern in Table 2 is consistent with E-Verify laws reducing the number of likely unauthorized immigrants in states that adopted them. However, if the recession was worse in those states, then the stylized facts in Table 2 could merely reflect differences in the time periods examined—the "after E-Verify" sample tends to come later in the period while the "no E-Verify" sample covers the entire period. We therefore turn to regression estimates that allow us to control for state-level economic factors, state-level trends and shared national factors in order to better assess the effects of E-Verify laws.

Methodology

We first examine the effect of the E-Verify mandates on population size using ordinary least squares (OLS) regression models of the basic form

$$\ln \text{Population}_{st} = \alpha + \beta_1 \text{E-Verify}_{st} + \beta_2 \text{Economic conditions}_{st-1} + \text{State}_s + \text{Year}_t + \text{Trend}_{st} + \varepsilon_{st}, \quad (1)$$

where *s* indexes states and *t* indexes time. The dependent variable is the natural log of a measure of population size. *E-Verify* is the fraction of the year that a state has a universal E-Verify mandate in effect. We report results from specifications that measure E-Verify at time *t* or at time *t-1*, the previous year, since unauthorized immigrants may not move immediately in response to implementation of E-Verify.

Economic conditions includes four controls for state-level business cycle conditions: the natural log of real state GDP per capita; the unemployment rate; the number of housing permits; and the number of housing starts. The last two variables are proxies for the level of construction activity in a state and are included because construction is an important employment sector for unauthorized immigrant men. The measures of economic conditions are lagged one year since migration decisions are likely to be based on conditions that prevailed in the recent past. Results for those variables are not reported here but are available on request.

The regressions include state and time fixed effects that control for unobservable state- or year-specific factors that affect population size. The year fixed effects capture the national business cycle or other changes common to all states, such as the implementation of the federal E-Verify law in 2009. The regressions also include state-specific linear time trends to control for underlying trends. We caution that these trend variables may capture part of any effect of mandates since most mandates coincided with the recession and a general decline in the unauthorized immigrant population. The data are weighted using the sum of the ACS person weights for a given cell. The estimated standard errors are clustered at the state level.

Our identification scheme compares the size of the likely unauthorized immigrant population in states that implemented E-Verify with states that did not. Because the regressions include state fixed effects, year fixed effects, and state-specific time trends, the estimated coefficients on *E-Verify* measure whether the population size changed within a state after it implemented E-Verify, relative to the change over time within states that have not (yet, in some cases) implemented E-Verify. This approach assumes that whether a state implements E-Verify is unrelated to the size of its unauthorized immigrant population and factors that affect the population size, controlling for business cycle conditions in that state. In other words, it assumes

that E-Verify mandates are exogenous. If unmeasured improvements in the economy attract unauthorized immigrants, which in turn leads states to implement E-Verify, the estimated coefficients are biased upwards, or too positive. Note that the state fixed effects capture any time-invariant differences across states that might attract unauthorized immigrants, while the state-specific time trends capture any linear trends in a state that might attract unauthorized immigrants. Non-linear trends are not captured, however. Although not a conclusive test for exogeneity, we also report regression results of whether the population size of likely unauthorized immigrants can explain whether a state adopted E-Verify. We also examine the effect of E-Verify laws in other states, as discussed later.

After estimating OLS regressions for the population size of likely unauthorized immigrants and, as a specification check, several other groups using equation (1), we turn to mobility. The ACS asks where people lived one year ago. We use those answers to count the number of likely unauthorized immigrants in four groups for each state, year pair: stayers (people who lived in the state this year and last year); domestic out-migrants (people who moved from that state to another state); domestic in-migrants (people who moved to that state from another state); and international in-migrants (people who moved to that state from abroad). We are not able to look international out-migrants since the ACS only captures people who live in the United States. Nonetheless, we can make inferences about this group based on the following identities:

$$\text{Population}_{st} = \text{Stayers}_{st} + \text{Domestic in-migrants}_{st} + \text{International in-migrants}_{st}, \quad (2)$$

and

$$\text{Stayers}_{st} = \text{Population}_{st-1} - \text{Domestic out-migrants}_{st} - \text{International out-migrants}_{st}. \quad (3)$$

If the population falls, it must be due to a decrease in stayers or a decrease in in-migrants domestically or from abroad. A decrease in stayers, in turn, must be due to an increase in domestic or international out-migrants, given the initial population size.

We first use an OLS regression model similar to equation (1) to estimate the effect of E-Verify on the size of the unauthorized immigration population in the four groups described above. We then estimate a linear probability model of the probability that a likely unauthorized immigrant moved to a different state. The equation underlying the linear probability model is

$$\text{Moved states}_{ist} = \alpha + \beta_1 \text{E-Verify}_{ist} + \beta_2 \text{Economic conditions}_{ist-1} + \text{State}_s + \text{Year}_t + \text{Trend}_{st} + \varepsilon_{ist}, \quad (4)$$

where *Moved states* is a dummy variable equal to one if individual *i* lived in a different state last year than this year. *E-Verify* is measured for the state of residence last year, so estimates of β_1 capture whether having an E-Verify law in a given state caused people to move to another state. As with the population size estimates, we look at E-Verify laws currently or a year ago. *Economic conditions* are measured in the state of residence last year and are lagged one year. The state fixed effects and time trends are also for the state of residence last year. Unlike our earlier aggregate estimates, the linear probability model examines at the individual level whether E-Verify causes domestic out-migration. The two models thus offer slightly different perspectives on the same question.

At the individual level, we also estimate conditional logit models of likely unauthorized immigrants' locational choice. The conditional logit models help us understand the effect of E-Verify on where likely unauthorized immigrants chose to live. The conditional logit model we estimate is

$$\Pr(\text{State}_{ist} = 1 \mid X_{ist}) = F(\alpha_i + \beta_1 \text{E-Verify}_{st} + \beta_2 \text{Economic Conditions}_{st-1} + \text{State}_s), \quad (5)$$

where *i* denotes individuals, *s* states and *t* years and F is the cumulative logistic distribution. There are 51 observations for each individual—one observation for each state—equal to one for the state an individual lives in and zero for all other states. The conditional logit regressions include a fixed effect for each individual, α. *E-Verify* measures the fraction of a year a state had E-Verify in place. We again measure E-Verify at time *t* or at time *t-1*, the previous year. The regressions control for economic conditions in the state last year and for time-invariant factors specific to the state.[5] We use the conditional logits to examine the effect of E-Verify on where new arrivals—international in-migrants—choose to go and on where already-present immigrants choose to live. When we look at immigrants who lived in the United States last year, we include in the regressions a dummy variable equal to one for the state each person lived in last year.

Results

We first examine the effect of E-Verify on the size of the likely unauthorized immigrant population—less-educated, prime-aged, non-U.S. citizen immigrants from Mexico and Central America—using OLS regressions to estimate equation (1). Table 3 reports the results. The presence of a universal E-Verify mandate last year has a significant negative effect on the number of likely unauthorized immigrants who arrived within the last five years (panel A, column 2). The estimated effects for likely unauthorized immigrants as a whole and for new arrivals are also negative but not significantly different from zero. The presence of an E-Verify mandate this year has a significant negative effect on all three groups of likely unauthorized immigrants (panel B). The results suggest the number of new arrivals falls by almost 50 percent if a state has a universal E-Verify law in effect all year, while the total number of likely

[5] The conditional logit regressions do not include year fixed effects since each individual is only observed once; the ACS data are not a panel.

unauthorized immigrants falls by about 5.5 percent and the number of recent arrivals by 25 percent.

No particular state appears to drive the results in Table 3. We generally find similar results when dropping, one by one, each of the seven states that adopted a universal E-Verify law during 2005-2013.[6] There are only two notable differences. Dropping Arizona, the first state to adopt a universal E-Verify law, makes the effect of having an E-Verify law this year no longer significantly negatively related to the number of new likely unauthorized immigrants in a state. The negative effect of E-Verify laws on the number of newly arrived likely unauthorized immigrants thus appears to be largely due to Arizona; the negative effects on all and recently arrived likely unauthorized immigrants are not, however. Dropping Georgia leads to a significant negative relationship between having an E-Verify law last year or this year for all three of the groups of likely unauthorized immigrants we examine.

Table 4 shows the results of similar specifications for our comparison groups: more-educated, prime-aged, non-naturalized immigrants from Mexico and Central America, and less-educated U.S. natives. The presence of an E-Verify law last year or this year is not significantly related to the population of these groups. This suggests that our regressions pick up the effect of E-Verify laws rather than factors that affect all immigrants or all low-skilled workers.

Another way to examine the validity of our empirical approach is to look at the effect of non-universal E-Verify laws. As discussed earlier, some states enacted E-Verify requirements that apply only to government employers or to government contractors. Table 5 shows the estimated effects of E-Verify laws that cover government employees or government contractors on the number of likely unauthorized immigrants in a state. We also look at the effect on less-educated U.S. natives since these laws may increase demand for substitutable U.S.-born workers.

[6] All results discussed but not shown here are available on request.

As the results show, E-Verify requirements for government employees do not affect the number of likely unauthorized immigrants or less-educated U.S. natives in a state. E-Verify requirements for government contractors, however, do reduce the number of newly arrived likely unauthorized immigrants by about one-fifth while increasing the number of less-educated U.S.-born blacks by about 4 percent. Our finding that laws covering government contractors affects the locational choices of newly arrived likely unauthorized immigrants but not of those already living in United States makes sense if new arrivals are more likely to work in sectors that have government contracts, such as construction or groundskeeping services.

The effect of E-Verify laws on the number of unauthorized immigrants in a state may increase or decrease over time. It may take a while for unauthorized immigrants to learn about E-Verify laws or to be affected by them, in which case the effect may increase over time. Alternatively, unauthorized immigrants (and their employers) may initially react to E-Verify laws but learn over time that the laws are not strictly enforced. To examine the effect of E-Verify over time, we added to equation (1) a variable that measures the number of years that a universal E-Verify law has been in place; the variable equals zero the first year a law is in effect and increases by one each subsequent year.

Table 6 reports the regressions results for likely unauthorized immigrants. For likely unauthorized immigrants as a whole and for recent arrivals, the negative population effect of E-Verify appears to grow over time. For new arrivals, in contrast, the effect appears to decrease over time. The initial drop in the unauthorized immigrant population when states adopt E-Verify may create a shortage of workers in jobs typically held by unauthorized immigrants that attracts some newly arriving immigrants to those states the next year. Meanwhile, earlier unauthorized immigrants who have left those states may not be willing to move back and incur migration costs

once again. The effect could also be partly mechanical. Since new arrivals in year *t* are recent immigrants in year *t+1*, the large initial drop in the number of newly arriving likely unauthorized immigrants translates into a negative effect on the number of recent likely unauthorized immigrants the next year. In any case, we caution that only three states had E-Verify laws in place for more than a year or two in our sample: Arizona, Mississippi and Utah. A longer time period for more states may be needed to better understand whether the effect of E-Verify increases or decreases over time.

Are E-Verify laws exogenous?

The seven states that adopted universal E-Verify mandates are all relatively conservative states located in the South or Southwest. To varying degrees, these states experienced an influx of immigrants during the 1990s and early 2000s. However, some other states that also experienced an influx of immigrants during that period did not adopt universal E-Verify laws. Many of those states are in the Midwest and also tend to lean Republican. Determining exactly what caused some states to adopt E-Verify laws is beyond the scope of this paper, but we briefly address whether increases in the population of likely unauthorized immigrants appear to have caused states to adopt a universal E-Verify law. Table 7 reports the results of regressions in which the dependent variable equals one if a state adopted a universal E-Verify law that year. The regressions include the log of the population of all, recent or new likely unauthorized immigrants that year or the previous year, our lagged measures of economic conditions, state and year fixed effects and state-specific time trends. None of the results indicate that having a larger population of likely unauthorized immigrants caused states to adopt E-Verify; in results not shown here, we also find that whether a state adopted E-Verify is not significantly related to the growth rate of its

population of likely unauthorized immigrants. Although not conclusive proof that the adoption of E-Verify is exogenous, the results suggest that something other than changes in the population of unauthorized immigrants or factors that led to changes in that population caused states to adopt E-Verify.

E-Verify laws in other states

Before turning to mobility, we examine whether E-Verify laws in other states affect the number of likely unauthorized immigrants living in a given state. To do this, we constructed two estimates of E-Verify laws in other states: a distance-weighted measure of the presence of universal E-Verify laws in other states that gives less weight to states that are further away, and the fraction of bordering states with a universal E-Verify law in effect. The regressions include one of those two variables and a variable measuring the presence of E-Verify in a given state that year (the regressions also include the controls for economic conditions, state and year fixed effects and state-specific time trends).

Table 8 gives the results. The presence of E-Verify in other states does not appear to affect the number of all or recent likely unauthorized immigrants, but it does affect the number of new unauthorized immigrants. The number of new unauthorized immigrants rises as the number of other states with E-Verify policies increases. For example, the number of new likely unauthorized immigrants in a state is about 46 percent higher if all of its neighbors have E-Verify (panel B, column 3). The magnitude of the results for the distance-weighted measure does not have a clear interpretation but also indicate a positive effect. Both results thus suggest that E-Verify laws divert some new arrivals to other states. In results not shown here, we find similar results if we look at E-Verify policies in other states last year instead of this year: the number of

new likely unauthorized immigrants in a state is positively related to the presence of E-Verify laws in other states last year, but the number of all or recent likely unauthorized immigrants is not.

Our failure to find an effect of E-Verify laws in other states on the total number of likely unauthorized immigrants or recent arrivals in a state is somewhat surprising given the negative effects of E-Verify laws on these groups. The results in Table 8 do not suggest that those groups move to other states in response to E-Verify laws. If they did, we would expect to find that the number of all or recently arrived likely unauthorized immigrants is positively related to the presence of E-Verify laws in other states.

Mobility

We next turn to the effect of universal E-Verify laws on the number of likely unauthorized immigrants who stay in or migrate into a state and the number who migrate to other states. Table 9 shows the regression results. The presence of an E-Verify law in a state last year does not significantly affect the total number of likely unauthorized immigrants who stay in a state, but it does reduce the number of recent likely unauthorized immigrants who stay there by about 37 percent (panel A, row 1). The presence of an E-Verify law in a state this year reduces the number of all and recent likely unauthorized immigrants who stay in the state (panel B). However, the presence of an E-Verify law last year or this year does not significantly affect the number of domestic out-migrants—immigrants who lived in the state last year but live in a different state this year—or the number of domestic in-migrants—immigrants who lived in a different state last year. Having an E-Verify law last year significantly reduces the number of international in-migrants—new unauthorized immigrants coming from abroad. Having an E-Verify law this year

also appears to have a negative effect on the number of international in-migrants, although the effect is significant only at the 10 percent level.

The results in Table 9 do not suggest that likely unauthorized immigrants moved to other states in response to E-Verify laws. If they did, the number of domestic out-migrants from a state would be positively related to the presence of an E-Verify law in a state. To further examine whether E-Verify laws cause unauthorized immigrants to move to other states, we estimate linear probability regressions for the probability of moving to a different state. As Table 10 reports, we find some evidence in linear probability regressions that E-Verify laws do cause likely unauthorized immigrants to move to another state. Recent likely unauthorized immigrants are 2.6 percentage points more likely to move to another state if the state they lived in last year had a universal E-Verify law in effect that year. However, they are not significantly more likely to move to another state if the state they lived in last year has a universal E-Verify law in effect this year. These results suggest that recent unauthorized immigrants are not forward-looking in their locational choices—they do not appear to move to another state because of E-Verify laws until those laws are actually in effect.[7] As a whole, however, likely unauthorized immigrants do not appear to move to another state in response to an E-Verify law in their own state. The fact that we find a bigger response among recent likely unauthorized immigrants than among likely unauthorized immigrants as a whole is consistent with lower migration costs and greater willingness to move among more recent arrivals, as discussed earlier.

Lastly, we examine the effect of E-Verify on where likely unauthorized immigrants choose to live using conditional logit regressions. As Table 11 shows, all three groups of likely

[7] Consistent with this, we find smaller (closer to zero) and less precisely estimated effects throughout when we examine adoption dates instead of implementation dates. This is consistent with previous findings that the effects of E-Verify laws on labor market outcomes are larger if looking at when laws went into effect than when they were adopted (Orrenius and Zavodny 2015).

unauthorized immigrants that we examine are less likely to choose to live in a state if it had an E-Verify law in effect last year or this year. It is worth noting that these results, like those in Table 10, are conditional on remaining in the United States. The fact that likely unauthorized immigrants have a lower probability of living in a state that has an E-Verify law is consistent with the possibility that unauthorized immigrants who otherwise would live in that state are not in the United States at all. If some unauthorized immigrants leave the country entirely (or never enter it) because the state they would otherwise live in has an E-Verify law, that could create the negative effects reported in Table 11.

Conclusion

Taken as a whole, the results here point to several conclusions: First, E-Verify laws reduce the number of unauthorized immigrants in a state. This effect tends to be most pronounced among more recent arrivals, particularly newly arriving immigrants. Second, E-Verify laws appear to divert some unauthorized immigrants to other states. This effect also appears to be greatest for newly arriving immigrants. In general, our results do not suggest that E-Verify laws affect the number of unauthorized immigrants who already live in the United States moving into or out of a state, conditional on them remaining in the United States. Yet we do find a significant and often sizable negative effect of E-Verify laws on the number of likely unauthorized immigrants living in a state who are not new arrivals to the United States. This suggests that most unauthorized immigrants already living in the United States who move in response to E-Verify laws leave the country entirely, not move to another state.

The American Community Survey data that we use here do not allow us to examine immigrants who leave the United States entirely. The survey also does not ask about legal status,

which we proxy using age, education, place of birth and reported U.S. citizenship status. Data that include legal status and that encompass people who leave the United States would give a more complete understanding of whether unauthorized immigrants leave in response to employment eligibility verification laws. Nonetheless, our results together with previous findings that E-Verify laws and other enforcement measures generally lead to worse labor market outcomes among likely unauthorized immigrants may give policymakers additional reason to consider adopting such policies if they hope to reduce the number of unauthorized immigrants in the United States.

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Table 1. States mandating universal use of E-Verify

State	Adoption Date	Implementation Date	Comments
Alabama	June 2011	April 2012	Government contractors only in Jan-Mar 2012
Arizona	July 2007	January 2008	
Georgia	May 2011	January 2012	Size phase in
Mississippi	March 2008	July 2008	Size phase in
North Carolina	June 2011	October 2012	Size phase in
South Carolina	June 2011	January 2012	Size phase in
Utah	March 2010	July 2010	Government employees and government contractors only in July 2009-June 2010

Source: Based on http://www.troutmansanders.com/immigration/. Government contractors means businesses with state contracts (and their subcontractors in most states; conditional on contract size in some states). Only laws that require use of E-Verify and do not offer another option, such as certifying or affirming employment eligibility, are listed here. Policies that apply to only public agencies or government contractors are not listed here.

Table 2. Average annual percentage change in likely unauthorized immigrant population during 2005-2013, before and after E-Verify laws and in non-E-Verify states

	All	Recent arrivals	New arrivals
Before E-Verify	4.25	-7.59	-12.58
After E-Verify	-4.71	-27.21	-24.33
No E-Verify	0.27	-13.44	-15.76

Note: Shown is the average annual percentage change in states' population likely unauthorized immigrants, non-naturalized immigrants aged 20-54 from Mexico and Central America who have at most completed high school. "No E-Verify" is states that did not have a universal E-Verify law during 2005-2013. Observations are weighted using the population size in year t-1.

Table 3. The effect of E-Verify laws on likely unauthorized immigrant population size

	All	Recent arrivals	New arrivals
A. Effect of E-Verify in effect last year on:			
Population size	-0.112	-0.364**	-0.158
	(0.079)	(0.083)	(0.229)
B. Effect of E-Verify in effect this year on:			
Population size	-0.055*	-0.250**	-0.495*
	(0.021)	(0.047)	(0.234)

* p<0.05; ** p < 0.01

Note: Shown are estimated coefficients on a variable measuring the fraction of the year that a universal E-Verify law was in effect in a state. The dependent variable is logged. Each entry is from a separate OLS regression. The regressions include the log of state real GDP per capita, the unemployment rate, housing permits and housing starts (all lagged one year); state and year fixed effects; and state-specific linear time trends. Observations are weighted using the sum of the person weights in the population group. Standard errors are robust and clustered on state.

Table 4. The effect of E-Verify laws on comparison groups' population size

	More-educated immigrants			Less-educated U.S. natives		
	All	Recent arrivals	New arrivals	Non-Hispanic whites	Non-Hispanic blacks	Hispanics
A. Effect of E-Verify in effect last year on:						
Population size	-0.064	-0.114	0.116	-0.023	0.002	0.036
	(0.080)	(0.139)	(0.138)	(0.012)	(0.017)	(0.023)
B. Effect of E-Verify in effect this year on:						
Population size	-0.045	-0.176	-0.084	-0.020	-0.014	0.032
	(0.036)	(0.106)	(0.160)	(0.011)	(0.019)	(0.056)

* $p<0.05$; ** $p < 0.01$

Note: Shown are estimated coefficients on a variable measuring the fraction of the year that a universal E-Verify law was in effect in a state. The dependent variable is logged. Each entry is from a separate OLS regression. The regressions include the log of state real GDP per capita, the unemployment rate, housing permits and housing starts (all lagged one year); state and year fixed effects; and state-specific linear time trends. Observations are weighted using the sum of the person weights in the population group. Standard errors are robust and clustered on state.

Table 5. The effect of non-universal E-Verify laws on less-educated population size

	Likely unauthorized immigrants			Less-educated U.S. natives		
	All	Recent arrivals	New arrivals	Non-Hispanic whites	Non-Hispanic blacks	Hispanics
Government employees	-0.030	0.036	0.144	-0.003	-0.020	-0.009
	(0.020)	(0.049)	(0.075)	(0.006)	(0.013)	(0.032)
Government contractors	0.052	0.020	-0.204*	0.015	0.040**	-0.012
	(0.027)	(0.074)	(0.094)	(0.010)	(0.014)	(0.028)

* $p<0.05$; ** $p < 0.01$

Note: Shown are estimated coefficients on a variable measuring the fraction of the year that a non-universal E-Verify law covering government employees or government contractors was in effect in a state. The dependent variable is logged. Each column is from a separate OLS regression. The regressions include the log of state real GDP per capita, the unemployment rate, housing permits and housing starts (all lagged one year); state and year fixed effects; and state-specific linear time trends. Observations are weighted using the sum of the person weights in the population group. Standard errors are robust and clustered on state.

Table 6. The effect of E-Verify laws on likely unauthorized immigrant population size over time

	All	Recent arrivals	New arrivals
E-Verify in effect	-0.059	-0.259**	-0.492**
	(0.038)	(0.066)	(0.157)
Years in effect	-0.044*	-0.090*	0.178*
	(0.022)	(0.035)	(0.078)

* p<0.05; ** p < 0.01

Note: Shown are estimated coefficients on variables measuring the fraction of the year that a universal E-Verify law was in effect in a state and the number of years it has been in effect. The dependent variable is logged. Each entry is from a separate OLS regression. The regressions include the log of state real GDP per capita, the unemployment rate, housing permits and housing starts (all lagged one year); state and year fixed effects; and state-specific linear time trends. Observations are weighted using the sum of the person weights in the population group. Standard errors are robust and clustered on state.

Table 7. The effect of likely unauthorized immigrant population size on E-Verify law passage

	All	Recent arrivals	New arrivals
A. Effect of population size last year:			
Population size	0.066	0.083	0.003
	(0.194)	(0.113)	(0.046)
B. Effect of population size this year:			
Population size	0.360	0.141	0.060
	(0.245)	(0.135)	(0.065)

* p<0.05; ** p < 0.01

Note: Shown are estimated coefficients on the log of the population size. The dependent variable indicates whether a state adopted a universal E-Verify law that year. Each entry is from a separate OLS regression. The regressions include the log of state real GDP per capita, the unemployment rate, housing permits and housing starts (all lagged one year); state and year fixed effects; and state-specific linear time trends. Observations are weighted using the sum of the person weights in the population group. Standard errors are robust and clustered on state.

Table 8. The effect of own and other states' E-Verify laws on likely unauthorized immigrant population size

	All	Recent arrivals	New arrivals
A. Distance-weighted measure of E-Verify in other states:			
E-Verify in own state	-0.034	-0.212**	-0.601**
	(0.025)	(0.058)	(0.173)
E-Verify in other states	-5.051	-11.073	32.799*
	(3.266)	(6.604)	(15.118)
B. Fraction of bordering states with E-Verify:			
E-Verify in own state	-0.047*	-0.254**	-0.581**
	(0.022)	(0.051)	(0.162)
E-Verify in bordering states	-0.037	0.024	0.461**
	(0.028)	(0.072)	(0.105)

* $p<0.05$; ** $p < 0.01$

Note: Shown are estimated coefficients on variables measuring the fraction of the year that a universal E-Verify law was in effect in a state and a measure of E-Verify in all other states or in neighboring states. The dependent variable is logged. Each set of two coefficients is from a separate OLS regression. The regressions include the log of state real GDP per capita, the unemployment rate, housing permits and housing starts (all lagged one year); state and year fixed effects; and state-specific linear time trends. Observations are weighted using the sum of the person weights in the population group. Standard errors are robust and clustered on state.

Table 9. The effect of E-Verify laws on likely unauthorized immigrant population dynamics

	All	Recent arrivals	New arrivals
A. Effect of E-Verify last year on:			
Stayers	-0.117	-0.373**	--
	(0.066)	(0.069)	
Domestic out-migrants	-0.020	0.642	--
	(0.265)	(0.343)	
Domestic in-migrants	0.106	0.204	--
	(0.276)	(0.321)	
International in-migrants	--	--	-0.496**
			(0.183)
B. Effect of E-Verify this year on:			
Stayers	-0.052*	-0.200*	--
	(0.024)	(0.084)	
Domestic out-migrants	0.001	0.212	--
	(0.339)	(0.417)	
Domestic in-migrants	0.019	0.014	--
	(0.174)	(0.270)	
International in-migrants	--	--	-0.691
			(0.358)

* $p<0.05$; ** $p < 0.01$

Note: Shown are estimated coefficients on a variable measuring the fraction of the year that a universal E-Verify law was in effect in a state last year. The dependent variable is the natural log of the population indicated. Each entry is from a separate OLS regression. The regressions include the log of state real GDP per capita, the unemployment rate, housing permits and housing starts last year in the state; fixed effects for year and state; and state-specific linear time trends. Observations are weighted using the sum of the person weights in the population group. Standard errors are robust and clustered on state.

Table 10. The effect of E-Verify laws on the probability of a likely unauthorized immigrant moving to a different state

	All	Recent arrivals
A. Effect of E-Verify last year on:		
Probability of moving	0.001	0.026**
	(0.006)	(0.008)
B. Effect of E-Verify this year on:		
Probability of moving	0.002	0.014
	(0.006)	(0.009)

* p<0.05; ** p < 0.01

Note: Shown are estimated coefficients on a variable measuring the fraction of the year that a universal E-Verify law was in effect in the state that an individual lived in last year. The dependent variable indicates whether an individual moved to a different state. Each entry is from a separate linear probability (OLS) regression. The regressions include the log of state real GDP per capita, the unemployment rate, housing permits and housing starts last year in the state an individual lived in that year; fixed effects for year and state of residence last year; and state-specific linear time trends. Observations are weighted using person weights. Standard errors are robust and clustered on state of residence last year.

Table 11. The effect of E-Verify law on the probability of likely unauthorized immigrants choosing a state

	All	Recent arrivals	New arrivals
A. Effect of E-Verify in effect last year on:			
Probability of choosing state	-0.156**	-0.490**	-0.247*
	(0.017)	(0.047)	(0.114)
B. Effect of E-Verify in effect this year on:			
Probability of choosing state	-0.054**	-0.323**	-0.374**
	(0.015)	(0.039)	(0.103)

* p<0.05; ** p < 0.01

Note: Shown are estimated coefficients on a variable measuring the fraction of the year that a universal E-Verify law was in effect in the state. The dependent variable indicates whether an individual chose to move to that state. Each estimate is from a separate conditional logit regression. The regressions include the log of state real GDP per capita, the unemployment rate, housing permits and housing starts last year in the state, and state fixed effects. Observations are weighted using person weights. Standard errors are robust.