**Do State Employment Eligibility Verification Laws Affect Job Turnover?**[*]

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Abstract: State laws requiring employers to verify workers' employment eligibility may reduce employment and earnings among unauthorized workers and make it difficult for them to switch jobs. Using data from the 2005-2014 Quarterly Workforce Indicators, we find that the laws reduce employment among Hispanics and in several immigrant-intensive industries. The laws also slightly boost average earnings among Hispanic and non-Hispanic workers. There is little evidence of changes in job turnover, however, with few significant effects on hiring or separation rates. This suggests that the laws' effects on job lock or labor market churn may be limited.

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## I. Introduction

Since 2006, twenty states have adopted laws requiring employers to use a federal database, E-Verify, to check some or all employees' eligibility to work legally in the United States. In most of those states, the laws apply only to the public sector or government contractors, but seven states have passed laws that require all employers to use E-Verify to check newly hired workers' eligibility. These laws aimed primarily to reduce the number of unauthorized immigrants living in a state by making it more difficult for them to work there. Previous research finds that the laws appear to have succeeded in this goal, with the population of likely unauthorized immigrants falling in states that implemented universal E-Verify mandates (Bohn, Lofstrom, and Raphael 2014; Orrenius and Zavodny 2016).

A potential unintended consequence of the laws is reduced job turnover among unauthorized immigrants who remain in those states. State laws that require all employers to use E-Verify apply only to new hires, not to current employees. Since switching jobs would require passing E-Verify, unauthorized immigrants may become trapped in their current jobs. A decrease in job mobility may reduce economic efficiency by preventing workers from moving to jobs where their skills are in higher demand. It may also put downwards pressure on wages, particularly for unauthorized workers who are unable to move jobs. Reduced turnover has both costs and benefits to employers. They may benefit in the short run via lower hiring and training costs and fewer vacancies. However, in the long run, worker mismatch and reduced churn may lead to lower labor productivity, which is bad for employers and workers alike.

It is also possible that E-Verify laws may lead to greater churn in labor markets as employers hire unauthorized workers and then have to fire them after they fail the eligibility

check. Employers are prohibited by law from screening workers before they are hired. Such churn is costly to employers, and employer attempts to reduce such churn may lead to higher wages, particularly among workers who can pass E-Verify. This study examines the effect of E-Verify  laws on job turnover as well as on earnings and employment in order to better understand the labor market consequences of employment eligibility verification laws.

Previous findings on the labor market effects of state E-Verify laws are mixed. Studies report evidence of positive, negative, and null wage effects among immigrants who are likely to be unauthorized (Amuedo-Dorantes and Bansak 2014; Orrenius and Zavodny 2015). Findings on wage and employment effects among less-educated U.S. natives and naturalized immigrants, who are legally eligible to work but may compete with unauthorized immigrants for jobs, are mixed as well (Amuedo-Dorantes and Bansak 2014; Bohn, Lofstrom, and Raphael 2015; Orrenius and Zavodny 2015). State E-Verify laws appear to, if anything, increase the probability that likely unauthorized immigrants and less-educated legal workers switch employers (Orrenius and Zavodny 2015).

This study makes two contributions to the growing literature on the effects of E-Verify laws. First, this study examines hiring and separations rates in addition to employment and earnings. Earlier research focuses on population and earnings effects. The effects of E-Verify on job turnover have not been examined previously. Second, this study uses data from the Quarterly Workforce Indicators (QWI), a job-based dataset that combines employer records with administrative and household data. Earlier research on the effects of E-Verify laws used data from household surveys. The QWI data enable us to examine turnover and may provide a different perspective on employment and earnings effects than household surveys. In particular,

the QWI data allow us to explore effects in industries that traditionally hire large numbers of unauthorized immigrants.

Understanding the effects of E-Verify laws is important for several reasons. More than 11 million unauthorized immigrants live in the United States, and most of them are in the labor force (Passel and Cohn 2014). In recent decades, immigrants, including unauthorized immigrants, have settled in new destinations across much of the United States (e.g., Massey and Capoferro 2008; Coates and Gindling 2013). The growth of immigrant populations in new areas may have prompted some of those areas to adopt laws aimed at discouraging immigrants from settling there, including the E-Verify laws examined here. In addition to activity at the state and local level, several bills that would require all employers to use E-Verify have been proposed in the U.S. Congress, including the comprehensive immigration reform bill that the Senate passed in 2013. When Congress and the President next consider immigration reform, expanding E-Verify may well be on the agenda.

The next section explains what E-Verify is and discusses which states already require some or all employers to use E-Verify. It also details previous research findings on the effects of state laws. Section III explains the QWI data and the empirical methodology used here. Section IV presents the results, which indicate that universal E-Verify laws reduce employment among Hispanics and in industries that typically disproportionately hire unauthorized immigrants while boosting average earnings. There is little evidence of an effect on job turnover, however. Section V concludes.

**II. Background on E-Verify and Its Effects**

E-Verify is a free online system run by the federal government that employers can use to check workers' employment eligibility. Employers enter information from the employment eligibility form ("Form I-9") that all new hires are required to complete.[1] E-Verify compares that information with Social Security Administration and, if needed, Department of Homeland Security records. If there is a discrepancy, the employer is notified of a tentative nonconfirmation and is told to notify the worker, who then has eight federal work days to contest the discrepancy. During those eight days, the employer cannot fire the worker because of the discrepancy. The employer must fire the worker if the discrepancy is not resolved after that period. Employers are not allowed to ask applicants about their employment eligibility or verify their eligibility before making them a job offer. They are, however, required to post a notification in the workplace that they use E-Verify to screen new hires, which may deter unauthorized workers from applying there. Unauthorized workers can pass E-Verify only by committing identity fraud—supplying another person's valid Social Security number (SSN) and name.[2]

In 2008, Arizona became the first state to require all employers to use E-Verify. Table 1 lists the seven states that, as of 2016, require all (or almost all) employers to use E-Verify and provides details about their policies. In addition to those seven states, 12 other states require some or all of the public sector and/or government contractors to use E-Verify.[3] The federal

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[1] Form I-9 was created after the 1986 Immigration and Control Act required that workers be legally authorized to work in the United States. Prior to that law, employers could legally hire unauthorized immigrants.

[2] In response to concerns about identity fraud, the system recently added a photo matching tool. Employers are now required to verify that the photo in E-Verify is identical to the photo the employee presented when completing Form I-9, when possible.

[3] The details about state laws here are based on information from LawLogix (http://www.lawlogix.com/e-verify) and Troutman Sanders (http://www.troutmansanders.com/immigration/); those sources list the states with laws that apply to the public sector or government contractors. Since January 2012, Tennessee has required all employers with six or more workers to use E-Verify or have new hires show a valid driver's license. Because of this alternative, it is not considered universal E-Verify states in this analysis. South Carolina also had a universal mandate with an alternative process from July 2009 until January 2012. The results shown here are robust to classifying Tennessee as universal E-Verify state, although the estimated coefficients tend to be closer to zero, as expected. The race/ethnicity results are robust to classifying South Carolina as an E-Verify state beginning in July 2009, but the negative coefficients on the E-Verify variable in the employment, flows, and the separations rate variables in the dry cleaning and laundry,

government also requires most federal contractors and subcontractors to use E-Verify for new hires and existing workers assigned to a covered federal contract. Laws that apply to the public sector are unlikely to affect many unauthorized immigrants since few unauthorized immigrants have the education levels and English fluency required for most public sector jobs. Few unauthorized immigrants are likely to work for government contractors either since most of those firms are large corporations that required identity documents even before the introduction of E-Verify mandates. This analysis therefore focuses on the seven states with universal E-Verify mandates.

States with mandatory E-Verify laws can impose only a limited set of punishments on employers that do not comply. The 1986 Immigration Reform and Control Act (IRCA) preempts state and local laws from imposing civil or criminal sanctions other than through licensing and similar regulation. Most state universal E-Verify laws therefore suspend or revoke a non-compliant firm's business license. The extent of compliance with the laws is unknown. Nationwide, more than 600,000 employers were enrolled in E-Verify as of 2016, and the share of new hires run through the E-Verify system appears to be approaching 50 percent.[4] About three-quarters of Arizona firms with five or more employees were enrolled in E-Verify as of September 2012, compared with about three-fifths in Alabama, one-half in South Carolina, and one-fourth in Mississippi and Utah (Arvelo 2013).

Previous research concludes that the population of less-educated Hispanic immigrants who are not naturalized U.S. citizens, a group that is particularly likely to be undocumented, fell

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animal slaughtering and processing, and traveler accommodations sectors shown in Table 5 are no longer statistically significant.
[4] Number of employers is from http://www.uscis.gov/e-verify/what-e-verify. Share of new hires is based on comparing the number of cases run through E-Verify in fiscal year 2014, according to USCIS (http://www.uscis.gov/e-verify/about-program/history-and-milestones), with the number of new hires in October 2013 through September 2014, according to the Bureau of Labor Statistics (http://www.bls.gov/jlt/data.htm).

in states that began requiring all employers to use E-Verify. In Arizona, the share of the population composed of less-educated non-naturalized Hispanic immigrants fell after that state's E-Verify requirement went into effect, both absolutely and relative to a synthetic control of other states (Bohn, Lofstrom, and Raphael 2014; Amuedo-Dorantes and Lozano 2015). Within the seven states that implemented universal E-Verify requirements, the number of less-educated, non-naturalized immigrants from Mexico and Central America fell by 6 percent, on average (Orrenius and Zavodny 2016).[5]

These population drops suggest that labor market outcomes worsened for unauthorized immigrants in states with E-Verify requirements. However, the evidence on such effects is mixed. Arizona's universal E-Verify mandate appears to have pushed large numbers of unauthorized immigrants from wage-and-salary employment into self-employment compared with a synthetic control (Bohn and Lofstrom 2013). Within the seven states with universal mandates, however, the shares of likely unauthorized Mexican immigrants in wage-and-salary employment or self-employment did not change significantly when those states began requiring E-Verify (Orrenius and Zavodny 2015). Another analysis finds that the overall employment rate fell among likely unauthorized Hispanic immigrants within states with a universal E-Verify law (Amuedo-Dorantes and Bansak 2014).[6] Turning to wages, one study finds a positive wage effect among likely unauthorized Hispanic immigrant women, while another finds a negative effect among likely unauthorized Mexican immigrant men (Amuedo-Dorantes and Bansak 2014; Orrenius and Zavodny 2015). Importantly, analysis of employment rates and earnings may be

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[5] Analyses of omnibus immigration laws and laws that target employment of unauthorized immigrants, some of which include an E-Verify requirement, also find evidence of a decrease in the likely unauthorized immigrant population in states that have adopted them (Raphael and Ronconi 2009; Good 2013).
[6] In addition, state laws that target employment of unauthorized immigrants more generally do not appear to have a significant effect on the employment rate among less-educated non-naturalized Hispanic immigrants but do have a negative effect among more-educated non-naturalized Hispanic immigrants (Raphael and Ronconi 2009).

confounded by the fact that immigrants who experience job or earnings losses may be particularly likely to leave the state, biasing estimated effects towards zero.

Evidence on the effect of E-Verify requirements on less-educated legal workers, who may be substitutable for unauthorized immigrants, is similarly mixed. In Arizona, the employment rate fell among non-Hispanic white U.S.-born men relative to a synthetic control, while employment rates changed little among Hispanics who are U.S. natives or naturalized U.S. citizens (Bohn, Lofstrom, and Raphael 2015). Within the seven states with a universal E-Verify mandate, there is evidence of a positive employment effect among non-Hispanic U.S.-born men and women and among Hispanic U.S.-born women, on average (Amuedo-Dorantes and Bansak 2014; Orrenius and Zavodny 2015).[7] The laws also appear to have caused Mexican-born men who are naturalized U.S. citizens to move from self-employment into wage-and-salary jobs (Orrenius and Zavodny 2015). In Arizona, earnings fell among less-educated non-Hispanic white U.S.-born men (Bohn, Lofstrom, and Raphael 2015). Within all states with a universal E-Verify law, however, earnings rose among U.S.-born non-Hispanic men and among U.S.-born Hispanic men, on average (Amuedo-Dorantes and Bansak 2014; Orrenius and Zavodny 2015).

Most previous research on the effects of E-Verify laws focused on demographic groups, not industries. Industries that disproportionately employ unauthorized immigrants, such as agriculture, construction, and leisure and hospitality, should be more affected by E-Verify requirements.[8] An analysis of city and county anti-unauthorized immigrant laws, some of which require employers to use E-Verify, and County Business Patterns data finds a negative effect on the share of county employment in industries that, across the U.S., employ a large share of

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[7] State laws that target employment of unauthorized immigrants more generally appear to reduce the employment rate among less-educated Hispanics who are naturalized U.S. citizens while raising the employment rate among more-educated Hispanics who are naturalized U.S. citizens (Raphael and Ronconi 2009).
[8] Unauthorized immigrants account for about 5 percent of the U.S. labor force but 16 percent of workers in agriculture, 12 percent in construction, and 9 percent in leisure and hospitality (Passel and Cohn 2015).

unauthorized immigrants (Pham and Van 2010). The most adverse effect is in the food services and drinking places industry. Surprisingly, there appears to be a positive effect in several unauthorized-immigrant-intensive industries: repair and maintenance, personal and laundry services, heavy and civil engineering construction, and food and beverage stores.

Finally, there is limited evidence on how E-Verify laws affect job turnover. Evidence from household surveys indicates that when states adopted a universal E-Verify law, likely unauthorized Mexican immigrant women became more likely to switch employers, while there was no effect among likely unauthorized Mexican immigrant men (Orrenius and Zavodny 2015). Less-educated U.S.-born Hispanic men were also more likely to switch jobs after a state adopted a universal E-Verify law.

## III. Data and Empirical Methodology

This study uses the Quarterly Workforce Indicators (QWI) public-use data. The data source for the QWI is the Longitudinal Employer-Household Dynamics linked employer-employee microdata, a massive longitudinal database covering more than 95 percent of U.S. private sector jobs. The Census Bureau uses a number of sources to construct the data, including state unemployment insurance (UI) earnings records, the Quarterly Census of Employment and Wages, the 2000 Census, Social Security Administration records, and tax returns.[9] The QWI is job-based, with workers who have multiple jobs counted at each job. Geography is based on place of work, not place of residence. The data used here cover the period 2005 to 2014 and therefore include the period when the seven states listed in Table 1 implemented a universal E-

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[9] For details on the QWI, see http://lehd.ces.census.gov/doc/QWI_101.pdf. The data are available at http://lehd.ces.census.gov/data/#qwi. We use the 2016 Q1 release of the data.

Verify policy. QWI data are available for all states except Massachusetts and the District of Columbia during this period.[10]

We examine five measures of labor market outcomes that are available in the QWI data: the number of people employed on the first day of the quarter ("employment"); the number of people employed at any point during the quarter, or "flow" employment; the number of workers whose job ended in a given quarter as a share of employment, or the separations rate; the number of workers newly hired during a given quarter as a share of employment, or the new hires rate; and average real monthly earnings of people employed on the first day of the quarter. Separations can be voluntary—a worker quits—or involuntary—a worker is fired or laid off. Separations and new hires rates are created here as a share of the average of employment at the beginning and end of the quarter. Earnings are adjusted for inflation using the Consumer Price Index for urban workers (CPI-W).

This study examines the QWI data along two separate dimensions: race/ethnicity and industry.[11] When stratifying by race/ethnicity, we examine workers who are Hispanic (of any race), non-Hispanic white, and non-Hispanic black. All of these groups include U.S. natives, legal immigrants, and unauthorized immigrants. We focus on Hispanics since a large share of Hispanics in the U.S. are unauthorized—about 19 percent (Lopez, Morin and Taylor 2010). The share is likely even higher among workers since many Hispanic U.S. citizens are too young to be in the workforce and since unauthorized immigrants are disproportionately in the labor force. We examine non-Hispanic whites and blacks in order to see if there are effects on potentially competing groups comprised almost exclusively of legal workers.

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[10] Data needed to create the separations and new hires rates are not available for Wyoming in Q4 2014.
[11] We do not stratify the QWI data by race/ethnicity and industry simultaneously because of very small cell sizes in some states. The QWI data by race/ethnicity also include Asian, Native American, Native Hawaiian or other Pacific Islander, and multiracial. We do not examine these groups for the same reason.

Table 2 reports sample means by race/ethnicity for the measures of labor market outcomes examined here. Separations and new hires rates are higher among Hispanics and blacks than among whites while average earnings are lower. These differences likely reflect differences in educational attainment, geographic location, and industry.

When stratifying the data by industry, we focus on five industries in which unauthorized immigrants are concentrated: construction; services to buildings and dwellings (which includes landscaping and janitorial services); dry cleaning and laundry services; animal slaughtering and processing; and traveler accommodations (i.e., hotels and motels). Table 3 reports Passel and Cohn's (2015) estimates of the share of workers who are unauthorized immigrants in each sector as of 2012 along with the sample means.[12] The share of workers who are unauthorized immigrants in these sectors ranges from 12 to 19 percent (versus a national average of 5 percent).

*A. Unauthorized immigrants and the QWI*

A critical question for this study is whether the QWI data include unauthorized immigrant workers. There are several reasons to be concerned about this. Since the QWI is rooted in UI earnings records, it does not include workers who are "off the books" and not reported as employees in those records. QWI coverage is therefore relatively incomplete for some industries that disproportionately hire unauthorized immigrants, most notably agriculture and private households. In addition, the QWI may underrepresent unauthorized immigrants since the data do not include the self-employed, although it is not clear that self-employment rates differ between unauthorized and legal immigrants (Yuengert 1995). As discussed further below, a negative

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[12] Most of the only other industries that Passel and Cohn (2015) indicate have a higher share of workers who are unauthorized immigrants are industries with limited coverage in the QWI (e.g., agriculture and private households) or more detailed industries than are available in the QWI data (e.g., car washes). Section IV discusses results for other industries that Passel and Cohn indicate have a high share of unauthorized immigrant workers that are available in the QWI data.

effect of E-Verify laws on employment in the QWI data may partially reflect a shift into off-the-books or self-employment in response to the laws.

Unauthorized immigrant workers are present in the QWI but are undercounted. The Social Security Administration estimates that about one-half of unauthorized immigrant workers have payroll taxes withheld from their paychecks (Feinlab and Warner 2005). Workers who have taxes withheld are included in state UI records and hence should be in the QWI. An analysis of Georgia's UI records concludes that they include about 22 percent of undocumented workers in that state (Hotchkiss and Quispe-Agnoli 2013); this share is likely an underestimate since it is based on categorizing workers as undocumented only if they have an invalid SSN and therefore misses workers who use a false but valid SSN. The undercount of unauthorized immigrants in the QWI biases the results presented here toward zero, or we underestimate any effects on unauthorized immigrants.

*B. Methodology*

We examine the effect of E-Verify laws on labor market outcomes using ordinary least squares (OLS) regression models of the basic form

$$\text{Outcome}_{st} = \alpha + \beta_1 \text{E-Verify}_{st} + \beta_2 \text{Economic Conditions}_{st-1} + \beta_3 \text{Immigration Policy}_{st}$$

$$+ \text{State}_s + \text{Time}_t + \text{Trend}_{st} + \varepsilon_{st}, \tag{1}$$

where *s* indexes states and *t* indexes time. The dependent variable is the natural log of employment, flows, or average real earnings or the level of the separations or new hires rate. *E-Verify* is the fraction of the quarter that a state has a universal E-Verify mandate in effect, and its coefficient is our focus here.

*Economic Conditions* controls for lagged business cycle conditions that may affect the number and labor market outcomes of unauthorized immigrants in a state. It includes five variables: the overall unemployment rate, real annual personal income per capita, annual government expenditures per capita, single-family housing starts, and single-family construction permits. These variables are lagged one year, and all except the unemployment rate are logged. *Immigration Policy* is other state-specific measures of immigration enforcement: the presence of a 287(g) agreement with the federal government, and the initiation of Secure Communities.[13] Both sets of variables are important controls since many of the E-Verify mandates coincided with the 2007–2009 recession and an increase in federal, state, and local immigration enforcement. Unauthorized immigrants tend to have more cyclical labor market outcomes than legal workers (Brown et al., 2014).

The regressions also control for time-invariant state-specific factors with state fixed effects, and for business cycle, seasonal, and immigration trends that are shared across states with year and quarter fixed effects. The regressions include state-specific linear time trends to control for underlying trends. Observations are weighted using the annual state population (by race/ethnicity in the regressions using data stratified by race/ethnicity) in the employment, flows, and earnings regressions, and by average employment in that cell for the separations and new hires regressions. The standard errors are clustered on the state.

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[13] Under the 287(g) program, state and local law enforcement enter into a partnership with U.S. Immigration and Customs Enforcement (ICE) to perform the functions of federal immigration agents. The regressions include two separate variables for the fraction of the quarter that a state has a task force enforcement model and a jail enforcement model in place. Under the task force enforcement model, law enforcement officers may interrogate and arrest alleged noncitizens who they believe to have violated federal immigration laws. Under the jail enforcement model, law enforcement officers may interrogate alleged noncitizens who have been arrested on state or local charges and may lodge immigration detainers on inmates thought to be subject to removal. The regressions also include a variable for the fraction of the quarter that a state has implemented Secure Communities. Under Secure Communities (which was replaced by another program in July 2015), participating jails submitted arrestees' fingerprints to immigration databases, giving U.S. ICE access to information on individuals held in jails. These variables remain equal to one after the state has initiated the program. We thank Sarah Bohn for graciously providing the information on 287(g) laws.

The identification scheme used here compares labor market outcomes before and after states implemented E-Verify. Because the regressions include state fixed effects and state-specific time trends, the estimated coefficient on the E-Verify variable measures the average change in a given labor market outcome within the seven universal E-Verify states after the requirement went into effect, controlling for the linear trend in that labor market outcome within each state and for the other factors as indicated. States that have not adopted E-Verify do not contribute to the identification of the coefficient on the E-Verify variable, but they do help identify the coefficients on the lagged business cycle and other immigration policy variables and the time fixed effects.

This approach assumes that E-Verify mandates are exogenous with respect to contemporaneous labor market outcomes. The results will be biased if an improvement in or worsening of labor market conditions causes a state to enact an E-Verify mandate. The controls for lagged economic conditions, time fixed effects, and the state-specific time trends should reduce this concern. In addition, it takes a while for a state legislature to pass an E-Verify requirement, so sudden changes in labor market conditions are highly unlikely to result in the implementation of an E-Verify requirement in the same quarter.

*C. Expected effects*

The expected effect of E-Verify laws on labor market outcomes among Hispanics and in unauthorized-immigrant-intensive industries depends on changes in both labor demand and labor supply. The intent of E-Verify laws is to reduce labor demand for unauthorized workers. The laws are also likely to reduce labor supply among unauthorized immigrants, who leave (or do not move to) states with those laws. They may also become reluctant to enter the labor force once an

E-Verify law has been implemented. A decrease in labor supply or labor demand for unauthorized immigrants predicts a decrease in employment among Hispanics and in unauthorized-immigrant-intensive industries, all else equal. In addition, employment might fall in the QWI data if employers hire more unauthorized immigrants off the books or as self-employed independent contractors instead of hiring them formally after an E-Verify law is in place, responses which would cause those workers to not appear in the data.

The effect on average earnings among Hispanics and in unauthorized-immigrant-intensive industries is theoretically ambiguous if both labor supply and labor demand change. If labor supply falls more than labor demand, wages should rise, whereas wages should fall if labor demand falls more than labor supply. Compositional changes in workers' characteristics complicate the interpretation of wage effects. If unauthorized immigrants earn less than other workers, either because of less bargaining power or lower productivity, then a drop in the number of unauthorized workers may boost average wages among remaining workers without those workers actually earning more. Along the same lines, increased hiring of unauthorized immigrants off the books also might boost average wages observed in the QWI data.

Research on the 1986 IRCA, which made it illegal to hire unauthorized workers, suggests the E-Verify laws will have either a negative or zero earnings effect on targeted workers. IRCA reduced the wages of unauthorized Mexican immigrants (Donato and Massey 1993). It also led to lower wages among long-ago Mexican immigrants, who are likely have legal status, but did not affect the wages of U.S.-born workers of Mexican origin (Sorensen and Bean 1994). IRCA had offsetting effects on average wages paid in unauthorized-immigrant-intensive industries: paperwork costs reduced labor demand and pushed wages down, while increased demand for legal workers pushed wages up (Fry, Lowell, and Haghighat 1995).

The magnitude of the effects on employment and earnings depends on how substitutable other workers are for unauthorized immigrants. If Hispanics who are authorized to work—because they are U.S. natives or legal immigrants—are substitutable for unauthorized Hispanic immigrants and are readily available, there may be little change in employment levels and wages among Hispanics. But if employers suspect that Hispanics who can work legally are unauthorized and discriminate against them, any negative effects will be larger. On the other hand, discrimination against legal workers might fall since E-Verify gives employers a tool to check workers' status. While there is some evidence that state immigration laws reduce employment among U.S.-born Hispanics perhaps due to discrimination (Raphael and Ronconi 2009), other research has found either a zero or positive effect (Orrenius and Zavodny 2015).

Employment levels and earnings may change little in industries that typically have a large share of unauthorized workers if legal workers are readily available. If substitutable workers are not readily available, the decrease in labor supply by unauthorized immigrants may cause employers to offer higher wages in order to entice people who are authorized to work to enter the labor force.

We also expect to find a negative effect on the separations and new hires rates among Hispanics and in unauthorized-immigrant-intensive industries. Separations and new hires rates are likely to fall if an E-Verify law makes it harder for unauthorized immigrants to find another job. In effect, unauthorized immigrants may become trapped in their jobs. It is worth noting that universal E-Verify mandates do not require employers to check the status of existing employees, so separations are unlikely to increase because of employers firing current unauthorized workers. However, separations and new hires rates (and flows) in unauthorized-immigrant-intensive industries may increase if firms turn to workers who are not a good fit after they are required to

use E-Verify, and hence churn rises. In addition, churn may rise if firms hire workers who cannot pass E-Verify and then need to fire them and hire other workers.

Turning to non-Hispanic white and black workers, we expect to find positive employment and earnings effects if demand for those groups increases after employers are required to use E-Verify. The magnitude of the effects again depends on how substitutable workers in those groups are for unauthorized immigrants—if they are not substitutable for unauthorized immigrants, the effects are likely to be small. The effects could be negative if complying with E-Verify laws is costly for employers, causing demand for all workers to fall. The effect on the separations and new hires rates depends on whether those workers become more likely to switch jobs after an E-Verify law. Those rates (and flows) may rise if opportunities at other employers improve for those workers, causing more of them to switch jobs.

## IV. Results

The results indicate that state universal E-Verify laws reduced employment among Hispanics and in several unauthorized immigrant-intensive industries. The laws appear to have boosted average earnings as well. There is little evidence of effects on the separations or new hires rate, however. We first discuss the results by race/ethnicity and then the results by industry.

Among Hispanics, employment and flows fell after states began requiring all employers to use E-Verify. As Table 4 reports, employment fell by an average of about 3 percent, while flows fell by about 4 percent. Although the larger effect on flows than on employment suggests that E-Verify laws also reduced worker turnover, the impact on the separations and new hires rates—while negative—is not statistically significant. Employment fell among non-Hispanic

whites as well, but by only about 0.5 percent. There is no evidence of an effect on flows or turnover among non-Hispanic whites or on employment, flows, or turnover among non-Hispanic blacks; the estimated coefficients on those variables are very small and relatively precisely estimated.

Universal E-Verify laws appear to have boosted average earnings among Hispanics, whites, and blacks. Interestingly, the estimated effect is largest among whites, at 2 percent. For Hispanics, the estimated effect is about 1 percent. The effect may be smaller among Hispanics than among whites because of countervailing effects among the former—a negative effect due to decreased demand for unauthorized workers and a positive effect due to increased demand for legal workers, whereas whites (and blacks) experienced primarily an increase in labor demand.

Turning to unauthorized-immigrant-intensive industries, employment fell significantly in four of the five industries shown in Table 5 after states began requiring all employers to use E-Verify. The decrease is largest in construction at almost 5 percent. There is also a significant decrease in flows in three of the industries shown in the table, with the largest effect occurring in the animal slaughtering and processing industry. There is only one significant effect on turnover, which is a decrease in the separations rate in the animal slaughtering and processing industry. Average earnings rose significantly in two industries: construction and services to buildings and dwellings, by 3 and 4 percent, respectively.

In results not shown here, we found no evidence of effects on employment or turnover in agricultural sectors in the QWI data. Although agriculture accounts for a disproportionate share of unauthorized immigrant workers, not all agricultural jobs are covered by the UI system and hence coverage in the QWI is incomplete. In addition, relatively large numbers of unauthorized immigrants may work off the books in agriculture regardless of the presence of E-Verify laws.

However, agricultural employers had to pay higher wages in the wake of E-Verify laws—there is a positive, statistically significant effect on average earnings in agriculture, both overall and in the crop production and animal production sectors. The combination of positive wage effects and no employment effects in agriculture suggests that the industry has very inelastic labor demand that did not decrease during the time frame examined here.

Several other industries that typically have a large share of unauthorized workers have not been affected by universal E-Verify laws. In other results, there was no significant effect on any of the labor market outcomes examined here in eating and drinking places, cut and sew apparel manufacturing, or fruit and vegetable preserving and specialty food manufacturing.[14] The bakeries and tortilla manufacturing sector had a significant increase in flows in response to E-Verify laws but not in the other variables examined here.

As for the remaining control variables, the measures of lagged economic conditions are generally related to contemporaneous labor market conditions in expected ways.[15] For example, the lagged unemployment rate is negatively related to employment and flows, while lagged real income per capita is positively related to employment and flows. The measures of other state-level immigration policies are also sometimes significantly related to labor market outcomes. For example, flows and average earnings among Hispanics increase after a state has 287(g) jail enforcement model in place, while employment increases among blacks after a 287(g) task force enforcement model is in place. This is consistent with 287(g) agreements reducing the number of unauthorized immigrants in a state and employers substituting toward African-American workers. However, the 287(g) task force variable is also positively related to employment and

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[14] Nationally, the share of workers who are unauthorized immigrants is 11 percent at eating and drinking places, 20 percent in cut and sew apparel manufacturing, 13 percent in fruit and vegetable preserving and specialty food manufacturing, and 16 percent at non-retail bakeries (Passel and Cohn 2015).

[15] For brevity, results on the variables other than E-Verify are not shown in Tables 4 and 5. Full results are available on request.

flows in construction, which is difficult to reconcile with a decrease in the unauthorized immigrant population in those states.

E-Verify laws may affect labor market outcomes before they actually go into effect. If we use the date a universal E-Verify mandate became law to create the E-Verify variable rather than the date it went into effect, the results for Hispanics and blacks are similar to those reported in Table 4. For whites, however, the negative employment effect is no longer statistically significant. Most of the negative employment effects in the unauthorized-immigrant-intensive industry results shown in Table 5 are also no longer statistically significant—having an E-Verify law is significantly negatively related to employment only in the traveler accommodations sector if we use adoption dates. Earnings are positively and significantly related to the adoption of an E-Verify law in the dry cleaning and laundry sector in addition to in construction and building and dwelling services. The fact that a positive impact on earnings becomes more common while a negative employment effect becomes less common suggests that employers begin to boost wages in anticipation of difficulty complying with the laws and then reduce employment—either because of higher labor costs or because of difficulty finding workers—only after the laws go into effect.

E-Verify laws that apply only to the public sector or government contractors have little effect on the labor market outcomes examined here. A variable that measures whether a state requires either of those types of employers to use E-Verify is significantly negatively related to earnings among whites and blacks and in the traveler accommodations sector; it is also significantly negatively related to flows in the construction industry. Controlling for the presence of those laws has little effect on the estimated coefficients on the universal E-Verify law variable in the race/ethnicity specifications; the only changes compared with Table 4 are that the

universal E-Verify variable is no longer significantly related to employment among whites or to earnings among blacks. In the industry-level specifications, the universal E-Verify variable is no longer significantly negatively related to employment in the dry cleaning and laundry, animal slaughtering and processing, or traveler accommodations sectors, nor to flows or the separations rate in the animal slaughtering and processing sector. The negative employment and flows effects in construction persist, as do the positive earnings effects in construction and building and dwelling services.

The results for Hispanics are robust to dropping, one by one, each of the seven states that implemented a universal E-Verify law. Among whites, having an E-Verify law is positively related to the separations rate if Arizona is not included. Among blacks, having an E-Verify law is negatively related to employment if South Carolina, a state with a large African-American population, is not included. Some of the results by industry are sensitive to whether various states are included in the sample, but not in any clear pattern. In particular, no single state appears to drive the results. Notably, having an E-Verify law boosts the separations rate in the traveler accommodations sector if Mississippi or Utah is dropped from the sample, and the new hires rate in that sector if Georgia or Mississippi is dropped from the sample; these results are of particular interest since they suggest an increase in worker turnover. The negative effect of E-Verify on the separations rate in animal slaughtering and processing is no longer significant if Mississippi or North Carolina is dropped from the sample.


## V. Conclusion

Labor market fluidity and dynamism is important to the efficient allocation of workers across jobs and industries (Davis and Haltiwanger 2014). Regulations that impede worker mobility and

labor market churn more broadly can adversely affect labor productivity and slow economic growth. Although there is good reason to suspect that mandatory E-Verify laws might trap unauthorized workers in their existing jobs, we find no evidence that such laws have reduced separations and new hires rates among Hispanic workers or in industries with high shares of unauthorized workers. It does appear, however, that such laws reduce the employment level and the employment flow among Hispanics and in industries with high shares of unauthorized workers.

E-Verify laws seem to result in higher earnings among workers of all races and ethnicities as well as in the construction and building and dwelling services industries. Wage increases may result from compositional changes among workers; if unauthorized workers exit employment, then the average wage among remaining workers will be higher. Yet there is also some evidence that these higher wages result in job losses. E-Verify laws lead to lower employment among non-Hispanic whites, a group with a very low share of unauthorized workers. Although E-Verify laws do not appear to affect labor market turnover, this finding suggests they may have an adverse economic impact nonetheless. Policymakers considering requiring employers to use E-Verify or a similar system should thereforce carefully consider the benefits of such policies, namely less employment of unauthorized workers, with their apparent costs.

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List of Abbreviations

| | |
|---|---|
| CPI-W | Consumer Price Index for urban workers |
| ICE | U.S. Immigration and Customs Enforcement |
| IRCA | 1986 Immigration Reform and Control Act |
| QWI | Quarterly Workforce Indicators |
| SSN | Social Security number |
| UI | Unemployment insurance |

**Table 1**
**States Mandating Universal Use of E-Verify**

| State | Adoption Date | Implementation Date | Comments |
|---|---|---|---|
| Alabama | June 2011 | April 2012 | |
| Arizona | July 2007 | January 2008 | |
| Georgia | May 2011 | January 2012 | Size phase in; only applies to firms with more than 10 employees |
| Mississippi | March 2008 | July 2008 | Size phase in |
| North Carolina | June 2011 | October 2012 | Size phase in; only applies to firms with 25 or more employees |
| South Carolina | June 2011 | January 2012 | |
| Utah | March 2010 | July 2010 | Only applies to firms with 15 or more employees |

**Table 2**
**Descriptive Statistics, by Race/Ethnicity**

|  | Hispanics | Non-Hispanic Whites | Non-Hispanic Blacks |
|---|---|---|---|
| Employment | 671,121 | 3,505,765 | 601,255 |
|  | (1,563,563) | (3,117,076) | (711,278) |
| Flows | 827,011 | 4,106,607 | 747,310 |
|  | (1,897,884) | (3,647,486) | (878,112) |
| Separations rate (%) | 26.8 | 17.1 | 28.0 |
|  | (8.5) | (3.6) | (8.7) |
| New hires rate (%) | 24.0 | 14.4 | 25.7 |
|  | (7.9) | (3.2) | (9.0) |
| Monthly earnings ($) | 3,108 | 4,251 | 3,091 |
|  | (398) | (754) | (450) |

Notes: Shown are unweighted means, with standard deviations in parentheses. Earnings are adjusted for inflation using the CPI-W, with Q4 2014 as the base period. The number of observations is 1,960 for employment, flow, and earnings, and 1,959 for the separations and new hires rates.

**Table 3**
**Descriptive Statistics, by Industry**

| | Construction | Building & dwelling services | Dry cleaning & laundry | Animal slaughtering & processing | Traveler accommodations |
|---|---|---|---|---|---|
| Employment | 129,982 | 35,455 | 6,304 | 10,133 | 35,759 |
| | (145,169) | (39,688) | (7,115) | (10,742) | (44,341) |
| | | | | | |
| Flows | 165,937 | 46,283 | 7,453 | 11,677 | 43,631 |
| | (184,592) | (50,214) | (8,392) | (12,417) | (50,851) |
| | | | | | |
| Separations rate (%) | 27.3 | 31.5 | 18.5 | 16.5 | 26.9 |
| | (7.7) | (8.9) | (6.3) | (12.9) | (10.6) |
| | | | | | |
| New hires rate (%) | 22.5 | 27.4 | 16.2 | 14.1 | 23.9 |
| | (7.2) | (9.0) | (6.0) | (8.3) | (10.5) |
| | | | | | |
| Monthly earnings ($) | 3,416 | 1,726 | 1,811 | 2,458 | 1,762 |
| | (547) | (277) | (355) | (440) | (511) |
| | | | | | |
| Share of workers unauthorized (%) | 12 | 19 | 19 | 18 | 12 |

Notes: Shown are unweighted means, with standard deviations in parentheses. Earnings are adjusted for inflation using the CPI-W, with Q4 2014 as the base period. The number of observations is 1,960 for employment, flow, and earnings, and 1,959 for the separations and new hires rates. Share of workers unauthorized is from Passel and Cohn (2015).

**Table 4**
**Effect of Universal E-Verify Laws on Labor Market Outcomes, by Race and Ethnicity**

|  | Hispanics | Non-Hispanic Whites | Non-Hispanic Blacks |
|---|---|---|---|
| Employment | -0.031*** | -0.005** | -0.007 |
|  | (0.004) | (0.002) | (0.005) |
| Flows | -0.041*** | -0.004 | -0.004 |
|  | (0.014) | (0.005) | (0.006) |
| Separations rate | -0.011 | 0.000 | -0.000 |
|  | (0.011) | (0.005) | (0.005) |
| New hires rate | -0.010 | -0.001 | -0.000 |
|  | (0.012) | (0.005) | (0.005) |
| Monthly earnings | 0.011*** | 0.020*** | 0.014** |
|  | (0.004) | (0.007) | (0.005) |

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Notes: Each coefficient is from a separate regression. Standard errors clustered on state are in parentheses. Regressions also include variables controlling for immigration policy and the business cycle (see text for details), state, year, and quarter fixed effects, and state-specific linear time trends. The number of observations is 1,960 for employment, flow, and earnings, and 1,959 for the separations and new hires rates.

**Table 5**
**Effect of Universal E-Verify Laws on Labor Market Outcomes, by Industry**

| | Construction | Building & dwelling services | Dry cleaning & laundry | Animal slaughtering & processing | Traveler accommodations |
|---|---|---|---|---|---|
| Employment | -0.049** | -0.007 | -0.017* | -0.037* | -0.021** |
| | (0.024) | (0.007) | (0.010) | (0.020) | (0.009) |
| | | | | | |
| Flows | -0.049* | -0.009 | -0.023* | -0.057** | -0.007 |
| | (0.029) | (0.013) | (0.012) | (0.027) | (0.007) |
| | | | | | |
| Separations rate | -0.006 | 0.002 | -0.007 | -0.015* | 0.011 |
| | (0.006) | (0.008) | (0.008) | (0.008) | (0.007) |
| | | | | | |
| New hires rate | -0.005 | -0.004 | -0.008 | -0.012 | 0.011 |
| | (0.009) | (0.009) | (0.009) | (0.011) | (0.007) |
| | | | | | |
| Monthly earnings | 0.030** | 0.040*** | 0.007 | 0.010 | 0.009 |
| | (0.012) | (0.006) | (0.013) | (0.024) | (0.011) |

* $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Notes: Each coefficient is from a separate regression. Standard errors clustered on state are in parentheses. Regressions also include variables controlling for immigration policy and the business cycle (see text for details), state, year, and quarter fixed effects, and state-specific linear time trends. The number of observations is 1,960 for employment, flow, and earnings, and 1,959 for the separations and new hires rates.