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# The effects of the Affordable Care Act on seasonal agricultural workers

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**Abstract**

This study investigates the effects of the Affordable Care Act (ACA) policies (Medicaid expansion, health insurance premium subsidy, and tax penalty) on farmworkers' health insurance coverage and healthcare utilization. Using the National Agricultural Worker Survey, we find that the ACA policies substantially raised the share of seasonal farmworkers with medical insurance. It significantly increased workers' use of preventive medical services and decreased the use of hospitals, including emergency rooms, which was a goal of the law's proponents. These effects did not significantly differ between workers with and without a pre-existing medical condition.

**KEYWORDS**
Affordable Care Act, agricultural labor, health, insurance

**JEL CLASSIFICATION**
I13, J32, J43

This study is the first to examine how three Affordable Care Act (ACA) policies affected seasonal farmworkers' choice of health insurance coverage and use of medical services. The ACA's objective was to extend healthcare coverage to previously uncovered people, particularly those with low incomes and pre-existing medical conditions, which characterize farmworkers. Before the ACA, most farmworkers had relatively little health insurance coverage. Moreover, they have low incomes and face many job-related health risks, which results in high rates of health problems (Hansen and Donohoe, 2003).

We concentrate on three ACA policies that were likely to affect farmworkers. First, the ACA required that states expand Medicaid to households with incomes less than 138% of the Federal

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Poverty Level (FPL).[1] A 2012 Supreme Court ruling allowed states to opt out of this expansion (ACA, P.L. 111–148, as amended). States expanded Medicaid at various times. As a result, Medicaid eligibility varied by state, over time, and by income and household size of workers. Second, the law provided health insurance premium subsidies for households with incomes between 100% and 400% of the FPL who were not eligible for Medicaid. Third, the ACA imposed an individual mandate, which was removed in 2019. That required citizens and legal residents who filed taxes to maintain health insurance coverage for at least 9 months of each year or face a tax penalty.

The ACA also mandated that firms with 50 or more full-time employees provide affordable health insurance packages for their workers or risk a penalty for failing to comply.[2] These factors may have induced some firms to redesign benefit plans made available to workers.

Several studies found that the ACA raised coverage rates of previously uninsured low-income people, including young adults.[3] Fewer studies focused on the ACA individual mandate and the premium subsidy. Fiedler (2018) found that the individual mandate increased the insured rate from 24% to 39% among young adults with incomes above 400% of the federal poverty level. Frean et al. (2017) used a comprehensive approach to analyze the effects of the ACA premium subsidies, the individual mandate, and Medicaid expansion on the uninsured rate. They found that Medicaid eligibility significantly increased coverage rates. However, the premium subsidies and the individual mandate had moderate effects on raising coverage rates.

Very few studies have examined the effects of the ACA on farmworkers, and most of those are descriptive (e.g., Guild et al., 2016). As far as we know, only Kandilov and Kandilov (2022) examined how the ACA affected farmworkers' insurance coverage. Kandilov and Kandilov (2022) used the same data set we do to analyze differences in the coverage rates and labor supply for states that expanded Medicaid versus those that have not. They found a significant increase in the use of government-provided insurance in states with Medicaid expansion and no substantial changes in labor supply.

Unlike Kandilov and Kandilov (2022), we examine the effects of the ACA on farmworkers' use of medical services, where they go for treatment, and whether their job provides health and non-health benefits. Our study differs from theirs by investigating the effects of more ACA policies, including federal premium subsidies, tax penalties, and protections for people with pre-existing medical conditions. We are the first to examine how the ACA's effects depend on pre-existing medical conditions. Similarly, we are the first to address whether individual farmworkers are eligible for Medicaid or to receive a subsidy based on their incomes and family size.

Because our study is the first to examine how the ACA affected farmworkers' use of various types of health providers, it is the first to address whether the ACA reduced the possibly inefficient use of hospital and emergency room (ER) services among farm farmworkers. Access to affordable healthcare can either increase or decrease the demand for emergency services. Better access to private and outpatient care may decrease the use of ER services. However, lowering the out-of-pocket health cost may increase the use of ERs. Taubman et al. (2014), Akosa Antwi et al. (2015a, 2015b), Finkelstein et al. (2016), and Zhou et al. (2017) investigated how having Medicaid or being newly insured affects the use of the ER by other populations.

The first section describes our data. The next section presents our model and identification strategy. The third section examines how the various ACA policies affect farmworker's types of insurance coverage. The fourth section investigates the effects of the ACA on the providers of medical services farmworkers used. The final section summarizes our results and draws conclusions.

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[1]In addition to these three policies, the ACA prohibited insurance companies from setting insurance policy prices based on health status or pre-existing health conditions. Insurers must set their rates based on only factors such as age, location, and smoking status.

[2]Seasonal workers counted as portions of a full-time equivalent worker. For example, 100 workers employed for 6 months was equivalent to 50 full-time workers. The ACA outlawed employer plans that had limited benefits or capped coverage. At the same time, the ACA allowed waiting periods that meant that some seasonal workers had limited access to these plans.

[3]For example, Akosa Antwi et al. (2015), Abramowitz (2020), Bailey and Depew (2015), Courtemanche et al. (2016), Frasier and Kofoed (2019), Frean et al. (2017), Kaestner et al. (2017), and Simon et al. (2017) evaluated the effects of expanded Medicaid coverage across states. For a literature review see Antonisse et al. (2018).

## 1 | THE DATA

The U.S. Department of Labor's National Agricultural Worker Survey (NAWS) is our primary data source. The NAWS randomly samples U.S. hired and contract seasonal crop workers in 3-, 4-month "seasons" each year. It uses face-to-face interviews to collect demographic, legal status, health insurance coverage and funding source, medical services use, and job characteristics of farmworkers. We use the restricted version of the NAWS, which identifies the state of residence for each surveyed farmworker. Unlike most previous agricultural worker surveys that selected interviewees by where they lived, the NAWS is an establishment survey and selects a sample of workers at their worksites.

We supplement our data set with information about Medicaid eligibility rules across states and national ACA subsidy and tax penalty rules, using information from state governments, the Kaiser Family Foundation, Healthinsurance.org, and the federal government.[4] The ACA health insurance subsidy and tax penalty took effect in 2014. The Kaiser Family Foundation lists the annual Medicaid eligibility household income thresholds for each state and the District of Columbia.

The NAWS data set has 13,532 observations for farmworkers from 2010 through 2016. More recent data are not available. Moreover, after 2016, additional court rulings and executive orders modified some of these ACA policies. We do not analyze data from years earlier than 2010 to avoid the complication of the Great Recession.

## 2 | THE MODEL

We analyze the effects of the ACA policies, controlling for demographic variables, on farmworkers' health insurance coverage and use of medical services.

### 2.1 | Outcome variables

We use two health insurance coverage variables. One is a binary variable whether or not a worker has health insurance. The other categorizes farmworkers' choice of health insurance coverage into four groups: uninsured, employer-provided, government-provided, and private and other. "Employer" insurance is coverage funded by the worker's or spouse's employer. "Government" refers to insurance coverage paid for by the government (Medicaid, Medicare, or government-paid healthcare exchange subsidies for those over the Medicaid income limits). "Private" is insurance paid for by either the farmworker or the spouse, while funding for "other" insurance is from an unknown source.[5]

Similarly, we use two healthcare service variables. Unfortunately, the NAWS does not report a measure of how intensively farmworkers use healthcare services. However, it does record whether a farmworker used any medical service in the 2 years preceding the interview. We include a binary variable that is one if a worker used a healthcare service within the preceding 2 years. If a farmworker reports using a service, the NAWS asks where they received their most recent treatment. Our second variable categorizes these responses into four groups: hospital or ER, private doctor or clinic, community or migrant health center, or other types of providers. The other category includes chiropractors, healers, dentists, and unspecified providers. The fifth category is "None" for farmworkers who report they have not used any medical services within the last two years.

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[4]Medicaid eligibility by state across years is available at www.kff.org/state-category/medicaid-chip/medicaidchip-eligibility-limits/. For information on subsidy eligibility for immigrants 2014–2016, see www.healthinsurance.org/obamacare/will-you-receive-an-obamacare-premium-subsidy/#immigration and www.healthcare.gov/immigrants/lawfully-present-immigrants/.

[5]Only 177 workers listed two sources of funding. Individuals who listed a combination that includes government, we label as having "Government" insurance. The remainder included a combination with employer (but not government), and we label as "Employer." We do not have enough observations to look at the private and other categories separately.

**TABLE 1**    Medicaid and Affordable Care Act (ACA) subsidy eligibility and tax penalty

| Legal status | $\frac{\text{Household income}}{\text{Federal poverty level}}$ (%) | Medicaid | ACA premium subsidy | Tax penalty |
|---|---|---|---|---|
| Medicaid expansion state: | <138 | Yes | No | No |
| Citizen or green card (>5 years residence) | 138–400 | No | Yes | Yes |
| | >400 | No | No | Yes |
| Nonmedicaid expansion state: | [a] | Yes | No | No |
| Citizen or green card (>5 years residence) | 100–400 | No | Yes | Yes |
| | >400 | No | No | Yes |
| Green card[b] (<5 years residence) | <100 | No | Yes | No |
| | 100–400 | No | Yes | Yes |
| | >400 | No | No | Yes |

[a]Less than 100% or a lower poverty threshold depending on the state.

[b]Lawful Permanent Residents in California are not subject to the 5-year waiting period.

## 2.2 | Policy variables

Our three main policy variables are a "medicaid-eligible" dummy, an ACA "subsidy-eligible" dummy, and a potential "tax penalty" variable. To create these policy variables for each farmworker, we use information about a person's characteristics and the relevant state and federal laws.

We used the various state policy rules over time and farmworkers' household characteristics such as income and family composition to determine their eligibility for Medicaid and the federal premium subsidy.

Table 1 shows how legal status and income affect Medicaid eligibility, subsidy eligibility, and the potential tax penalty under the individual mandate. We restrict our sample to childless adult farmworkers from 18 to 64 years of age for whom we have complete information on all relevant variables. These restrictions leave us with 2265 observations.

We focus on childless adults to ensure a clean comparison of the effects of the Medicaid Expansion. Before the ACA, childless adults were ineligible for Medicaid in 43 states. Twenty-three of these states expanded Medicaid to this group after 2013.[6] We leave the six states and the District of Columbia that had limited Medicaid expansions for childless adults out of the analysis.[7] We leave out adults with children because this group's income threshold for Medicaid eligibility differs across states and over time.[8] The 19 nonexpansion states serve as a control group to identify the effects of Medicaid expansion. We can analyze the Medicaid expansion effects using only authorized workers because of differences across states and over time.

From 2014 to 2016, the last year of our sample, workers faced a tax penalty if they were not covered by health insurance for at least 9 months within the tax year and had other criteria.[9] Workers were exempt from the penalty if their household income was below the federal tax-filing

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[6]Alaska, Arkansas, California, Illinois, Indiana, Iowa, Kentucky, Maryland, Massachusetts, Michigan, Montana, Nevada, New Hampshire, New Jersey, New Mexico, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, Washington, West Virginia, Wisconsin.

[7]Arizona, Connecticut, Delaware, Hawaii, Minnesota, New York, and Vermont. In addition, some states had income eligibility thresholds higher than the ACA guidelines before the ACA; thus, the new policy caused a contraction and not an expansion of eligibility. These differences preclude a straightforward analysis of the impact of the ACA Medicaid expansion. We circumvent these challenges by focusing on childless adults.

[8]See Simon et al. (2017) for a list of the Medicaid expansion and nonexpansion states by year.

[9]The ACA tax penalty was $0 for all worker before the ACA went into effect in 2014. In all years, the penalty was $0 for unauthorized workers, who are not covered by the ACA, and for authorized workers who were not required to file income taxes. For all other authorized workers, the penalty in 2014 was the greater of $95 per adult in the family plus $47.50 per child (up to a $285 maximum) or 1% of household income. In 2015, the penalty was the greater of $325 per uninsured person plus $162.50

threshold, their income was less than 138% of the FPL in Medicaid nonexpansion states, they lived where no affordable coverage was available, or they were Native Americans or unauthorized workers. We used the federal guidelines on household composition and income thresholds to calculate a proxy for the prospective penalty for respondents based on their family characteristics.

Another ACA policy prevented insurance companies from discriminating against people with pre-existing medical conditions (PEMC). Our proxy for having a PEMC is a dummy that equals one for farmworkers who reported having received a diagnosis of asthma, diabetes, high blood pressure, or heart disease.

Table 2 contains summary statistics for authorized workers in Medicaid expansion and non-expansion states before and after the full implementation of the ACA. Twenty-two percent of authorized workers in Medicaid expansion states were eligible for Medicaid after the ACA. We calculate that 57% of authorized farmworkers in Medicaid expansion states and 80% in nonexpansion states were eligible for the premium subsidy post-ACA. The average potential tax penalty for authorized workers who lacked coverage was $536 in Medicaid expansion states and $563 in nonexpansion states.

## 2.3 | Demographic variables

The NAWS distinguishes between citizens, lawful permanent residents ("green-card holders"), and workers without work authorization.[10] We combined the citizens and lawful permanent residents into a single group called "authorized" workers. They can legally work in this country and their legal status makes them eligible for federal medical programs.[11] The remaining group, unauthorized workers, is 30% of the NAWS sample but excluded from our analysis.

Our demographic variables are age, age squared, work experience, work experience squared, years of education, family income, household size, whether the worker reads and speaks English well, sex, white, Hispanic, marital status, and whether the individual works for a farm labor contractor (FLC).[12] The equations also include year and state fixed effect dummies. Except for income, we do not report the coefficients for these variables in our tables to save space, but the signs are generally consistent with our expectations. As Table 2 shows, most demographics, employment, language, and other farm work-related variables were little changed after the ACA went into effect.

## 2.4 | Identification: Treatment and control groups

Our authorized-workers sample has two sources of variation. The first source of variation for the authorized-workers sample is a comparison of outcomes before and after the ACA policies went into effect for authorized workers. Second, we compare outcomes of eligible workers—those in Medicaid expansion states—to ineligible authorized workers.

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per child (up to a $975 maximum) or 2% of household income. In 2016, the penalty was the greater of $695 per uninsured person plus $347.50 per child (up to a $975 maximum) or 2% of household income.

[10]The NAWS algorithm for determining legal status takes into account survey items on citizenship, visa status, work authorization; the program under which the respondents received work authorization; and the date the visa was received. These items are then checked for consistency against other items in the questionnaire such as the country of origin and arrival date in the United States. After we limited the data set to only farmworkers with complete information for the relevant variables, we did not have any people with work authorization who did not have a green card.

[11]We aggregated these groups in the following analyses because, when we treated them separately, the results for citizens and green card holders were virtually identical.

[12]Farm labor contractors are less likely than direct-hire employers to provide a healthcare benefit, and their workers may be subject to different working conditions.

**TABLE 2**  Summary statistics, share or mean (standard deviation)

| | Expansion states | | Nonexpansion states | |
|---|---|---|---|---|
| | Pre-Affordable Care Act (ACA) | Post-ACA | Pre-ACA | Post-ACA |
| **Policy variables** | | | | |
| Medicaid eligible (%) | 0 | 22 | 0 | 0 |
| Subsidy eligible (%) | 0 | 57 | 0 | 84 |
| Potential tax penalty ($100) | 0 | 5.36 | 0 | 5.44 |
| | | (2.92) | | (2.69) |
| **Outcome variables** | | | | |
| Health insurance coverage (%) | 43 | 67 | 36 | 48 |
| Medical services use (%) | 67 | 68 | 69 | 65 |
| **Demographic and work characteristics** | | | | |
| Preexisting medical condition (%) | 23 | 25 | 26 | 24 |
| Married (%) | 46 | 46 | 39 | 43 |
| Female (%) | 17 | 19 | 17 | 17 |
| White (%) | 53 | 39 | 49 | 44 |
| Hispanic (%) | 62 | 74 | 46 | 44 |
| Age | 42.64 | 43.39 | 42.16 | 43.38 |
| | (15.40) | (15.58) | (15.52) | (15.11) |
| Familyincome/($10 K) | 2.41 | 2.75 | 2.28 | 2.62 |
| | (1.30) | (1.44) | (1.27) | (1.33) |
| Family income/Federal poverty level (%) | 2.3 | 2.3 | 2.1 | 2.2 |
| | (1.2) | (1.2) | (1.2) | (1.1) |
| Years of Education | 9.21 | 8.96 | 9.79 | 10.30 |
| | (4.40) | (5.30) | (3.93) | (3.62) |
| English proficient (%) | 52 | 45 | 68 | 67 |
| Works for farm labor contractor (%) | 10 | 9 | 3 | 4 |
| Years of work experience | 21.01 | 21.43 | 21.53 | 21.69 |
| | (14.55) | (15.54) | (15.43) | (15.11) |
| Number of observations | 748 | 945 | 239 | 333 |

Our estimation equation for the authorized sample is

$$\text{Outcome}_{ist} = \alpha_1 \text{ x Medicaid-eligible}_{ist} + \alpha_2 \text{ x Subsidy-eligible}_{it} + \alpha_3 \text{ x Tax penalty}_{it}$$
$$+ \boldsymbol{\gamma}_s + \boldsymbol{\delta}_t + X_i'\beta + e_{ist}.$$

$\text{Outcome}_{ist}$ is one of two outcome variables—health insurance or medical services use—for individual $i$ in state $s$ in year $t$. Medicaid-eligible$_{ist}$ equals one if the individual is eligible for Medicaid and zero otherwise. Subsidy-eligible$_{it}$ is a dummy that equals one for farmworkers with income below 139%

**TABLE 3** Marginal effects: health insurance coverage

|  | Uninsured | Employer | Government | Private-Other |
|---|---|---|---|---|
| Medicaid-eligible | −0.113*** (0.004) | 0.113*** (0.009) | −0.003 (0.009) | 0.003 (0.009) |
| Subsidy-eligible | −0.055*** (0.004) | 0.032** (0.014) | 0.014 (0.010) | 0.009 (0.013) |
| Potential tax penalty/$100 | −0.016*** (0.003) | 0.001 (0.002) | 0.007*** (0.002) | 0.008*** (0.002) |
| Income/$10 K | −0.066*** (0.007) | 0.101*** (0.006) | −0.028*** (0.006) | −0.007 (0.006) |
| Dep. Var. Average Pre-Affordable Care Act (ACA) | 0.59 | 0.23 | 0.06 | 0.34 |

*Note*: The sample includes 2265 childless adult farmworkers from the National Agricultural Workers Survey, 2010–2016. To save space, we do not report the effects of the following variables: income, age, age squared, experience, experience squared, years of education, married dummy, female dummy, white dummy, Hispanic dummy, English proficiency dummy, and works for a farm labor contractor dummy, state fixed effects, and year fixed effects. The standard errors are clustered at the state level. $**p < 0.05$, $***p < 0.01$.

of the FPL and who were ineligible for Medicaid. During the ACA period, this dummy indicates farmworkers who are eligible for the ACA premium subsidy. Tax Penalty$_{it}$ is our computed prospective tax penalty for each authorized farmworker based on family characteristics and year. The vectors **S** and **T** are the state and year fixed effects dummies. Finally, *X* contains the demographic variables.

# 3 | THE ACA EFFECTS ON HEALTH INSURANCE COVERAGE

The ACA's primary objective was to provide affordable healthcare for people with low incomes or pre-existing medical conditions. We first examine whether the ACA policies affected the probability that a farmworker had health insurance coverage and, if so, what type of coverage.

Our outcome variable has four categories. The worker can be uninsured or have insurance provided by the worker's or spouse's employer (employer), any type of government insurance (government), or private or other unspecified insurance (private-other).[13] We estimate this model using a multinomial logit model. We use a multinomial model because each worker can choose only one of the categories.

Because the multinomial logit model is highly nonlinear, we cannot interpret the coefficients directly. Instead, Table 3 reports the marginal effects of variables evaluated at the sample means. For a continuous variable, we calculate the marginal effect for a small change. For a discrete variable, we report the probability if the dummy equals one minus the probability if the dummy is zero.

The ACA policies statistically significantly reduced the probability that an individual was uninsured. An authorized worker who is eligible for Medicaid (but does not necessarily use it) is 11.3% less likely to be uninsured than an ineligible authorized worker. This effect is large, given the pre-ACA probability of being uncovered was 59%. Given that our Medicaid-eligible variable is measured with error, our coefficient estimate may be biased toward zero.

A subsidy-eligible worker is 5.5% less likely to lack insurance. A $100 increase in the potential tax penalty reduced the probability of being uninsured by 1.6%. Given that the average potential tax was about $540, if the marginal effect holds over the entire range, facing that large a penalty compared to none would lower the probability of being uninsured by 8.6%.

We also interacted the policies with our pre-existing medical condition dummy, and a dependent mandate dummy (worker under 26 years). The dependent mandate allows parents to cover a dependent child on their private insurance until the child turns 26. None of these interactive

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[13]Only 177 workers listed two sources of funding. Individuals who listed a combination that include government were labeled as having government insurance. The remainder included a combination with employer (but not government) and were labeled as employer.

**TABLE 4**    Marginal effects: medical service use

|  | None | Hospital-ER | Private doctor | Migrant clinic | Other |
|---|---|---|---|---|---|
| Medicaid-eligible | −0.187*** (0.005) | −0.044*** (0.004) | 0.023* (0.013) | 0.140*** (0.009) | 0.067*** (0.005) |
| Subsidy-eligible | −0.089*** (0.006) | −0.015*** (0.004) | 0.031* (0.018) | 0.100*** (0.012) | −0.028*** (0.007) |
| Potential Tax Penalty/$100 | −0.016*** (0.003) | −0.015*** (0.002) | −0.002 (0.003) | 0.030*** (0.003) | 0.003 (0.003) |
| Income/$10 K | −0.047*** (0.007) | −0.005 (0.004) | 0.060*** (0.008) | −0.018*** (0.006) | 0.010** (0.005) |
| Dep. Var. average Pre ACA | 0.34 | 0.07 | 0.33 | 0.13 | 0.13 |

*Note*: The sample includes 2265 childless adult farmworkers from the National Agricultural Workers Survey, 2010–2016. To save space, we do not report the effects of the following variables: income, age, age squared, experience, experience squared, years of education, married dummy, female dummy, white dummy, Hispanic dummy, English proficiency dummy, and works for a farm labor contractor dummy, state fixed effects, and year fixed effects. Standard errors are clustered at the state level. *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

terms were statistically significant individually or collectively in any equations (see Supporting Information: Appendix Table A2). Thus, we do not report the interaction terms.

The Medicaid policy statistically significantly increases the probability a worker has employer coverage by 11%. It does not have a statistically significant effect on government and private or "other" coverage.

We believe that much of the reported government coverage before and after the ACA was from state agencies. That may explain why the Medicaid and subsidy policies did not significantly affect government coverage.

The subsidy policy increases the probability of employer coverage by 3%, but did not have a statistically significant effect on government or private/other insurance. A $100 increase in the potential tax penalty increases government coverage by 0.7% and private/other coverage by 0.8%. It does not have a statistically significant effect on employer coverage.[14]

# 4 | THE ACA EFFECTS ON USE OF MEDICAL SERVICES

The ACA debate raised the important questions of whether the law would raise consumption of medical services and, if so, from what type of providers. Unfortunately, the NAWS data set does not report how intensively farmworkers use healthcare services. However, it records whether a farmworker used any medical services in the 24 months preceding the interview.[15]

Our outcome variable has five categories: The worker did not receive any medical service (none) or received it from a hospital including ERs (hospital-ER), a private doctor or clinic (private Doctor), a community health center or migrant health center (migrant clinic), or another type of provider (other). This last category includes chiropractors, healers, dentists, and unspecified providers. We estimated this model using multinomial logit.

Table 4 shows the marginal effects. All three policies caused a statistically significant reduction in the probability that a worker used no medical service. Being Medicaid-eligible reduced the

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[14]We present results from where we include unauthorized immigrants as an added control group in Supporting Information: Appendix Table A3. Authorized workers are about 9% more likely to have health insurance than unauthorized workers. However, we find no statistically significant change in health insurance coverage and medical services use for authorized workers post ACA.

[15]The 24-month window poses a potential challenge for estimating the impact of the ACA specific policies. For example, we cannot distinguish whether the most recent healthcare service visit of a farmworker surveyed in 2014 or 2015 occurred after 2013, during the ACA period. We examined the importance of this problem by including post-ACA year specific effects of the various policies interacted with dummies for year 2014, 2015, and 2016. The year effects are nearly identical, which suggests that this problem is minor.

probability by 18.7%. A subsidy-eligible worker was 8.9% less likely. And a $100 increase in the potential tax penalty reduced the probability by 1.6%.

One of the main arguments in favor of the ACA was that it would reduce the probability that people would rely on emergency treatment, such as ERs. All three ACA policies statistically significantly reduced workers' use of hospitals including ERs for medical services. The use of these providers fell by 4.4% for Medicaid-eligible workers and 1.5% for subsidy-eligible people. A $100 increase in the potential tax penalty reduced the probability by 1.5%.

All three policies statistically significantly increased farmworkers' use of migrant clinics: 14%, Medicaid-eligible; 10%, subsidy-eligible; and 3% for a $100 increase in the potential tax penalty. These policies had little or no effect on the use of private doctors, but they did affect the use of other providers.

## 5 | CONCLUSIONS

The ACA's objective was to expand healthcare coverage, particularly for young and low-income people. Most previous studies of ACA effects ignored farmworkers. However, the law targeted helping people like farmworkers who are low paid, traditionally have low rates of coverage, and suffer from more health challenges than most other workers.

Using the National Agricultural Workers Survey of authorized seasonal agricultural workers, we examine how the ACA's tax penalty, subsidy, and expanded Medicaid provisions affected farmworkers' health insurance coverage, their use of medical care, and the types of benefits provided by their employers. We restrict our study to childless workers to get clean measures of policy changes over time.

The ACA had substantial effects on insurance coverage and the use of medical services. Expanded medicaid eligibility and the ACA premium subsidy significantly increased the healthcare coverage of authorized workers by 11% and 6%, respectively. Most of this increase was due to an increase in employer-provided insurance. A $100 increase in the potential tax penalty raised coverage by 1.6%. We did not observe a significant difference between workers with and without pre-existing medical conditions (see Supporting Information: Table A2). However, our measure of pre-existing conditions is weak.

The ACA policies substantially increased the share of authorized workers who sought medical care. They raised the use of migrant clinics substantially while reducing the use of hospitals, including ERs, which was a goal of the law's proponents.

### DATA AVAILABILITY STATEMENT
The data used in this manuscript is the restricted version of the National Agricultural Worker Survey. Thus, we are unable to share this data publicly. However, there is a publicly available version of the data set that we can share. We are also able to provide the replication code for the data

analysis and estimations described in this manuscript. We use the restricted version of the U.S. Department of Labor's National Agricultural Worker Survey (NAWS) as our primary data source. This data set identifies the state of residence for each surveyed farmworker. Due to privacy concerns regarding the identification of individuals or farms, we are unable to make these data publicly available. However, the U.S. Department of Labor can make these data available to researchers. National Institute for Occupational Safety and Health (NIOSH, 2017). National Agricultural Workers Survey (NAWS) public-use data, 1999, 2002–2004, 2008–2010, and 2014–2015. June 2017. Accessed at https://www.cdc.gov/niosh/topics/aginjury/NAWS/.

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.