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Immigration Enforcement, Farm Labor, and Worker Outcomes in California's Central Valley

SUMMARY

Escalating federal immigration enforcement affects the workers of California's Central Valley economy. Our analysis combines federal immigration arrest records with four federal data sources covering worker earnings, employment, job flows, workplace injuries, and the H-2A temporary agricultural visa program, from 2012 through 2024.

Enforcement contracts the immigrant labor market and lowers what work pays. Immigrant employment falls, unemployment rises, annual earnings fall by more, and poverty rises. Among immigrants who keep working, hours and pay are unchanged. The loss falls on whether people work at all.

Payroll records show the same contraction from the employer side: fewer jobs, fewer separations, and lower pay for workers in stable employment. Workplace injury records show more recorded injuries but fewer that take a worker off the job, and agricultural employers in California expand their use of the temporary visa workforce.

The Central Valley concentrates the industries and workers where these effects are largest, and it enters this period with the weakest wages and the highest immigrant poverty rate of the three areas we compare.

KEY FINDINGS

Each estimate describes what happens when immigration arrests in a region double—the scale of national increase between 2021-23.

1. Immigrant employment falls 1.0 percent and immigrant unemployment rises 7.6 percent, from 4.0 to 4.3 percent of the working-age population.

2. Among all working-age immigrants, annual wage income falls 6.1 percent and the immigrant poverty rate rises 7.1 percent, from 13.5 to 14.5 percent.

3. Among immigrants who remain employed, weekly hours and wage income do not change. Unemployment among immigrants in the labor force rises 9.0 percent.

4. Among immigrants working in industries that employ the most immigrants, wage income falls 4.1 percent and poverty rises 10.8 percent. In agricultural services, the sector organized around farm labor contractors, wage income falls 27.5 percent.

5. Payroll records show county employment down 1.9 percent, separations down 1.6 percent, and earnings for stable jobs down 0.7 percent. Construction shrinks most sharply, with employment down 4.1 percent.

6. Recorded workplace injuries rise 6.4 percent, but the rate of injuries involving days away from work falls 17.9 percent and injuries handled through job transfer or restricted duty rise 11.1 percent.

7. H-2A denial rates fall by roughly two-thirds and certified pay rates fall 1.6 percent. In California, certified H-2A workers more than double.

8. U.S.-born white workers show no employment response. Their weekly hours fall 0.3 percent and their wage income falls 1.7 percent among those with earnings.

BACKGROUND

Enforcement over the past decade

Interior immigration enforcement has moved in both directions over the past fifteen years, and the swings have been large. Federal arrests inside the country fell sharply between 2012 and 2014, rose through 2018, dropped during the pandemic to the lowest level in the series, and then roughly doubled between 2021 and 2023 before falling again in 2024.

These national swings are not distributed evenly. Enforcement is organized through regional field offices, and the intensity of activity in any given year differs across them. That regional variation, rather than any single national episode, is what identifies the effects we report.

The escalation that began in 2025 falls outside the period we can measure. Our estimates describe how labor markets responded to earlier increases of comparable size, the best available guide to what the current escalation is likely to produce.

Why job quality is part of the question

Public debate about the economic effects of enforcement has focused on whether immigrant workers lose their jobs. That question matters, and we answer it. It is not the whole question.

A worker who keeps a job but loses weeks of work or accepts a lower wage rather than risk a new employer's scrutiny, has been harmed by enforcement. Yet, none of that harm shows up in an employment count. It shows up in annual earnings and in poverty rates. Accordingly, our results show the earnings loss running well ahead of the employment loss.

This distinction matters for policy design as much as for measurement. A response built around regular unemployment insurance reaches workers who have stopped working. Many of the workers we identify as harmed are still working, and many affected workers are excluded from that system in any case.

The Central Valley economy

Agriculture, food processing, dairy, construction, warehousing, and food service employ substantial immigrant workforces across California's eight-county Central Valley region. California agriculture increasingly relies on farm labor contractors, who serve as intermediaries between growers and workers. This arrangement can complicate accountability for wage and workplace-safety violations (Hooker et al. 2024; Costa, Martin, and Rutledge 2020). The Valley is also where California's employment growth has been fastest and its wage growth slowest over the past fifteen years.

Table 1: Data Sources

Source	What it measures and what it misses
American Community Survey (ACS)	Individual-level employment, hours, annual wage income poverty, nativity, citizenship, race/ethnicity, and demographic characteristics. Annual; does not identify work authorization; analyzed at the PUMA-year level.
Quarterly Workforce Indicators (QWI)	County-quarter employment, hiring, separations and earnings, by industry and available demographic cells. Does not identify nativity. Based on UI-covered employment.
OSHA injury records	County-quarter severe injuries, county-year recorded injuries/illnesses, days away from work, restricted duty. Does not identify nativity; reporting may itself respond to enforcement. Severe Injury Reports exclude State Plan states because those states operate their own OSHA programs.
H-2A certification files	County-year certified positions, denial rates, pay rates, contractor use. Measures approved requests, not arrivals.

Source: Authors' analysis of U.S. Census Bureau American Community Survey and Quarterly Workforce Indicators, U.S. Department of Labor Occupational Safety and Health Administration injury records and Office of Foreign Labor Certification H-2A disclosure files, and U.S. Immigration and Customs Enforcement arrest records obtained through the Freedom of Information Act. The survey sample covers 3.13 million immigrants and 13.0 million U.S.-born non-Hispanic white people of working age, excluding those in group quarters. Dollar amounts are in 2024 dollars.

We ask four questions: Does enforcement reduce immigrant employment, hours, earnings, and economic security? What does it do to employment and pay as employers record them? Does it change what appears in workplace injury records? And do agricultural employers respond by expanding their use of the legal temporary visa workforce?

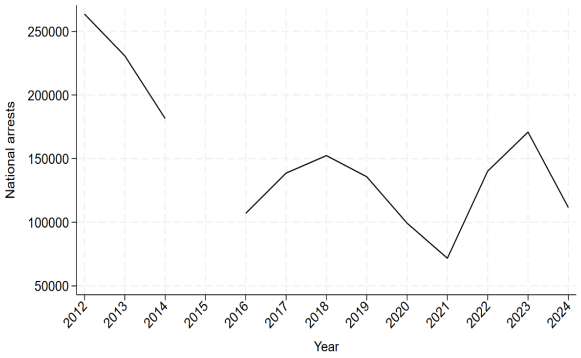
DATA AND METHODS

Measuring enforcement

We use federal immigration arrest records obtained through the Freedom of Information Act, recorded for each of the 24 Immigration and Customs Enforcement Areas of Responsibility (AOR) through which interior enforcement is organized. The treatment is the logarithm of arrests in the region. For quarterly outcomes, arrests are lagged by one quarter. For annual outcomes from the ACS and H-2A data, we shift quarterly arrests forward by one quarter before aggregating them to the year. This preserves the timing assumption that enforcement precedes the outcome while allowing us to retain 2014 in the analysis. (One region required harmonization. This is detailed in the endnotes).[1]

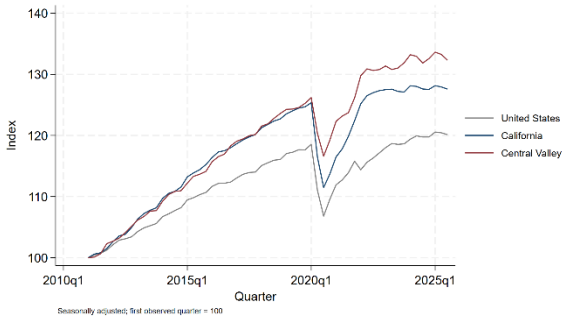
Finally, we drop FY2015 because arrest coverage is incomplete, and FY2020 for analyses using the American Community Survey because the pandemic disrupted the survey.

Figure 1: National Annual Immigration Arrests, 2012–2024



Source: Authors' analysis of U.S. Immigration and Customs Enforcement administrative arrest records obtained through the Freedom of Information Act. Figures are annual counts of interior immigration arrests summed across all Areas of Responsibility, after reallocating Harlingen arrests to San Antonio and Houston. Records for 2015 were not released in response to the request and appear as a gap; that year is excluded from all analysis.

Figure 2: Employment Growth, Central Valley Compared with California and the United States, 2011–2025



Source: Authors' analysis of U.S. Census Bureau Quarterly Workforce Indicators. Each line shows total employment indexed to 100 in the first quarter of 2011, so values represent cumulative percentage growth since that quarter. Series are seasonally adjusted by removing average calendar-quarter differences within each region. Central Valley refers to the eight counties of the San Joaquin Valley.

How the comparisons work

All comparisons hold constant permanent differences between local areas and statewide conditions in each period. The estimates reflect changes over time within a community rather than differences between communities. They are identified by timing and size of arrest changes across regions.

We report every result as the change associated with a doubling of arrests in the region, which matches the scale of the national increase between 2021 and 2023. Every table reports the average level of the outcome alongside the estimated change, so that the size of an effect can be judged against the level it starts from.

We calculate statistical uncertainty allowing outcomes to be correlated within enforcement regions. Because there are only 24 such regions, we also apply a more conservative bootstrap procedure to the main survey results and report where conclusions change under it. Full estimates with standard errors appear in the appendix tables.

Four data sources

No single data source can answer our questions. Household surveys see the worker but not the workplace. Payroll records see the job but not the worker's nativity. Injury records see the injury but not who was hurt. Reading the four together is what makes the argument.

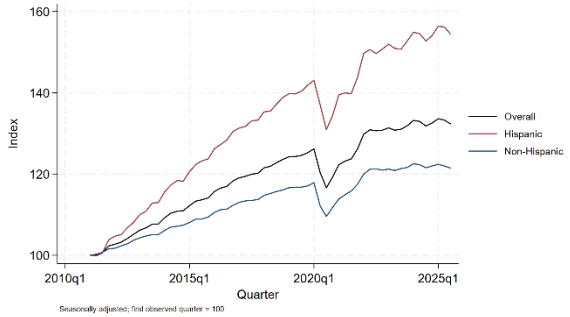
We link regional arrest records to counties using a national county–AOR crosswalk. For the ACS analyses, which identify geography at the PUMA rather than county level, we assign each PUMA to the AOR containing the largest share of its population. We construct separate assignments for the 2010 and 2020 PUMA boundaries.

FINDINGS

The Enforcement Environment

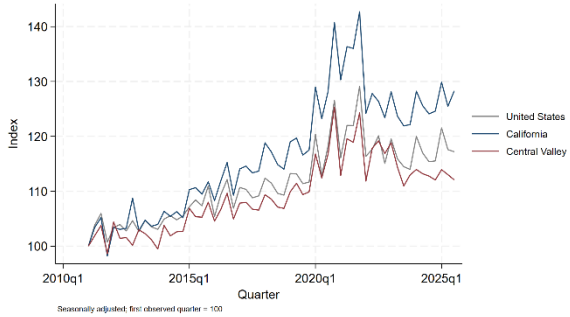
Figure 1 shows national arrest activity over the study period. The series falls by nearly a third between 2012 and 2014, recovers through 2018, collapses in 2020 and 2021, and then rises steeply through 2023 before

Figure 3: Central Valley Employment Growth by Ethnicity, 2011–2025



Source: Authors' analysis of U.S. Census Bureau Quarterly Workforce Indicators. Employment is indexed to 100 in the first observed quarter of 2011 and seasonally adjusted. Ethnicity categories follow those published in the Quarterly Workforce Indicators, which are drawn from state unemployment insurance records and do not identify immigration status.

Figure 4: Real Monthly Earnings Growth for Stable Jobs, 2011–2025



Source: Authors' analysis of U.S. Census Bureau Quarterly Workforce Indicators. Earnings are average monthly earnings for workers employed a full quarter, converted to 2024 dollars using the Consumer Price Index for All Urban Consumers and indexed to 100 in the first quarter of 2011. Series are seasonally adjusted.

falling again in 2024. Variation in both directions is what allows us to compare periods of higher and lower enforcement within the same communities.

Before turning to the estimates, we describe the regional labor market in which they apply. Four features of the Valley matter for what follows.

The Central Valley Labor Market

The Central Valley added jobs faster than the state or the nation. Employment in the region grew about 32.3 percent between 2011 and 2025, against 28 percent in California and 21 percent nationally. The region also recovered from the pandemic contraction faster than either comparison.

This broader expansion provides important context for the following results. The enforcement changes we study occurred in a Valley labor market that was growing faster than the state and nation overall, rather than one experiencing a general decline. Aggregate growth, however, can conceal different experiences across industries and workers, particularly immigrants. The analyses below examine those differences directly.

That growth has been disproportionately Hispanic. Within the Central Valley region, Hispanic employment grew 54.3 percent between 2011 and 2025, against 21.4 percent for non-Hispanic employment. The workforce absorbing the region's job growth is the one most exposed to immigration enforcement.

Pay has not kept pace. Real monthly earnings for workers holding stable jobs grew about 12 percent in the region between 2011 and 2025, against 28 percent in California and 17 percent nationally. The gap opens after 2016 and has not closed. The Central Valley added the most jobs among our three comparison areas and gained the least pay.

Central Valley workers start from a weaker position. Table 2 compares average labor market conditions over the study period. Central Valley immigrants have lower employment, higher unemployment, and substantially lower earnings than immigrants statewide. They earn about $49,500 a year against $65,300 for immigrants in California as a whole, and their poverty rate is more than four percentage points higher.

Table 2: Labor Market Conditions by Region and Immigrant Status, Annual Averages 2012-2024

	U.S.	CA	Central Valley
Panel A. Immigrants			
Employment rate	73.2%	71.6%	67.1%
Labor force participation	77.2%	76.0%	73.1%
Unemployment rate	5.2%	5.8%	8.2%
Weekly hours worked	39.6	39.0	39.7
Annual wage income	$61,470	$65,300	$49,508
Poverty rate	13.5%	13.1%	17.7%
Panel B. U.S.-born workers			
Employment rate	71.5%	68.7%	64.5%
Labor force participation	76.1%	74.3%	70.9%
Unemployment rate	6.0%	7.6%	9.1%
Weekly hours worked	39.5	38.6	38.3
Annual wage income	$63,616	$72,317	$58,978
Poverty rate	10.8%	10.1%	13.2%

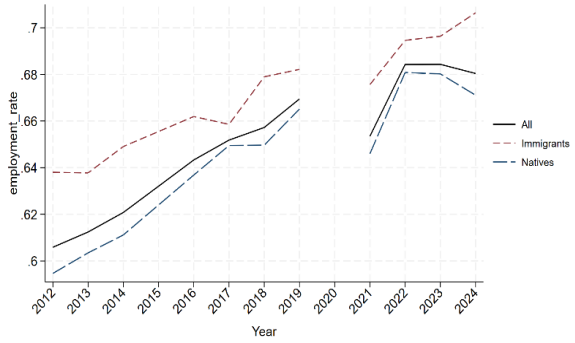
Source: Authors' analysis of American Community Survey one-year public use microdata, 2012–2024. Averages are weighted by population and cover the working-age population, excluding people in group quarters. The years 2015 and 2020 are excluded throughout. Wage income is in 2024 dollars, averaged over people reporting wage earnings. Unemployment is measured as a share of the working-age population rather than of the labor force. Central Valley refers to the eight counties of the San Joaquin Valley. Panel B covers all U.S.-born workers; the estimates in later tables use U.S.-born non-Hispanic white workers as the comparison group.

The same pattern holds for U.S.-born workers, which indicates that the gap reflects the regional labor market rather than the composition of its immigrant population alone. Valley immigrants work the longest hours of any group in the table and are paid the least for them.

The gap between immigrant and U.S.-born earnings also widens as the geography narrows. Nationally, immigrants earn about $2,100 a year less than U.S.-born workers, a difference of roughly three percent. In California the gap is $7,000. In the Valley it reaches $9,500, or about one dollar in six. Valley immigrant unemployment, at 8.2 percent of the working-age population, runs nearly sixty percent above the national immigrant rate. These are the conditions in which enforcement operates: a workforce with high attachment to work, low pay for that work, and little cushion when hours or weeks are lost.

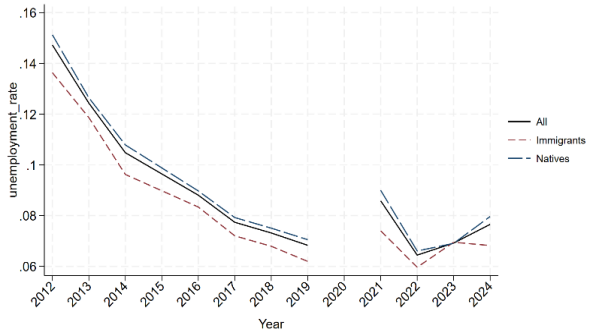
Valley trends over the study period. Conditions in the Valley improved over the period we study, for immigrants and U.S.-born residents alike. Employment rates rose from 2012 through 2019 and again after the pandemic, unemployment fell by roughly half, average wage income rose by about a quarter, and poverty fell by a third. These improving trends frame how the estimates should be read. Our results do not say that poverty rose in the Valley. They say that where and when enforcement intensified, outcomes moved unfavorably relative to comparable communities where it did not.

Figure 5: Central Valley Employment Rate by Immigrant Status



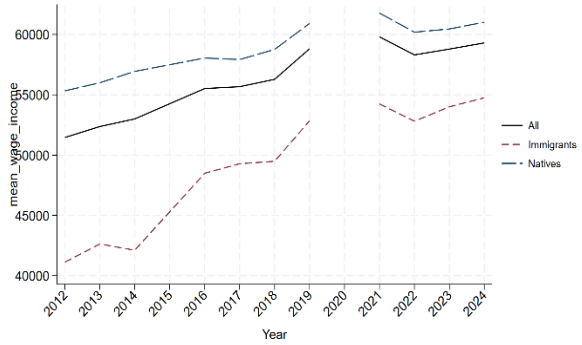
Source: Authors' analysis of American Community Survey one-year microdata. Employment rate is the share of the working-age population that is employed. The 2015 and 2020 gaps are excluded years. Immigrants are all foreign-born residents regardless of citizenship or work authorization.

Figure 6: Central Valley Unemployment Rate by Immigrant Status



Source: Authors' analysis of American Community Survey one-year microdata. Unemployment is measured as a share of the working-age population rather than of the labor force, so it runs below the official rate. The 2015 and 2020 gaps are excluded years.

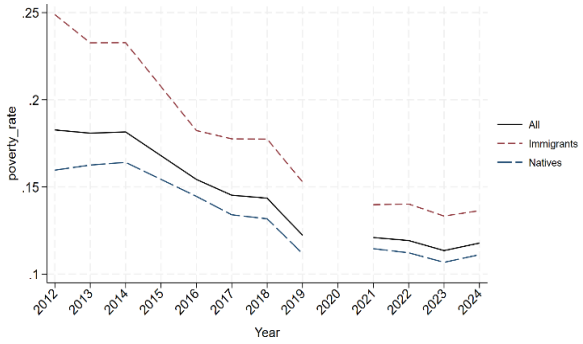
Figure 7: Central Valley Average Annual Wage Income by Immigrant Status



Source: Authors' analysis of American Community Survey one-year microdata. Wage income is averaged over people reporting wage earnings and shown in nominal dollars as published, so part of the upward trend reflects inflation. The 2015 and 2020 gaps are excluded years.

Figure 8: Central Valley Poverty Rate by Immigrant Status

Source: Authors' analysis of American Community Survey one-year



microdata. Poverty status follows the federal poverty definition used in the survey. The 2015 and 2020 gaps are excluded years.

Work, Earnings, and Economic Security

Table 3 reports how individual outcomes change when arrests in a region double. Immigrant employment falls by three-quarters of a percentage point, from 73.2 to 72.4 percent of the working-age population, and immigrant unemployment rises by three-tenths of a point, from 4.0 to 4.3 percent. Labor force participation falls slightly. Weekly hours do not move.

The economic security measures move considerably more. Immigrant annual wage income falls 6.1 percent. The immigrant poverty rate rises by almost a full percentage point, from 13.5 to 14.5 percent, an increase of 7.1 percent. These are the largest effects estimated and the most firmly established: under the more conservative bootstrap procedure the wage result is significant at the 1 percent level and the poverty and unemployment results at the 5 percent level. Overall, earnings loss is roughly six times employment loss in proportional terms. Hence, employment counts capture only part of what enforcement does to immigrant households.

U.S.-born white workers show no employment or participation response. Their weekly hours fall 0.3 percent and their wage income falls 2.9 percent, though the wage

Table 3: Change in Worker Outcomes When Regional Arrests Double

Outcome	Average	Change
Panel A. Immigrants		
Employment rate	73.2%	−0.74 pp (−1.0%) ***
Labor force participation	77.2%	−0.43 pp (−0.6%) **
Unemployment rate	4.0%	+0.31 pp (+7.6%) ***
Weekly hours worked	39.1	+0.03 hours (+0.1%)
Annual wage income	$61,470	−6.1% ***
Poverty rate	13.5%	+0.96 pp (+7.1%) ***
Panel B. U.S.-born white workers		
Employment rate	73.9%	−0.02 pp (−0.0%)
Labor force participation	77.6%	+0.06 pp (+0.1%)
Unemployment rate	3.7%	+0.08 pp (+2.1%)
Weekly hours worked	39.2	−0.12 hours (−0.3%) **
Annual wage income	$63,616	−2.9%
Poverty rate	8.5%	+0.24 pp (+2.9%)

Source: Authors' analysis of American Community Survey one-year microdata (2012–2024, excluding 2015 and 2020) combined with Immigration and Customs Enforcement arrest records obtained through the Freedom of Information Act. The treatment is the logarithm of arrests in the enforcement region, lagged one quarter. Estimates hold constant permanent differences between local areas, statewide conditions in each year, and individual age, sex, education, marital status, race and ethnicity, and years since migration. "pp" denotes percentage points; the figure in parentheses expresses the same effect relative to the average level shown. Unemployment is measured as a share of the working-age population. Asterisks denote significance under region-clustered inference: *** 1 percent, ** 5 percent, * 10 percent. Under the more conservative bootstrap procedure, for immigrants the wage income result is significant at 1 percent, poverty and unemployment at 5 percent, and employment at 10 percent; participation is not. Samples are 3,132,775 immigrants and 13,001,687 U.S.-born non-Hispanic white workers. Full estimates appear in Appendix A.

result is not statistically distinguishable from zero. We find no evidence that enforcement transfers work or income to U.S.-born workers.

Where the Loss Occurs

A 6.1 percent fall in annual wage income can arise in three ways. Workers can be paid less per hour, work fewer hours per week, or work fewer weeks in the year. Table 4 probes these mechanisms by estimating models on more selected samples: people in the labor force, employed workers, and employed wage/salary workers.

Among immigrants who remain employed, weekly hours are unchanged and wage income among earners falls less than one percent, which is not statistically distinguishable from no change. What does move is unemployment among immigrants in the labor force, which rises 9.0 percent.

This pattern suggests that immigrant wage-income losses are concentrated at the employment boundary, through jobs that end, spells of unemployment, and weeks not worked. That is why annual wage income falls so much more than any measure taken among people currently at work.

Table 4: Change Among Workers Already Employed or in the Labor Force

Outcome and sample	Average	Change
Panel A. Immigrants		
Unemployed, labor force only	5.2%	+0.47 pp (+9.0%) ***
Hours, employed only	39.6	+0.02 hours (+0.1%)
Hours, wage and salary	39.6	+0.07 hours (+0.2%)
Wage income, earners only	—	−0.9%
Panel B. U.S.-born white workers		
Unemployed, labor force only	4.7%	+0.10 pp (+2.1%)
Hours, employed only	39.9	−0.11 hours (−0.3%) ***
Hours, wage and salary	39.9	−0.09 hours (−0.2%) *
Wage income, earners only	—	−1.7% ***

Source: Authors' analysis of American Community Survey one-year microdata (2012–2024, excluding 2015 and 2020) combined with Immigration and Customs Enforcement arrest records. Each row restricts the sample to the group named, so the estimate describes change among people already working or already in the labor force rather than change in the working-age population as a whole. Wage income among earners is measured in logarithms, so only the proportional change is reported. Controls and fixed effects are as in Table 3. Asterisks as in Table 3. Sample sizes range from 2.0 to 10.0 million observations and appear in Appendix A.

Table 5 Change in Immigrant Worker Outcomes by Industry

Industry group	Wage income	Poverty rate
Above-median immigrant share	−4.1% **	+10.8% ***
Below-median immigrant share	+0.2%	+11.0%
Agricultural services	−27.5% ***	+11.6%
Crop production	−5.2%	+13.3%
Food service and drinking	−4.2% **	+7.6% **
Personal services	−12.6% **	+11.8% **
Construction	−2.3%	+12.5%
Warehousing	−12.0%	+14.0%
Food manufacturing	+4.6%	−1.3%

Source: Authors' analysis of American Community Survey one-year microdata (2012–2024, excluding 2015 and 2020) combined with Immigration and Customs Enforcement arrest records. The sample is immigrant workers, classified by the industry in which they are employed. Industries are ranked above or below median by their national share of immigrant workers at the start of the period. Both columns report the proportional change associated with a doubling of regional arrests; the poverty column is expressed relative to each group's own average poverty rate, which ranges from 4.8 percent in below-median industries to 19.6 percent in agricultural services. Controls and fixed effects are as in Table 3. Asterisks as in Table 3. Agricultural services rests on 31,428 observations, crop production on 30,564 and warehousing on 12,473.

U.S.-born white workers show a different pattern. Among those already working, hours fall 0.3 percent and wage income falls 1.7 percent, both statistically significant. Their losses occur within the job rather than at its boundary, which is consistent with reduced hours in workplaces where staffing has become harder to maintain.

Where the Losses Land

If enforcement operates through immigrant labor, its effects should concentrate in the industries where immigrants work, and they do.

In industries with above-median immigrant employment, wage income falls 4.1 percent and the poverty rate rises 10.8 percent, from 9.2 to 10.2 percent (see table 5). In the rest of the economy, wage income does not move at all.

Agricultural services shows by far the largest earnings loss of any sector we examine. This sector includes agricultural support activities such as farm labor contracting, where intermediaries recruit and supply crews to growers. Wage income falls 27.5 percent. Contractor-mediated work is where enforcement pressure translates most directly into lost earnings, which matters for the Valley because contractor-supplied crews are a large and growing share of its farm workforce.

Food service and personal services, two other sectors with large immigrant workforces and thin wage margins, show earnings losses of 4.2 and 12.6 percent and poverty increases of 7.6 and 11.8 percent. Crop production shows a 5.2 percent earnings loss and a 13.3 percent poverty increase, neither precisely estimated on a sample of about 31,000 workers.

Dividing industries into three groups by immigrant share sharpens the pattern. Wage income falls 6.0 percent and poverty rises 13.3 percent in the third of industries with the most immigrant workers, both significant at the 1 percent level. In the middle third neither outcome moves. In the third with the fewest immigrant workers, wage income rises 7.2 percent, which we read as a composition effect rather than a pay increase: when workers leave a sector selectively, those who remain differ from those who left.

The geographic pattern points the same way. Splitting communities by how concentrated immigrant employment is, immigrant wage income falls 9.3 percent in high-concentration communities and 5.5 percent in low-concentration communities in response to a doubling of arrests, and only the first is precisely estimated. Employment and poverty effects appear in both.

Employment and Pay in Payroll Records

Payroll records drawn from state unemployment insurance systems show the same period from the employer side. They cover every job in covered employment, they do not identify nativity, and they measure the county labor market as a whole rather than immigrant workers alone.

County employment falls 1.9 percent when regional arrests double (see table 6). Separations fall 1.6 percent and earnings for workers in stable full-quarter jobs fall 0.7 percent. Hiring, separation and new-hire rates do not change measurably.

Falling employment together with falling separations describes a labor market that is contracting rather than churning. There are fewer jobs, and fewer job endings because there are fewer jobs to end. This is consistent with the survey evidence that immigrant employment falls while conditions inside surviving jobs do not change.

Table 6: Change in Employment, Separations, and Earnings in Payroll Records

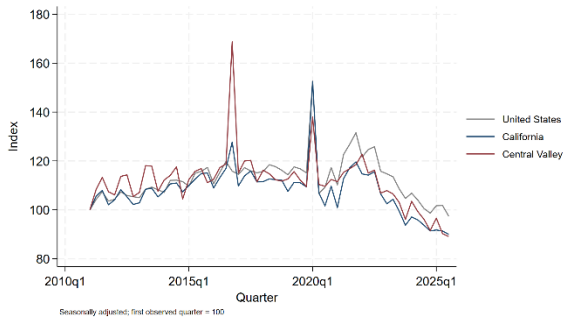
Industry group and outcome	Change
Panel A. All industries	
Employment	−1.9% *
Separations	−1.6% ***
Monthly earnings, stable jobs	−0.7% ***
Panel B. Immigrant-intensive industries	
Employment	−1.4%
Separations	−1.4% ***
Monthly earnings, stable jobs	−0.9% ***
Panel C. High-Hispanic industries	
Employment	−1.9% *
Separations	−2.0% ***
Monthly earnings, stable jobs	−0.7% ***
Panel D. Selected industries	
Construction employment	−4.1% ***
Construction earnings	−1.2% **
Crop production earnings	−2.0% **
Agricultural support employment	+4.1% ***
Animal production separations	+3.4% **

Source: Authors' analysis of U.S. Census Bureau Quarterly Workforce Indicators, county by quarter by industry, 2012–2024, combined with Immigration and Customs Enforcement arrest records. Employment, separations and earnings are measured in logarithms, so the table reports proportional changes; hiring, separation and new-hire rates show no measurable change and appear in Appendix B. Earnings are average monthly earnings for workers employed a full quarter, in 2024 dollars. Estimates hold constant permanent differences across county-industry pairs, statewide conditions in each quarter, and the recurring seasonal pattern of each industry, which matters in agriculture and food service. Immigrant-intensive industries are crop production, animal production, agricultural support, construction, food manufacturing, warehousing, accommodation and food service. These records come from state unemployment insurance systems and do not identify immigration status; Hispanic ethnicity and industry composition serve as indicators of exposure. Asterisks as in Table 3.

Construction is the industry shrinking most sharply of the ones we examine, with employment down 4.1 percent, separations down 4.3 percent and earnings down 1.2 percent, all precisely estimated. Crop production shows an earnings decline of 2.0 percent. Agricultural support activities, the contractor-intensive part of farm work, moves the other way, with employment up 4.1 percent.

In industries with above-median Hispanic employment, employment falls 1.9 percent, separations 2.0 percent and earnings 0.7 percent. The pattern in the rest of the economy is similar in direction and slightly smaller, which is what we would expect from a measure that cannot separate immigrant from other workers.

Figure 9: Separation Rate, Central Valley Compared with California and the United States



Source: Authors' analysis of U.S. Census Bureau Quarterly Workforce Indicators. The separation rate is the number of workers leaving jobs in a quarter as a share of quarterly employment, indexed to 100 in the first quarter of 2010 and seasonally adjusted by removing average calendar-quarter differences within each region.

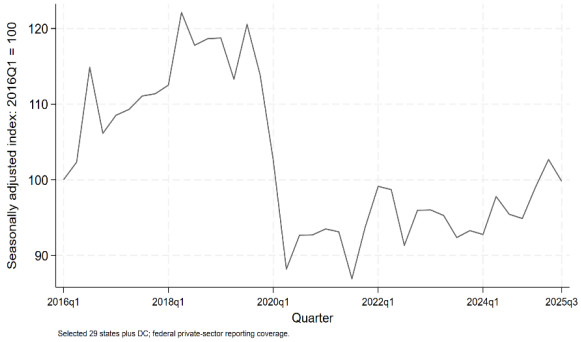
Figure 9 places the Valley in this picture. Separation rates in the Valley move broadly with the state and the nation through 2019, but are more volatile, including a sharp pre-pandemic spike. After 2022, Valley separation rates fall below the national series and roughly alongside California. Valley turnover is also more volatile quarter to quarter, reflecting the seasonal structure of agricultural employment. Our estimates account for that seasonality directly.

A falling separation rate is easy to misread. Fewer workers leaving jobs can mean steadier employment, and in a healthy labor market it usually does. Here, it arrives alongside falling employment: county employment drops 1.9 percent and separations 1.6 percent when regional arrests double. Jobs are not lasting longer. There are fewer of them to leave. The trend in Figure 9 cannot separate enforcement from the broader cooling of hiring after 2022, which is why the estimates are more informative than the descriptive series.

Workplace Injuries

Two federal systems record workplace injuries and they answer different questions.

Figure 10: Reported Severe Workplace Injuries, Federal-Coverage States



Source: Authors' analysis of Occupational Safety and Health Administration Severe Injury Reports. The series shows the quarterly count of reported severe injuries in the twenty-nine states and the District of Columbia under federal private-sector enforcement, indexed to 100 in the first quarter of 2016 and seasonally adjusted. California administers its own state plan and is not represented, so this figure cannot be used to describe Valley or California conditions.

Severe Injury Reports capture hospitalizations and amputations as they occur, but only in states where federal OSHA administers private-sector enforcement directly. California runs its own state plan, so Valley and California severe injuries are largely absent from that system and we cannot use it to describe conditions here. The Injury Tracking Application collects annual injury summaries from establishments nationwide, including California.

In the federal-coverage states, severe injury reports and hospitalizations do not change measurably when arrests double. The annual establishment records tell a more specific story.

Recorded injuries rise 6.4 percent. At the same time the rate of injuries involving days away from work falls 17.9 percent, and injuries handled through job transfer or restricted duty rise 11.1 percent. More injuries are being recorded, and fewer of them are taking workers off the job.

That combination is difficult to read as an improvement in safety. It describes injured

Table 7: Change in Reported Workplace Injuries

Outcome	Change	System
Recorded injuries	+6.4% ***	Annual
Days-away case rate	−17.9% ***	Annual
Job-transfer case rate	+11.1% **	Annual
Job-transfer cases	+9.1% ***	Annual
Days-away cases	−1.6%	Annual
Workplace deaths	−2.3%	Annual
Severe injury reports	−2.0%	Severe
Hospitalizations	−2.0%	Severe

Source: Authors' analysis of Occupational Safety and Health Administration records combined with Immigration and Customs Enforcement arrest records. "Annual" refers to the Injury Tracking Application, which collects annual establishment injury and illness summaries by county and year and covers all states including California. "Severe" refers to Severe Injury Reports, incident-level federal reports of hospitalizations, amputations and losses of an eye, measured by county and quarter; these are limited to the twenty-nine states and the District of Columbia where federal OSHA administers private-sector enforcement, and therefore exclude California. Case rates are per 100 full-time-equivalent workers. Estimates hold constant permanent differences between counties and statewide conditions in each period. Neither system records the immigration status of injured workers, and neither covers small farms well. Because these are reported injuries, a change may reflect the incidence of injury, the propensity to report it, or the way an employer records it. Asterisks as in Table 3. Full estimates appear in Appendix C.

workers who stay at work on lighter duty rather than taking time away, which is what would follow if workers cannot afford or do not risk an absence, or if employers manage injuries internally rather than through the channels that generate a lost-time record.

The industry detail is consistent. Food service shows recorded injuries up 17.1 percent and days-away cases up 27.5 percent. Crop production shows job-transfer cases down 13.5 percent and animal production shows recorded injuries down 19.0 percent, both sectors where employment itself is falling. In agricultural support activities, severe injury reports rise 3.1 percent in the states where that system operates.

Temporary Agricultural Labor

A common argument holds that enforcement moves agricultural employers toward the legal temporary workforce. The H-2A certification records allow a direct test, and the answer differs between the nation and California.

Nationally, the number of certified H-2A workers does not change measurably, and neither does H-2A employment relative to the local workforce. What changes is the ease and the price of using the program. Denial rates fall by roughly two-thirds, from 2.2 percent to about 0.7 percent, and the share of certifications in manual field occupations rises three percentage points. Certified hourly pay rates fall 1.6 percent, about seventeen cents an hour.

In California the quantity moves as well. Certified H-2A workers and requested workers both roughly double, though the California sample covers fifty-eight counties over twelve years and the estimates are correspondingly imprecise.

Table 8: Change in H-2A Certification Outcomes

Outcome	Average	Change
Panel A. All counties		
Certified workers	—	+5.7%
Certified per 1,000 workers	4.68	+0.07 (+1.5%)
Denial rate	2.2%	−1.53 pp **
Manual field share	73.9%	+3.01 pp **
Contractor share	11.9%	−0.27 pp
Certified hourly pay	$10.45	−$0.17 (−1.6%) **
Panel B. California		
Certified workers	—	+113% *
Requested workers	—	+130% *
Certified hourly pay	$10.68	−$0.41 (−3.8%)

Source: Authors' analysis of U.S. Department of Labor H-2A disclosure files combined with Immigration and Customs Enforcement arrest records, measured by county and year. Certified pay rates are the average hourly rate listed on certified applications, in nominal dollars, and are not adjusted for inflation. Estimates hold constant permanent differences between counties and statewide conditions in each year. Certifications measure employer requests approved by the Department of Labor rather than the number of workers who ultimately arrive. "pp" denotes percentage points. The California panel rests on 696 county-year observations and its estimates are imprecise. Asterisks as in Table 3. Full estimates, including counties with any farm employment, appear in Appendix D.

Taken together these results describe a legal channel that widens under enforcement pressure without becoming more expensive for employers. The decline in certified pay rates deserves separate attention, because those rates exist to protect domestic farm wages. Downward pressure on them weakens the protection for resident workers as well as for visa holders, and it moves in the same direction as the earnings losses we measure among immigrant workers already in the Valley.

What these Estimates Can and Cannot Show

Our findings differ in how firmly they are established, and the distinction matters for how they are used.

The earnings, poverty and unemployment results for immigrants are the most solid. They hold under conservative statistical procedures, and they appear consistently across two independent data sources measured at different levels of aggregation. The employment and labor force participation results are somewhat weaker. Employment holds at the 10 percent level under the conservative procedure and participation does not, so we treat the employment decline as established and the participation decline as suggestive.

The injury results are precisely estimated but require interpretation. Administrative records cannot separate a change in injuries from a change in how injuries are reported and recorded. The shift from days away from work toward restricted duty is the clearest signal in the data, and it is a signal about how injuries are handled rather than about how many occur.

All comparisons between the Central Valley, California and the nation in this report are descriptive. We have not produced causal estimates for the Valley specifically. The Valley-only samples available to us contain too few counties and too few enforcement regions to support reliable estimates, and the California-only samples are only marginally better, as the width of the California H-2A estimates shows.

Four data limitations apply throughout. No federal data source we use identifies whether a worker is authorized to work, so all comparisons are between immigrants and U.S.-born workers; because authorized immigrants are included among the exposed, our estimates understate effects concentrated among unauthorized workers. Payroll and injury records do not identify nativity at all, so Hispanic ethnicity and industry composition serve as indicators of exposure. Severe injury reporting excludes California and the other state-plan states. Finally, our data end in 2024, so the enforcement escalation of 2025 and 2026, which is larger and more concentrated than anything in our sample, lies outside the outcomes we can measure.

POLICY CONSIDERATIONS

Five considerations follow from these findings, ordered by how directly the evidence supports them.

Reach working households and workers who lose jobs. Enforcement lowers immigrant earnings by six times as much as it lowers immigrant employment, and it raises poverty among households that remain attached to the labor market. State-funded unemployment benefits for workers excluded from the regular unemployment insurance system, including undocumented workers, would address job losses. But programs that require job loss to qualify will miss much of the harm we measure. Supports that reach working households regardless of immigration status should complement unemployment benefits. The California Earned Income Tax Credit, county emergency assistance, and food and rental assistance administered without a status test are the existing instruments closest to the problem.

Prepare for local contractions, not only for individual job loss. Payroll records show county employment and separations falling together, which is the signature of a shrinking local labor market rather than of workers moving between jobs. Construction contracts most sharply. Counties facing sustained enforcement activity should expect a period of reduced hiring and lower payrolls, with consequences for local sales and property tax revenue as well as for households.

Treat the shift from lost-time to restricted-duty injuries as a warning. Recorded injuries rise while the rate of injuries involving days away from work falls sharply. Whether that reflects injured workers staying on the job or employers recording injuries differently, it means that lost-time statistics understate workplace harm in high-enforcement periods. State safety and public health agencies should validate reported injury patterns in high-exposure Valley counties against independent sources, including emergency department records, community clinic visits and worker surveys, and should treat a falling lost-time rate as a question rather than as reassurance.

Focus oversight on contractor-mediated farm labor. Agricultural services shows the largest earnings loss in the study, and agricultural support activities is the one sector where employment and severe injury reports both rise. Both findings point at the same institutional arrangement. Farm labor contractor licensing, bonding and joint liability enforcement is where the Valley's exposure is concentrated. Joint liability matters in particular, because it is what prevents an enforcement shock absorbed by a contractor from leaving workers with no solvent party to pursue for unpaid wages.

Protect H-2A wage standards as the program expands. Certified H-2A pay rates fall as enforcement rises, denial rates fall by two-thirds, and California certifications more than double. The program is becoming easier to use and cheaper per worker at the same time. Because certified rates exist to protect domestic farm wages, downward pressure on them weakens protections for resident workers as well as for visa holders. State and federal wage authorities have standing to examine whether certified rates in high-exposure counties track prevailing wages accurately, and whether the wage survey process that sets them is keeping pace with conditions on the ground.

ENDNOTES

1 One region required harmonization. Harlingen was created in 2022 out of counties previously belonging to San Antonio and Houston. Treating it as a separate region implies it had zero enforcement before 2022. Instead, we allocate Harlingen arrests back to San Antonio and Houston in proportion to the counties each contributed, helping preserve the arrest totals and the geographic variation. We also exclude the HQ label because it is an administrative, non-local designation rather than a field-office enforcement geography. The empirical analysis is therefore based on 24 local ICE AORs that can be linked consistently to counties and PUMAs.

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APPENDIX A. INDIVIDUAL WORKER OUTCOMES, FULL ESTIMATES

Outcome	Average	Estimate (s.e.)	Obs.
Panel: Immigrants			
Employment rate	0.7316	−0.0106*** (0.0032)	3.13M
Labor force participation	0.7718	−0.0062** (0.0030)	3.13M
Unemployment rate	0.0401	+0.0044*** (0.0014)	3.13M
Usual hours worked	39.1448	+0.0434 (0.1004)	2.43M
Annual wage income (log)	7.5930	−0.0909*** (0.0143)	3.13M
Poverty rate	0.1354	+0.0139*** (0.0036)	3.13M
Panel: U.S.-born white			
Employment rate	0.7390	−0.0002 (0.0022)	13.00M
Labor force participation	0.7758	+0.0009 (0.0014)	13.00M
Unemployment rate	0.0368	+0.0011 (0.0015)	13.00M
Usual hours worked	39.1884	−0.1701** (0.0631)	10.34M
Annual wage income (log)	8.0117	−0.0419 (0.0264)	13.00M
Poverty rate	0.0846	+0.0035 (0.0024)	13.00M
Panel: Immigrants, already working			
Unemployed, in labor force	0.0520	+0.0068*** (0.0017)	2.41M
Hours, employed only	39.5691	+0.0289 (0.0977)	2.28M
Hours, wage and salary	39.6065	+0.0942 (0.0553)	2.00M
Wage income, earners (log)	10.6329	−0.0138 (0.0104)	2.00M
Panel: U.S.-born white, already working			
Unemployed, in labor force	0.0474	+0.0015 (0.0019)	10.02M

Outcome	Average	Estimate (s.e.)	Obs.
Hours, employed only	39.9362	−0.1643*** (0.0521)	9.57M
Hours, wage and salary	39.8803	−0.1370* (0.0674)	8.60M
Wage income, earners (log)	10.7195	−0.0250*** (0.0062)	8.60M

Source: Authors' analysis of American Community Survey one-year microdata (2012–2024, excluding 2015 and 2020) combined with Immigration and Customs Enforcement arrest records. All models include community fixed effects, state-by-year fixed effects, and controls for age, age squared, sex, years of education, marital status, race and ethnicity, and years since migration. Estimates are coefficients on the logarithm of regional arrests, with standard errors in parentheses, clustered at the level of the enforcement region. Asterisks denote statistical significance: *** at 1 percent, ** at 5 percent, * at 10 percent.

APPENDIX B. PAYROLL OUTCOMES BY INDUSTRY, FULL ESTIMATES

Outcome	Average	Estimate (s.e.)
Panel: All industries		
Employment	4.9448	−0.0277* (0.0151)
Separations	3.5025	−0.0238*** (0.0048)
Monthly earnings	8.2575	−0.0100*** (0.0015)
Separation rate	0.1987	−0.0084 (0.0076)
Hiring rate	0.2177	−0.0045 (0.0068)
New-hire rate	0.1815	−0.0056 (0.0070)
Panel: Immigrant-intensive		
Employment	5.0846	−0.0210 (0.0132)
Separations	3.8554	−0.0196*** (0.0039)
Monthly earnings	8.1933	−0.0124*** (0.0043)
Separation rate	0.2712	+0.0017 (0.0047)
Hiring rate	0.3019	−0.0024 (0.0048)
New-hire rate	0.2437	−0.0034 (0.0048)
Panel: High-Hispanic industries		
Employment	4.9488	−0.0281* (0.0156)
Separations	3.5736	−0.0288*** (0.0053)
Monthly earnings	8.1318	−0.0102*** (0.0015)
Separation rate	0.2168	+0.0015 (0.0030)
Hiring rate	0.2348	+0.0047 (0.0042)
New-hire rate	0.1983	+0.0049 (0.0039)
Panel: Low-Hispanic industries		
Employment	4.9400	−0.0272* (0.0145)
Separations	3.4126	−0.0182*** (0.0048)
Monthly earnings	8.3936	−0.0097*** (0.0020)
Separation rate	0.1766	−0.0197 (0.0152)
Hiring rate	0.1967	−0.0149 (0.0128)
New-hire rate	0.1611	−0.0176 (0.0138)
Panel: Crop production		
Employment	4.2328	+0.0030 (0.0145)
Separations	3.1366	−0.0115 (0.0453)
Monthly earnings	8.0937	−0.0289** (0.0115)
Separation rate	0.3301	−0.0051 (0.0086)
Hiring rate	0.3867	−0.0148 (0.0111)
New-hire rate	0.2627	−0.0160* (0.0080)

Outcome	Average	Estimate (s.e.)
Panel: Animal production		
Employment	4.0524	−0.0179 (0.0121)
Separations	2.5955	+0.0486** (0.0219)
Monthly earnings	8.1387	−0.0101 (0.0185)
Separation rate	0.1965	−0.0115 (0.0141)
Hiring rate	0.2133	−0.0151 (0.0159)
New-hire rate	0.1755	−0.0157 (0.0156)
Panel: Agricultural support		
Employment	3.6453	+0.0583*** (0.0147)
Separations	2.8233	+0.0907 (0.0694)
Monthly earnings	8.2144	−0.0240 (0.0313)
Separation rate	0.4173	+0.0617 (0.0369)
Hiring rate	0.4905	+0.0440 (0.0289)
New-hire rate	0.3478	+0.0438* (0.0238)
Panel: Construction		
Employment	5.1118	−0.0602*** (0.0190)
Separations	3.7796	−0.0635*** (0.0124)
Monthly earnings	8.4625	−0.0169** (0.0076)
Separation rate	0.2511	−0.0047 (0.0047)
Hiring rate	0.2812	−0.0076 (0.0076)
New-hire rate	0.2303	−0.0089 (0.0077)
Panel: Food manufacturing		
Employment	5.6740	+0.0048 (0.0271)
Separations	3.9386	−0.0066 (0.0351)
Monthly earnings	8.2192	+0.0063 (0.0049)
Separation rate	0.1848	+0.0012 (0.0053)
Hiring rate	0.2048	−0.0043 (0.0059)
New-hire rate	0.1750	+0.0017 (0.0047)
Panel: Warehousing		
Employment	5.6118	+0.0087 (0.0446)
Separations	4.0528	−0.0516 (0.0328)
Monthly earnings	8.3724	+0.0010 (0.0145)
Separation rate	0.1746	−0.0066 (0.0046)
Hiring rate	0.2060	−0.0108* (0.0054)
New-hire rate	0.1834	−0.0140* (0.0071)
Panel: Food service		
Employment	6.4753	−0.0039 (0.0126)

Outcome	Average	Estimate (s.e.)
Separations	5.3797	+0.0011 (0.0067)
Monthly earnings	7.4106	+0.0001 (0.0033)
Separation rate	0.3420	+0.0028 (0.0043)
Hiring rate	0.3530	+0.0060 (0.0054)
New-hire rate	0.3149	+0.0058 (0.0039)

Source: Authors' analysis of U.S. Census Bureau Quarterly Workforce Indicators, county by quarter by industry, 2012–2024, combined with Immigration and Customs Enforcement arrest records. All models include county-by-industry fixed effects, state-by-quarter fixed effects and industry-by-calendar-quarter fixed effects. Employment, separations and earnings are measured in logarithms; the three rates are measured in levels. Estimates are coefficients on the logarithm of regional arrests, with standard errors in parentheses, clustered at the level of the enforcement region. Asterisks denote statistical significance: *** at 1 percent, ** at 5 percent, * at 10 percent.

APPENDIX C. WORKPLACE INJURIES BY INDUSTRY, FULL ESTIMATES

Outcome	System	Estimate (s.e.)
Panel: Crop production		
Severe injury reports	Severe	−0.0062 (0.0096)
Hospitalizations	Severe	−0.0024 (0.0066)
Panel: Animal production		
Severe injury reports	Severe	+0.0029 (0.0194)
Hospitalizations	Severe	+0.0196 (0.0225)
Panel: Agricultural support		
Severe injury reports	Severe	+0.0439*** (0.0102)
Hospitalizations	Severe	+0.0552*** (0.0104)
Panel: Construction		
Severe injury reports	Severe	−0.0055 (0.0050)
Hospitalizations	Severe	−0.0043 (0.0044)
Panel: Food manufacturing		
Severe injury reports	Severe	+0.0053 (0.0146)
Hospitalizations	Severe	+0.0006 (0.0040)
Panel: Warehousing		
Severe injury reports	Severe	−0.0109*** (0.0034)
Hospitalizations	Severe	−0.0104** (0.0035)
Panel: Food service		
Severe injury reports	Severe	−0.0082 (0.0108)
Hospitalizations	Severe	−0.0029 (0.0121)
Panel: Crop production		
Recorded injuries	Annual	−0.0419 (0.1151)
Days-away cases	Annual	−0.0903 (0.1865)
Job-transfer cases	Annual	−0.2094** (0.0813)
Panel: Animal production		
Recorded injuries	Annual	−0.3035*** (0.0834)
Days-away cases	Annual	−0.4815** (0.1841)
Job-transfer cases	Annual	−0.1999* (0.1017)
Panel: Agricultural support		
Recorded injuries	Annual	+0.1556 (0.1366)
Days-away cases	Annual	−0.0725 (0.2052)
Job-transfer cases	Annual	−0.0544 (0.0422)
Panel: Construction		
Recorded injuries	Annual	−0.0357 (0.0315)

Outcome	System	Estimate (s.e.)
Days-away cases	Annual	+0.0051 (0.0261)
Job-transfer cases	Annual	+0.0472 (0.0349)
Panel: Food manufacturing		
Recorded injuries	Annual	−0.0612 (0.1116)
Days-away cases	Annual	−0.0789 (0.1250)
Job-transfer cases	Annual	+0.0726 (0.0995)
Panel: Warehousing		
Recorded injuries	Annual	−0.0562 (0.1323)
Days-away cases	Annual	−0.0615 (0.1110)
Job-transfer cases	Annual	+0.1015 (0.0840)
Panel: Food service		
Recorded injuries	Annual	+0.2280** (0.0859)
Days-away cases	Annual	+0.3503*** (0.0527)
Job-transfer cases	Annual	+0.0686 (0.0516)

Source: Authors' analysis of Occupational Safety and Health Administration records combined with Immigration and Customs Enforcement arrest records. "Severe" denotes Severe Injury Reports, measured by county and quarter and limited to the states where federal OSHA administers private-sector enforcement, which excludes California. "Annual" denotes Injury Tracking Application establishment summaries, measured by county and year and covering all states. All models include county fixed effects and state-by-period fixed effects. Estimates are coefficients on the logarithm of regional arrests, with standard errors in parentheses, clustered at the level of the enforcement region. Asterisks denote statistical significance: *** at 1 percent, ** at 5 percent, * at 10 percent.

APPENDIX D. H-2A CERTIFICATION OUTCOMES, FULL ESTIMATES

Outcome	Average	Estimate (s.e.)	Obs.
Panel: All counties			
Certified workers (log)	1.7127	+0.0793 (0.0924)	37,673
Requested workers (log)	1.5130	−0.0166 (0.1311)	37,673
Certified per 1,000 workers	4.6794	+0.0996 (0.3907)	37,645
Requested per 1,000 workers	4.2914	+0.1815 (0.4273)	37,645
Denial rate	0.0219	−0.0220** (0.0101)	19,761
Denied worker share	0.0194	−0.0317** (0.0122)	17,294
Manual field share	0.7392	+0.0434** (0.0158)	19,520
Contractor share	0.1186	−0.0039 (0.0063)	17,284
Certified hourly pay rate	10.4495	−0.2443** (0.1082)	19,600
Contract length (days)	227.8269	+5.4503 (6.0338)	19,600
Weekly hours	43.3635	+0.1880 (0.2927)	19,360
Panel: Farm counties			
Certified workers (log)	1.8573	+0.0786 (0.0920)	33,960
Requested workers (log)	1.6382	−0.0365 (0.1241)	33,960
Certified per 1,000 workers	5.1024	+0.1126 (0.3580)	33,960
Requested per 1,000 workers	4.6742	+0.1894 (0.3951)	33,960
Denial rate	0.0216	−0.0256** (0.0093)	19,230
Denied worker share	0.0190	−0.0375*** (0.0117)	16,795
Manual field share	0.7354	+0.0392*** (0.0122)	19,002

Outcome	Average	Estimate (s.e.)	Obs.
Contractor share	0.1190	−0.0039 (0.0069)	16,788
Certified hourly pay rate	10.4731	−0.2427* (0.1248)	19,079
Contract length (days)	227.6219	+4.7575 (6.1495)	19,079
Weekly hours	43.3956	+0.1370 (0.3166)	18,845
Panel: California			
Certified workers (log)	2.8319	+1.0931* (0.2939)	696
Requested workers (log)	2.5121	+1.1989* (0.3392)	696
Certified per 1,000 workers	5.1361	−0.5362 (3.3899)	696
Requested per 1,000 workers	4.7049	−0.7935 (3.6477)	696
Denial rate	0.0465	−0.0839 (0.0394)	519
Denied worker share	0.0326	−0.1002 (0.0583)	445
Manual field share	0.9588	−0.0366** (0.0043)	511
Contractor share	0.2242	+0.0199 (0.0277)	446
Certified hourly pay rate	10.6791	−0.5875 (0.7622)	513
Contract length (days)	232.4286	+32.0706 (41.1541)	513
Weekly hours	43.2225	−0.3522 (0.7234)	483

Source: Authors' analysis of U.S. Department of Labor H-2A disclosure files, county by year, combined with Immigration and Customs Enforcement arrest records. All models include county fixed effects and state-by-year fixed effects. Farm counties are those with any recorded farm employment. Estimates are coefficients on the logarithm of regional arrests, with standard errors in parentheses, clustered at the level of the enforcement region. Asterisks denote statistical significance: *** at 1 percent, ** at 5 percent, * at 10 percent.

APPENDIX E. Suggested Directions for Future Research

Four extensions would strengthen the evidence base for the Central Valley specifically.

First, and most important, estimates for California and the Valley itself. Every causal estimate in this report is national. Valley-specific estimates require either additional years of data or a comparison group drawn from agricultural regions in other states with similar production and different enforcement histories.

Second, the 2025 and 2026 escalation falls outside the period covered here due to data availability. Extending the arrest series and the survey data through the most recent available year would speak directly to current conditions. It would also allow us to test whether enforcement concentrated in short, visible operations produces larger effects than the diffuse activity we measure.

Third, a validation study pairing federal injury records with independent measures of workplace harm in a set of Valley counties would resolve the interpretation of the injury findings, which is the largest open question in this report.

Fourth, a longer-horizon analysis of H-2A use would establish whether the California expansion we observe persists, and whether the composition of certified work shifts further toward contractor-mediated crews.

Research report prepared by Catalina Amuedo-Dorantes, University of California Merced; Chunbei Wang, Virginia Tech.

MISSION STATEMENT

The UC Merced Community and Labor Center conducts research and education on issues of community, labor and the environment, in the San Joaquin Valley and beyond.