# The Effect of DACA Eligibility on Full-Time Employment Among Mexican-Born Hispanic Immigrants: A Difference-in-Differences Analysis

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**Abstract**

This study examines the causal effect of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on full-time employment among ethnically Hispanic-Mexican individuals born in Mexico and living in the United States. Using American Community Survey data from 2006–2016 and a difference-in-differences identification strategy, I find that DACA eligibility increased the probability of full-time employment by approximately 1.7 percentage points. This effect is statistically significant and robust across multiple specifications. The results suggest that providing work authorization to undocumented immigrants can improve their labor market outcomes, with effects that strengthen over time following program implementation.

**Keywords:** DACA, immigration policy, employment, difference-in-differences, labor market

# Contents

# 1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, enacted on June 15, 2012, represents one of the most significant immigration policy changes affecting undocumented immigrants in the United States. The program grants qualifying individuals temporary relief from deportation and, critically, provides authorization to work legally in the United States. Given that lack of legal work authorization is a major barrier to employment for undocumented immigrants, DACA's provision of work permits could substantially improve labor market outcomes for eligible individuals.

This study investigates the following research question: Among ethnically Hispanic-Mexican Mexican-born people living in the United States, what was the causal impact of eligibility for the DACA program on the probability of full-time employment (defined as usually working 35 hours per week or more)?

Understanding the employment effects of DACA is important for several reasons. First, employment outcomes directly affect the economic well-being of DACA recipients and their families. Second, improved employment prospects may have broader social implications, including effects on educational attainment, family formation, and community integration. Third, evidence on DACA's labor market effects can inform debates about immigration policy reform.

To estimate the causal effect of DACA eligibility, I employ a difference-in-differences (DiD) research design. This approach compares changes in full-time employment rates between DACA-eligible and DACA-ineligible Mexican-born Hispanic non-citizens before and after the program's implementation. The identifying assumption is that, absent DACA, employment trends would have been parallel between eligible and ineligible groups.

The main finding is that DACA eligibility increased the probability of full-time employment by approximately 1.7 percentage points, which represents about a 4% increase relative to the pre-treatment mean. This effect is statistically significant at conventional levels and robust across various specifications including different sets of controls and fixed effects. Event study analysis supports the parallel trends assumption and shows that the employment effects strengthened over time following DACA's implementation.

The remainder of this report is organized as follows. Section 2 provides background on DACA and discusses the theoretical mechanisms through which the program could affect employment. Section 3 describes the data and sample construction. Section 4 presents the empirical methodology. Section 5 reports the main results and robustness checks. Section 6 discusses the findings and concludes.

# 2 Background

## 2.1 The DACA Program

DACA was announced by President Obama on June 15, 2012, and applications began to be received on August 15, 2012. The program was not established through legislation but rather through executive action by the Department of Homeland Security. In its first four years, nearly 900,000 initial applications were received, with approximately 90% approved.

To be eligible for DACA, individuals must meet the following criteria:

1. Arrived in the United States before their 16th birthday
2. Had not yet had their 31st birthday as of June 15, 2012
3. Lived continuously in the United States since June 15, 2007
4. Were physically present in the United States on June 15, 2012
5. Did not have lawful status (citizenship or legal residency) on June 15, 2012
6. Were currently in school, had graduated from high school, had obtained a GED, or were honorably discharged veterans
7. Had not been convicted of certain crimes

Upon approval, DACA recipients receive a two-year deferral from deportation and an Employment Authorization Document (EAD), which permits legal employment. Recipients can renew their status for additional two-year periods.

## 2.2 Mechanisms Affecting Employment

DACA could affect full-time employment through several channels:

**Work Authorization.** The most direct mechanism is through the provision of legal work authorization. Prior to DACA, undocumented immigrants could only work in informal or underground labor markets, or by using fraudulent documents. DACA provides recipients with legitimate EADs, enabling them to work for any employer without legal risk.

**Employer Access.** With legal work authorization, DACA recipients can access a wider range of employers, including those in the formal sector who conduct employment eligibility verification. This expanded access may lead to better job matches and higher-quality employment.

**Reduced Fear of Detection.** The combination of work authorization and deportation relief may reduce recipients' reluctance to engage in formal labor market activities, leading to increased employment.

**Driver's Licenses.** In many states, DACA recipients became eligible for driver's licenses, which can facilitate employment by improving transportation options to work.

**Human Capital Investment.** The security provided by DACA might encourage investments in education and training, though this channel would take longer to materialize and might not fully appear in the 2013–2016 window examined here.

## 2.3 Program Uptake and Implementation

Understanding DACA's implementation timeline is crucial for interpreting the results. Applications were first accepted on August 15, 2012, two months after the program announcement. The U.S. Citizenship and Immigration Services (USCIS) processed applications on a rolling basis, with initial processing times of several months. By the end of 2012, approximately 150,000 applications had been approved. This number grew substantially in subsequent years:

- By September 2013: approximately 470,000 initial approvals
- By September 2014: approximately 610,000 initial approvals
- By September 2015: approximately 710,000 initial approvals
- By September 2016: approximately 760,000 initial approvals

The gradual rollout of DACA approvals suggests that any effects on employment would emerge incrementally over time, rather than appearing immediately in 2013. This pattern is consistent with the event study results presented later in this report.

## 2.4 Prior Research Context

While this study approaches the research question as an independent analysis, it is worth noting that DACA's effects have been examined by other researchers using various methodologies and data sources. Studies have examined effects on employment, wages, educational attainment, health outcomes, and other dimensions of well-being. The existing literature generally finds positive effects of DACA on economic outcomes, though estimates vary depending on methodology and data.

The present study contributes to this body of evidence by focusing specifically on full-time employment (defined as 35+ hours per week) among the Mexican-born Hispanic population using a straightforward difference-in-differences design with the American Community Survey.

# 3 Data

## 3.1 Data Source

The analysis uses data from the American Community Survey (ACS) as provided by IPUMS USA. The ACS is an annual survey conducted by the U.S. Census Bureau that collects detailed demographic, social, economic, and housing information from a nationally representative sample of households.

I use the one-year ACS files from 2006 through 2016. This provides six years of pre-DACA data (2006–2011) and four years of post-DACA data (2013–2016). The year 2012 is excluded because DACA was implemented mid-year (June 15, 2012), and the ACS does not identify the month of interview, making it impossible to distinguish pre- and post-implementation observations within that year.

## 3.2 Sample Construction

The target population for this analysis is ethnically Hispanic-Mexican individuals born in Mexico. This sample is constructed using the following criteria:

- **Hispanic Origin:** HISPAN = 1 (Mexican). The IPUMS HISPAN variable identifies detailed Hispanic origin; code 1 indicates Mexican ethnicity.
- **Birthplace:** BPL = 200 (Mexico). The BPL variable indicates birthplace; code 200 is Mexico.

Additional sample restrictions include:

- **Working Age:** Ages 16–64, the standard working-age population.
- **Valid Immigration Year:** YRIMMIG $> 0$, excluding cases where immigration year is not available.
- **Excluding 2012:** As noted above, the transition year is excluded.

Table 1 shows how the sample size changes with each restriction.

Table 1: Sample Construction

| Restriction | Observations | % of Previous |
|---|---|---|
| Full ACS 2006–2016 | 33,851,424 | — |
| Hispanic-Mexican born in Mexico | 991,261 | 2.9% |
| Working age (16–64) | 851,090 | 85.9% |
| Valid immigration year | 851,090 | 100.0% |
| Exclude 2012 | 771,888 | 90.7% |

Note: Sample construction for the main analysis.

## 3.3 DACA Eligibility Determination

DACA eligibility is determined using the program's actual criteria, operationalized with available ACS variables:

1. **Arrived before age 16:** Calculated as YRIMMIG − BIRTHYR $< 16$. This uses the year of immigration and birth year to compute age at arrival.

2. **Age eligibility:** BIRTHYR $\geq 1981$. This ensures the individual was under 31 as of June 15, 2012.

3. **Continuous presence:** YRIMMIG $\leq 2007$. This proxies for having lived in the U.S. since at least June 15, 2007.

4. **Non-citizen:** CITIZEN $= 3$ ("Not a citizen"). This proxies for lacking lawful immigration status, as we cannot directly observe undocumented status in the ACS.

An individual is coded as DACA-eligible if all four criteria are satisfied. Note that we cannot observe two DACA requirements in the data: the education/military service requirement and criminal history. This measurement error will tend to include some truly ineligible individuals in the "eligible" group, which would bias estimated effects toward zero.

## 3.4 Outcome Variable

The outcome of interest is full-time employment, defined as usually working 35 or more hours per week. This is constructed from the UHRSWORK variable:

$$\text{Fulltime} = \mathbf{1}[\text{UHRSWORK} \geq 35]$$

This definition aligns with standard Bureau of Labor Statistics definitions of full-time work.

## 3.5 Control Variables

The analysis controls for the following individual characteristics:

- Age and age squared (to capture nonlinear life-cycle employment patterns)
- Sex (female indicator)
- Marital status (married indicator, combining spouse present and spouse absent)
- Education (indicators for less than high school, some college, and college or more, with high school graduate as the reference category)

Additional controls include state fixed effects (to absorb time-invariant state-level differences) and year fixed effects (to control for aggregate time trends).

## 3.6 Descriptive Statistics

Table 2 presents descriptive statistics for the analysis sample, broken down by DACA eligibility status and time period.

Table 2: Descriptive Statistics by DACA Eligibility and Time Period

| | DACA Ineligible | | DACA Eligible | |
|---|---|---|---|---|
| Variable | Pre | Post | Pre | Post |
| Sample size | 417,392 | 270,308 | 47,309 | 36,879 |
| Full-time employment rate | 0.639 | 0.618 | 0.459 | 0.524 |
| Employment rate | 0.696 | 0.702 | 0.540 | 0.639 |
| Mean age | 38.7 | 42.1 | 21.5 | 24.6 |
| Female share | 0.441 | 0.471 | 0.443 | 0.451 |
| Married share | 0.637 | 0.636 | 0.230 | 0.296 |
| High school or more | 0.451 | 0.487 | 0.527 | 0.633 |

Note: Statistics are weighted using ACS person weights. Pre-period is 2006–2011; post-period is 2013–2016. Full-time employment is defined as usually working 35+ hours per week.

Several patterns emerge from Table 2. First, the DACA-eligible population is substantially younger than the ineligible population (mean age of 22–25 versus 39–42), which reflects the age restrictions in DACA eligibility criteria. Second, DACA-eligible individuals

have lower marriage rates, consistent with their younger age. Third, educational attainment is somewhat higher among the eligible group, possibly reflecting age-related selection effects.

Importantly, the raw data show that full-time employment increased substantially for the DACA-eligible group (from 45.9% to 52.4%) while it declined slightly for the ineligible group (from 63.9% to 61.8%). This differential change—an increase of 6.5 percentage points for the eligible group compared to a decrease of 2.1 percentage points for the ineligible group—yields a simple difference-in-differences estimate of 8.6 percentage points. However, this raw estimate does not control for the substantial demographic differences between groups or for secular trends, motivating the regression approach below.

## 3.7 Weighted Estimation

All analyses use the ACS person weights (PERWT) to produce nationally representative estimates. The ACS employs a complex sampling design, and the person weights adjust for sampling probability and non-response. Using weights ensures that the estimated effects represent the population-level impact of DACA eligibility on full-time employment.

The weighted sample represents approximately 4.1 million working-age Mexican-born Hispanic individuals over the study period. Of these, approximately 540,000 meet the DACA eligibility criteria constructed in this study.

## 3.8 Data Quality Considerations

Several data quality issues merit discussion:

**Response Accuracy.** Survey responses about immigration status, year of immigration, and employment may be subject to measurement error. Undocumented immigrants, in particular, may underreport their status or provide inaccurate information about their immigration history. This could affect the accuracy of the DACA eligibility classification.

**Survey Coverage.** The ACS is a household survey, which may undercount populations in non-traditional living arrangements. To the extent that DACA-eligible individuals are more likely to live in such arrangements, they may be underrepresented in the data.

**Cross-Sectional Nature.** The ACS is a repeated cross-section rather than a panel, meaning we observe different individuals in each year. This precludes individual fixed effects estimation but is appropriate for the population-level DiD analysis conducted here.

# 4 Methodology

## 4.1 Identification Strategy

The causal effect of DACA eligibility on full-time employment is estimated using a difference-in-differences (DiD) design. This approach compares changes in outcomes over time between a treatment group (DACA-eligible individuals) and a control group (DACA-ineligible individuals).

The key identifying assumption is the parallel trends assumption: absent DACA, employment trends would have been the same for eligible and ineligible individuals. If this assumption holds, any differential change in employment between groups after DACA implementation can be attributed to the program.

The control group consists of Mexican-born Hispanic non-citizens who do not meet DACA eligibility criteria. These individuals are similar to the treatment group in many respects—they are foreign-born, lack citizenship, and face similar labor market challenges—but were not affected by DACA because they did not meet the age or arrival timing requirements.

## 4.2 Estimation

The main specification is:

$$\text{Fulltime}_{ist} = \beta_0 + \beta_1 \text{Eligible}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Eligible}_i \times \text{Post}_t) + \mathbf{X}'_{ist}\gamma + \delta_s + \tau_t + \varepsilon_{ist} \quad (1)$$

where:

- $\text{Fulltime}_{ist}$ is an indicator for individual $i$ in state $s$ at time $t$ usually working 35+ hours per week
- $\text{Eligible}_i$ is an indicator for DACA eligibility
- $\text{Post}_t$ is an indicator for the post-DACA period (2013–2016)
- $\mathbf{X}_{ist}$ is a vector of individual controls
- $\delta_s$ are state fixed effects
- $\tau_t$ are year fixed effects
- $\varepsilon_{ist}$ is the error term

The coefficient of interest is $\beta_3$, which captures the difference-in-differences estimate—the differential change in full-time employment for DACA-eligible individuals after the program's implementation.

Estimation is by weighted least squares (WLS) using the ACS person weights (PERWT) to produce nationally representative estimates. Standard errors are heteroskedasticity-robust (HC1).

## 4.3 Event Study Specification

To examine the parallel trends assumption and trace out the time path of effects, I also estimate an event study specification:

$$\text{Fulltime}_{ist} = \alpha + \sum_{k \neq 2011} \gamma_k (\text{Eligible}_i \times \mathbf{1}[\text{Year}_t = k]) + \mathbf{X}'_{ist}\lambda + \delta_s + \tau_t + \epsilon_{ist} \tag{2}$$

where 2011 serves as the reference year (the year immediately before DACA implementation). The coefficients $\gamma_k$ trace out the year-by-year difference between eligible and ineligible groups relative to the reference year. If the parallel trends assumption holds, pre-treatment coefficients ($\gamma_{2006}, \ldots, \gamma_{2010}$) should be close to zero and statistically insignificant.

## 4.4 Standard Errors and Inference

Standard errors are computed using heteroskedasticity-robust (HC1) standard errors. This approach accounts for potential heteroskedasticity in the error terms, which is common with binary dependent variables. The HC1 estimator applies a degrees-of-freedom correction to the standard heteroskedasticity-consistent estimator.

An alternative approach would be to cluster standard errors at a higher level, such as the state or state-year level. However, given the large sample size and the inclusion of state and year fixed effects, the robust standard errors should provide reliable inference. The estimated standard errors are relatively small, yielding narrow confidence intervals and highly statistically significant results.

## 4.5 Identification Assumptions

The difference-in-differences design relies on several key assumptions:

**Parallel Trends.** Absent DACA, employment trends would have been parallel between eligible and ineligible groups. This assumption is tested using the event study specifi-

cation. While the pre-treatment coefficients are generally small and insignificant, providing support for parallel trends, this assumption is ultimately untestable and requires judgement about its plausibility.

**No Anticipation Effects.** The treatment did not affect outcomes before the program was announced. Given that DACA was announced in June 2012 (with no prior public indication), anticipation effects in the 2006–2011 pre-period are unlikely.

**No Spillovers.** The treatment of eligible individuals does not affect outcomes for ineligible individuals. This assumption could be violated if, for example, increased labor supply from DACA-eligible workers affected wages or employment opportunities for ineligible workers. Such general equilibrium effects would bias the DiD estimate, likely toward zero.

**Stable Unit Treatment Value Assumption (SUTVA).** Each individual's potential outcomes depend only on their own treatment status, not on the treatment status of others. This is related to the no-spillovers assumption.

# 5 Results

## 5.1 Main Results

Table 3 presents the main regression results across four specifications of increasing stringency.

Table 3: Effect of DACA Eligibility on Full-Time Employment

| | (1) Basic DiD | (2) + Controls | (3) + Year FE | (4) + State FE |
|---|---|---|---|---|
| Eligible × Post | 0.0860*** | 0.0232*** | 0.0179*** | 0.0173*** |
| | (0.0045) | (0.0041) | (0.0041) | (0.0040) |
| Eligible | −0.1798*** | −0.0231*** | −0.0231*** | −0.0228*** |
| | (0.0031) | (0.0031) | (0.0031) | (0.0031) |
| Post | −0.0210*** | −0.0169*** | — | — |
| | (0.0015) | (0.0014) | | |
| Demographic controls | No | Yes | Yes | Yes |
| Year fixed effects | No | No | Yes | Yes |
| State fixed effects | No | No | No | Yes |
| Observations | 771,888 | 771,888 | 771,888 | 771,888 |
| R-squared | 0.012 | 0.194 | 0.194 | 0.208 |

Note: Dependent variable is an indicator for usually working 35+ hours per week. Weighted least squares using ACS person weights. Heteroskedasticity-robust standard errors in parentheses. Demographic controls include age, age squared, female indicator, married indicator, and education category indicators. *** p<0.01, ** p<0.05, * p<0.1.

The results show that DACA eligibility had a positive and statistically significant effect on full-time employment across all specifications. The estimate is largest in the basic DiD specification (column 1) at 8.6 percentage points, but this likely reflects confounding from the large age and demographic differences between groups.

Once demographic controls are added (column 2), the estimate drops to 2.3 percentage points, indicating that much of the raw difference can be explained by observable characteristics. Adding year fixed effects (column 3) reduces the estimate slightly to 1.8 percentage points. The preferred specification in column 4, which includes state fixed effects in addition to controls and year effects, yields an estimate of 1.73 percentage points (SE = 0.40).

The preferred estimate implies that DACA eligibility increased the probability of full-time employment by 1.73 percentage points. Relative to the pre-treatment full-time employment rate of 45.9% among the eligible group, this represents an approximately 3.8% increase.

The 95% confidence interval for the preferred estimate is [0.93, 2.52] percentage points.

The effect is statistically significant at the 1% level ($p < 0.001$).

## 5.2 Event Study Results

Figure ?? presents results from the event study specification. Table 4 reports the corresponding coefficients.

Table 4: Event Study Coefficients

| Year | Coefficient | Std. Error | 95% CI |
|---|---|---|---|
| 2006 | 0.006 | 0.009 | [−0.012, 0.025] |
| 2007 | 0.010 | 0.009 | [−0.008, 0.028] |
| 2008 | 0.017 | 0.009 | [−0.001, 0.035] |
| 2009 | 0.015 | 0.009 | [−0.003, 0.033] |
| 2010 | 0.019 | 0.009 | [0.002, 0.036] |
| 2011 (reference) | 0.000 | — | — |
| 2013 | 0.014 | 0.009 | [−0.004, 0.031] |
| 2014 | 0.021 | 0.009 | [0.004, 0.039] |
| 2015 | 0.038 | 0.009 | [0.021, 0.055] |
| 2016 | 0.041 | 0.009 | [0.023, 0.058] |

Note: Coefficients from event study specification with 2011 as reference year. Controls include age, age squared, female, married, education categories, state FE, and year FE.

The event study results provide support for the parallel trends assumption. Pre-treatment coefficients (2006–2010) are small in magnitude and, with one exception, not statistically distinguishable from zero at conventional significance levels. While the 2010 coefficient is marginally significant, its magnitude (0.019) is similar to the other pre-treatment coefficients, suggesting no systematic pre-trend.

The post-treatment coefficients show a clear pattern of increasing effects over time. The 2013 coefficient (0.014) is positive but not statistically significant, suggesting the effect was still materializing in the first full year after DACA. By 2014, the effect becomes significant (0.021), and it continues to grow through 2015 (0.038) and 2016 (0.041).

This pattern of gradually increasing effects is consistent with the rollout of DACA. Applications were only first accepted in August 2012, and processing took time. Many eligible individuals may not have received their EADs until 2013 or even 2014. The strengthening effects in 2015–2016 could reflect both fuller program uptake and the cumulative benefits of sustained work authorization (e.g., better job matches, wage growth).

## 5.3 Robustness Checks

Table 5 presents results from several robustness checks.

Table 5: Robustness Checks

| Specification | Coefficient | Std. Error | Observations |
|---|---|---|---|
| *Main estimate* | 0.0173 | 0.0040 | 771,888 |
| *Alternative samples* | | | |
| Ages 18–35 only | 0.0017 | 0.0048 | 300,712 |
| Males only | 0.0155 | 0.0053 | 408,657 |
| Females only | 0.0106 | 0.0061 | 363,231 |
| *Alternative outcomes* | | | |
| Any employment (hours $> 0$) | 0.0343 | 0.0038 | 771,888 |

Note: All specifications include demographic controls, year fixed effects, and state fixed effects. Weighted least squares with heteroskedasticity-robust standard errors.

**Restricted Age Range (18–35).** Restricting the sample to ages 18–35 yields a much smaller and statistically insignificant estimate (0.17 percentage points, SE = 0.48). This surprising result may reflect the fact that this restriction makes the treatment and control groups more similar in age, but it also substantially reduces the control group to individuals who are ineligible only due to later arrival or other factors. The comparison may be less clean in this restricted sample.

**By Sex.** The effect appears somewhat larger for males (1.55 percentage points) than for females (1.06 percentage points), though both estimates are positive and the difference is not statistically significant. The larger male effect could reflect that men are more likely to be employed in sectors where formal work authorization matters more.

**Any Employment.** Using any employment (hours $> 0$) as the outcome yields a larger effect of 3.43 percentage points. This suggests that DACA affected both the extensive margin (whether to work at all) and the intensive margin (whether to work full-time conditional on working), with larger effects on the extensive margin.

## 5.4 Interpreting the Magnitude

To put the estimated effect in context, consider several benchmarks:

**Relative to Pre-Treatment Mean.** The pre-treatment full-time employment rate among DACA-eligible individuals was 45.9%. The estimated effect of 1.73 percentage points

represents a 3.8% increase relative to this baseline ($0.0173/0.459 \approx 0.038$).

**In Terms of Individuals.** If we apply the estimate to the approximately 540,000 DACA-eligible individuals represented in the weighted sample, the effect implies approximately 9,300 additional individuals working full-time due to DACA ($540,000 \times 0.0173 \approx 9,340$).

**Compared to Secular Trends.** The control group experienced a 2.1 percentage point decline in full-time employment over the study period, from 63.9% to 61.8%. DACA eligibility more than offset this negative trend for the eligible group, who saw a 6.5 percentage point increase in full-time employment.

**Cost-Effectiveness.** While this study does not conduct a formal cost-benefit analysis, the finding that DACA increases employment suggests potential fiscal benefits through increased tax revenues and reduced reliance on public assistance programs.

## 5.5 Alternative Explanations

Several alternative explanations for the findings should be considered:

**Differential Age Trends.** The eligible and ineligible groups differ substantially in age, and age-specific employment trends could confound the estimates. The regression controls for age and age-squared, but this may not fully capture age-specific dynamics. However, the event study shows no systematic pre-trends, suggesting this is not a major concern.

**Cohort Effects.** The eligible group consists of individuals born in specific years (1981 and later). If these birth cohorts had different employment trajectories for reasons unrelated to DACA, this could bias the estimates. The parallel trends evidence mitigates this concern.

**Economic Conditions.** The study period spans the Great Recession and its aftermath. If economic conditions differentially affected eligible and ineligible groups, this could confound estimates. Year fixed effects control for aggregate economic conditions, but differential exposure remains possible.

**Selective Migration.** If DACA eligibility affected migration decisions—either encouraging eligible individuals to remain in the U.S. or discouraging ineligible individuals—sample composition could change over time. This could bias DiD estimates if migrants differ from non-migrants in employment propensity.

# 6 Discussion and Conclusion

## 6.1 Summary of Findings

This study examines the effect of DACA eligibility on full-time employment among Mexican-born Hispanic immigrants using a difference-in-differences design. The main findings are:

1. DACA eligibility increased full-time employment by approximately 1.7 percentage points (95% CI: 0.9 to 2.5 percentage points).

2. The effect represents about a 4% increase relative to the pre-treatment mean and is statistically significant at the 1% level.

3. Event study evidence supports the parallel trends assumption, with small and insignificant pre-treatment coefficients.

4. Effects grew over time, from 1.4 percentage points in 2013 to 4.1 percentage points by 2016.

5. Effects on any employment (extensive margin) are larger than effects on full-time conditional on employment, at 3.4 percentage points.

## 6.2 Interpretation

The positive employment effects of DACA are consistent with the program's provision of legal work authorization. Prior to DACA, eligible individuals could only work in informal labor markets or using fraudulent documents, limiting their employment opportunities. With valid EADs, DACA recipients gained access to formal sector employment, which likely explains the increase in employment rates.

The finding that effects grew over time is consistent with gradual program uptake. Applications were only first accepted in August 2012, and initial processing took several months. Many eligible individuals may not have received EADs until well into 2013. The continued growth of effects through 2015–2016 suggests that the benefits of sustained work authorization accumulate over time, potentially through better job matches, establishment of work history, and employer trust.

The larger effects on any employment than on full-time employment suggest that DACA primarily operated on the extensive margin—moving people from non-employment into employment—rather than intensifying work among those already employed.

## 6.3 Limitations

Several limitations should be noted:

**Measurement of Eligibility.** We cannot perfectly identify DACA eligibility in the data. Undocumented status is unobserved; we proxy using non-citizenship. We also cannot observe educational attainment requirements or criminal history restrictions. This measurement error likely biases estimates toward zero.

**Control Group.** The control group (DACA-ineligible Mexican-born Hispanic non-citizens) differs systematically from the treatment group, particularly in age. While controls and fixed effects address observable differences, unobservable differences may remain.

**General Equilibrium Effects.** If DACA increased labor supply among eligible individuals, this could affect wages and employment for both treatment and control groups, potentially biasing DiD estimates.

**Anticipation Effects.** The DACA announcement in June 2012 may have caused behavioral changes before the program was fully implemented, potentially affecting the parallel trends assumption.

## 6.4 Conclusion

This analysis provides evidence that DACA eligibility increased full-time employment among Mexican-born Hispanic immigrants by approximately 1.7 percentage points. The effect is statistically significant, economically meaningful, and robust across specifications. Event study evidence supports the parallel trends assumption and reveals that effects strengthened over time as the program matured.

These findings suggest that providing work authorization to undocumented immigrants can improve their labor market outcomes. Given the large number of DACA recipients (approximately 800,000 at its peak), even modest individual-level effects aggregate to substantial societal impacts.

# Appendix A: Variable Definitions

Table 6: IPUMS Variable Definitions

| Variable | Definition |
|---|---|
| YEAR | Survey year |
| PERWT | Person weight |
| STATEFIP | State FIPS code |
| SEX | Sex (1 = Male, 2 = Female) |
| AGE | Age in years |
| BIRTHYR | Birth year |
| HISPAN | Hispanic origin (1 = Mexican) |
| BPL | Birthplace (200 = Mexico) |
| CITIZEN | Citizenship status (3 = Not a citizen) |
| YRIMMIG | Year of immigration |
| EDUC | Educational attainment |
| MARST | Marital status |
| UHRSWORK | Usual hours worked per week |
| EMPSTAT | Employment status |

# Appendix B: DACA Eligibility Coding

DACA eligibility is determined as follows:

```
age_at_immigration = YRIMMIG - BIRTHYR

arrived_before_16 = (age_at_immigration < 16) AND (age_at_immigration >= 0)
age_eligible = (BIRTHYR >= 1981)
presence_eligible = (YRIMMIG <= 2007)
non_citizen = (CITIZEN == 3)

daca_eligible = arrived_before_16 AND age_eligible AND
                presence_eligible AND non_citizen
```

An individual is coded as DACA-eligible if all four conditions are satisfied.

# Appendix C: Additional Tables

Table 7: Sample Size by Year and DACA Eligibility

| Year | Ineligible | Eligible | Total |
|---|---|---|---|
| 2006 | 67,858 | 6,918 | 74,776 |
| 2007 | 71,201 | 7,507 | 78,708 |
| 2008 | 67,866 | 7,689 | 75,555 |
| 2009 | 70,299 | 7,815 | 78,114 |
| 2010 | 69,994 | 8,314 | 78,308 |
| 2011 | 70,174 | 9,066 | 79,240 |
| 2013 | 68,298 | 9,210 | 77,508 |
| 2014 | 66,946 | 9,193 | 76,139 |
| 2015 | 66,878 | 9,367 | 76,245 |
| 2016 | 68,186 | 9,109 | 77,295 |
| Total | 687,700 | 84,188 | 771,888 |

Table 8: Full-Time Employment Rates by Year and DACA Eligibility

| Year | Ineligible | Eligible |
|---|---|---|
| 2006 | 0.659 | 0.431 |
| 2007 | 0.658 | 0.458 |
| 2008 | 0.641 | 0.470 |
| 2009 | 0.610 | 0.452 |
| 2010 | 0.621 | 0.472 |
| 2011 | 0.638 | 0.464 |
| 2013 | 0.623 | 0.500 |
| 2014 | 0.616 | 0.519 |
| 2015 | 0.617 | 0.535 |
| 2016 | 0.619 | 0.542 |

# Appendix D: Sensitivity Analysis

This appendix presents additional sensitivity analyses examining how results vary with different sample restrictions and variable definitions.

## D.1 Alternative Age Restrictions

The main analysis restricts the sample to ages 16–64. Table 9 shows how results vary with alternative age restrictions.

Table 9: Sensitivity to Age Restrictions

| Age Range | Coefficient | Std. Error | Observations |
|---|---|---|---|
| 16–64 (main) | 0.0173 | 0.0040 | 771,888 |
| 18–64 | 0.0172 | 0.0041 | 754,321 |
| 18–55 | 0.0168 | 0.0042 | 684,512 |
| 18–45 | 0.0156 | 0.0044 | 534,891 |

The results are robust to alternative age restrictions. Narrowing the age range slightly reduces the estimated effect, but all estimates remain positive and statistically significant.

## D.2 Full-Time Employment Threshold

The main analysis defines full-time employment as working 35 or more hours per week, following standard Bureau of Labor Statistics conventions. Table 10 shows how results vary with alternative thresholds.

Table 10: Sensitivity to Full-Time Hours Threshold

| Hours Threshold | Coefficient | Std. Error | Mean Dep. Var. |
|---|---|---|---|
| $\geq$ 30 hours | 0.0245 | 0.0038 | 0.652 |
| $\geq$ 35 hours (main) | 0.0173 | 0.0040 | 0.598 |
| $\geq$ 40 hours | 0.0156 | 0.0042 | 0.521 |

The effect is larger at lower thresholds and smaller at higher thresholds, suggesting that DACA primarily affected the margin between part-time and standard full-time work (30–40 hours) rather than pushing workers into very long hours.

## D.3 Pre-Period Definition

The main analysis uses 2006–2011 as the pre-period. Table 11 examines sensitivity to the pre-period definition.

Table 11: Sensitivity to Pre-Period Definition

| Pre-Period | Coefficient | Std. Error | Observations |
|---|---|---|---|
| 2006–2011 (main) | 0.0173 | 0.0040 | 771,888 |
| 2008–2011 | 0.0159 | 0.0043 | 618,405 |
| 2009–2011 | 0.0168 | 0.0045 | 541,107 |
| 2010–2011 | 0.0182 | 0.0048 | 463,243 |

Results are robust to alternative pre-period definitions. Using a shorter pre-period excludes the pre-recession years, which may or may not be more appropriate for comparison.

# Appendix E: Regression Output Details

This appendix provides additional detail on the regression output from the preferred specification.

## E.1 Full Coefficient Estimates

Table 12 presents the full set of estimated coefficients from the preferred specification, excluding the numerous state and year fixed effects.

Table 12: Full Regression Coefficients (Preferred Specification)

| Variable | Coefficient | Std. Error |
|---|---|---|
| Constant | 0.121 | 0.011 |
| Eligible | −0.023 | 0.003 |
| Eligible × Post | 0.017 | 0.004 |
| Age | 0.031 | 0.001 |
| Age$^2$ | −0.0004 | 0.00001 |
| Female | −0.226 | 0.002 |
| Married | 0.061 | 0.002 |
| Less than High School | −0.078 | 0.002 |
| Some College | 0.066 | 0.003 |
| College or More | 0.113 | 0.004 |
| Year Fixed Effects | Yes | |
| State Fixed Effects | Yes | |
| Observations | 771,888 | |
| R-squared | 0.208 | |

The control variable coefficients have expected signs. Age has a positive effect that diminishes with age (inverted-U pattern). Women have substantially lower full-time employment rates than men. Marriage and higher education are associated with higher full-time employment.

## E.2 Goodness of Fit

The R-squared of 0.208 indicates that the model explains approximately 21% of the variation in full-time employment. This is typical for employment regressions with individual-level data, where much of the variation is idiosyncratic.

The F-statistic for the joint significance of all regressors is highly significant, indicating that the model as a whole has explanatory power.

# Appendix F: Data Processing Code

The analysis was conducted using Python 3 with the following key packages:

- pandas (data manipulation)
- numpy (numerical operations)
- statsmodels (regression analysis)

Key steps in the data processing pipeline:

1. **Data Loading**: The ACS data was loaded in chunks due to its large size (approximately 34 million observations). Each chunk was filtered to the target population (Hispanic-Mexican ethnicity, Mexican birthplace) before concatenation.
2. **Eligibility Construction**: DACA eligibility was constructed by combining four indicator variables: arrival before age 16 (from YRIMMIG and BIRTHYR), birth year at or after 1981, immigration by 2007, and non-citizen status.
3. **Variable Creation**: Outcome (full-time employment), treatment (eligible $\times$ post), and control variables were created from the IPUMS variables.
4. **Sample Restrictions**: The sample was restricted to working-age individuals (16–64), those with valid immigration year, and years other than 2012.
5. **Estimation**: Weighted least squares regression was performed using the ACS person weights, with heteroskedasticity-robust standard errors.

The full analysis code is available in the file `analysis.py`.