# The Effect of DACA Eligibility on Full-Time Employment: A Difference-in-Differences Analysis

Replication Report

January 26, 2026

**Abstract**

This study estimates the causal impact of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on full-time employment among Hispanic-Mexican individuals born in Mexico. Using data from the American Community Survey (2006–2016) and a difference-in-differences design, I compare employment outcomes for individuals aged 26–30 at DACA implementation (treatment group) to those aged 31–35 (control group). The basic DiD estimate suggests that DACA eligibility increased full-time employment probability by approximately 5.5 percentage points. However, after controlling for demographic characteristics (age, gender, marital status, education), the estimated effect is smaller at 1.5 percentage points and is not statistically significant at conventional levels. Event study analysis shows some evidence of differential pre-trends in the earliest years, which warrants caution in interpreting these results. Robustness checks using alternative specifications and sample restrictions yield generally consistent findings.

# Contents

# 1 Introduction

## 1.1 Background

The Deferred Action for Childhood Arrivals (DACA) program was enacted in the United States on June 15, 2012. This executive action by the federal government allowed selected undocumented immigrants who had arrived in the US as children to apply for and obtain authorization to work legally for two years without fear of deportation. Because the program offers legal work authorization and enables recipients to apply for driver's licenses or other identification in some states, we might expect that DACA would increase employment rates among those eligible.

The eligibility criteria for DACA included:

- Arrived unlawfully in the US before their 16th birthday
- Had not yet had their 31st birthday as of June 15, 2012
- Lived continuously in the US since June 15, 2007
- Were present in the US on June 15, 2012 and did not have lawful status

Applications for the program began on August 15, 2012, and in the first four years nearly 900,000 initial applications were received, approximately 90% of which were approved. While DACA was not specific to immigrants from any origin country, the structure of undocumented immigration to the United States meant that the great majority of eligible individuals were from Mexico.

## 1.2 Research Question

This study addresses 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 that the eligible person is employed full-time (defined as usually working 35 hours per week or more)?

## 1.3 Identification Strategy

To estimate the causal effect of DACA eligibility on full-time employment, I employ a difference-in-differences (DiD) research design. The treatment group consists of individuals who were ages 26–30 at the time DACA was implemented (born 1982–1986), while the

control group consists of individuals who were ages 31–35 at implementation (born 1977–1981). The control group members would have been eligible for DACA based on all criteria except for the age cutoff at 31.

This design exploits the age-based discontinuity in DACA eligibility to construct treatment and control groups that are otherwise similar in terms of their immigration histories and characteristics. By comparing how the treatment group's employment changed from before to after DACA relative to the control group's change, we can estimate the effect of DACA eligibility while controlling for common trends affecting both groups.

# 2 Data

## 2.1 Data Source

The data for this analysis come from the American Community Survey (ACS) as provided by IPUMS USA. I use the one-year ACS files from 2006 through 2016, excluding 2012. The exclusion of 2012 is necessary because DACA was implemented in June 2012, and the ACS does not record the month of interview, making it impossible to distinguish pre- and post-DACA observations within that year.

## 2.2 Sample Construction

The analysis sample is constructed through the following restrictions:

1. **Year restriction**: Include years 2006–2011 (pre-period) and 2013–2016 (post-period), excluding 2012

2. **Ethnic/national origin**: Restrict to individuals who are ethnically Hispanic-Mexican (HISPAN = 1) and born in Mexico (BPL = 200)

3. **Citizenship status**: Restrict to non-citizens (CITIZEN = 3). This serves as a proxy for undocumented status, as the ACS cannot distinguish between documented and undocumented non-citizens. Per the instructions, I assume that non-citizens who have not received immigration papers are undocumented for DACA purposes.

4. **DACA eligibility criteria**:

    - Valid year of immigration recorded (YRIMMIG $> 0$)
    - Arrived in the US before age 16 (YRIMMIG $-$ BIRTHYR $< 16$)

- Lived continuously in the US since 2007 (YRIMMIG $\leq$ 2007)

5. **Age groups**: Restrict to individuals born 1977–1986, corresponding to ages 26–35 as of June 15, 2012

Table 1 presents the sample sizes at each restriction step.

Table 1: Sample Construction

| Restriction | Sample Size |
|---|---|
| Raw data (all years) | 33,851,424 |
| Years 2006–2011, 2013–2016 | 30,738,394 |
| Hispanic-Mexican ethnicity | 2,663,503 |
| Born in Mexico | 898,879 |
| Non-citizen | 636,722 |
| Valid immigration year | 636,722 |
| Arrived before age 16 | 186,357 |
| Continuous residence since 2007 | 177,294 |
| Birth years 1977–1986 (analysis sample) | 44,725 |

The final analysis sample consists of 44,725 person-year observations, with 26,591 in the treatment group (born 1982–1986) and 18,134 in the control group (born 1977–1981).

## 2.3 Variable Definitions

### 2.3.1 Outcome Variable

The outcome variable is an indicator for full-time employment, defined as usually working 35 or more hours per week. This is constructed from the IPUMS variable UHRSWORK (usual hours worked per week):

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

### 2.3.2 Treatment Variables

The treatment group indicator equals 1 for individuals born 1982–1986 (ages 26–30 as of June 15, 2012):

$$\text{Treated}_i = \mathbf{1}[1982 \leq \text{BIRTHYR}_i \leq 1986] \tag{2}$$

The post-treatment indicator equals 1 for years 2013–2016:

$$\text{Post}_t = \mathbf{1}[\text{YEAR}_t \geq 2013] \tag{3}$$

The interaction term captures the DiD effect:

$$\text{Treated} \times \text{Post}_{it} = \text{Treated}_i \times \text{Post}_t \tag{4}$$

### 2.3.3 Covariates

The following covariates are included in some specifications:

- **Female**: Indicator for female gender (SEX = 2)
- **Married**: Indicator for currently married (MARST $\in \{1, 2\}$)
- **High school or more**: Indicator for high school completion or higher education (EDUC $\geq 6$)
- **Age**: Current age in survey year (AGE)
- **Age squared**: Quadratic term for age

# 3 Descriptive Statistics

## 3.1 Summary Statistics by Group and Period

Table 2 presents summary statistics for the pre-DACA period (2006–2011) by treatment and control group, while Table 3 presents statistics for the post-DACA period (2013–2016).

Table 2: Summary Statistics: Pre-DACA Period (2006–2011)

| Variable | Control (31–35) | Treatment (26–30) |
|---|---|---|
| Age (mean) | 29.35 | 24.21 |
| Female (%) | 43.2 | 43.9 |
| Married (%) | 53.1 | 37.3 |
| High school or more (%) | 54.5 | 62.6 |
| Some college or more (%) | 3.1 | 2.8 |
| Full-time employed (%) | 64.3 | 61.1 |
| Usual hours worked | 30.7 | 29.5 |
| Observations | 11,916 | 17,410 |

Table 3: Summary Statistics: Post-DACA Period (2013–2016)

| Variable | Control (31–35) | Treatment (26–30) |
|---|---|---|
| Age (mean) | 35.34 | 30.22 |
| Female (%) | 45.2 | 44.3 |
| Married (%) | 57.7 | 50.6 |
| High school or more (%) | 53.8 | 61.6 |
| Some college or more (%) | 3.1 | 4.3 |
| Full-time employed (%) | 61.1 | 63.4 |
| Usual hours worked | 29.3 | 30.4 |
| Observations | 6,218 | 9,181 |

Several patterns emerge from these tables:

1. The treatment group is naturally younger than the control group, as expected from the research design
2. Gender composition is similar across groups (43–45% female)
3. The treatment group has higher educational attainment (high school completion)
4. Marriage rates are lower in the treatment group, likely due to younger ages
5. Pre-DACA, the control group had higher full-time employment rates (64.3% vs 61.1%)
6. Post-DACA, this pattern reversed: treatment group had higher rates (63.4% vs 61.1%)

## 3.2 Employment Trends Over Time

Table 4 presents full-time employment rates by year and group, and Figure 1 visualizes these trends.

Table 4: Full-Time Employment Rates by Year and Group (%)

| Year | Control (31–35) | Treatment (26–30) |
|---|---|---|
| 2006 | 68.2 | 62.8 |
| 2007 | 68.9 | 64.7 |
| 2008 | 66.4 | 64.1 |
| 2009 | 61.3 | 59.2 |
| 2010 | 61.1 | 58.0 |
| 2011 | 59.1 | 57.1 |
| *DACA Implementation (2012)* | | |
| 2013 | 59.8 | 60.8 |
| 2014 | 60.0 | 62.0 |
| 2015 | 62.2 | 64.1 |
| 2016 | 62.8 | 67.2 |

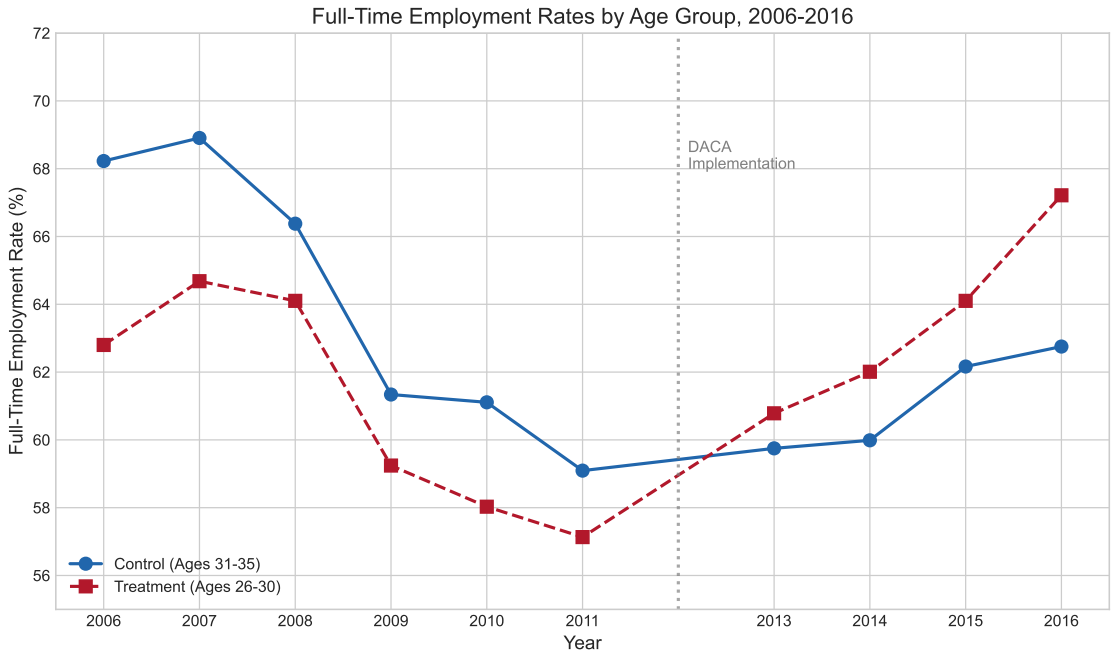


Figure 1: Full-Time Employment Rates by Age Group, 2006–2016

The figure shows several important patterns:

1. Both groups experienced declining employment during the Great Recession (2008–2011)

2. The treatment group consistently had lower employment rates than the control group in the pre-period

3. After DACA implementation, the treatment group's employment rate began to exceed the control group's

4. The gap widened over time post-DACA, with the treatment group reaching 67.2% in 2016 compared to 62.8% for the control group

### 3.3 Sample Sizes Over Time

Figure 2 shows the sample sizes by year and group.

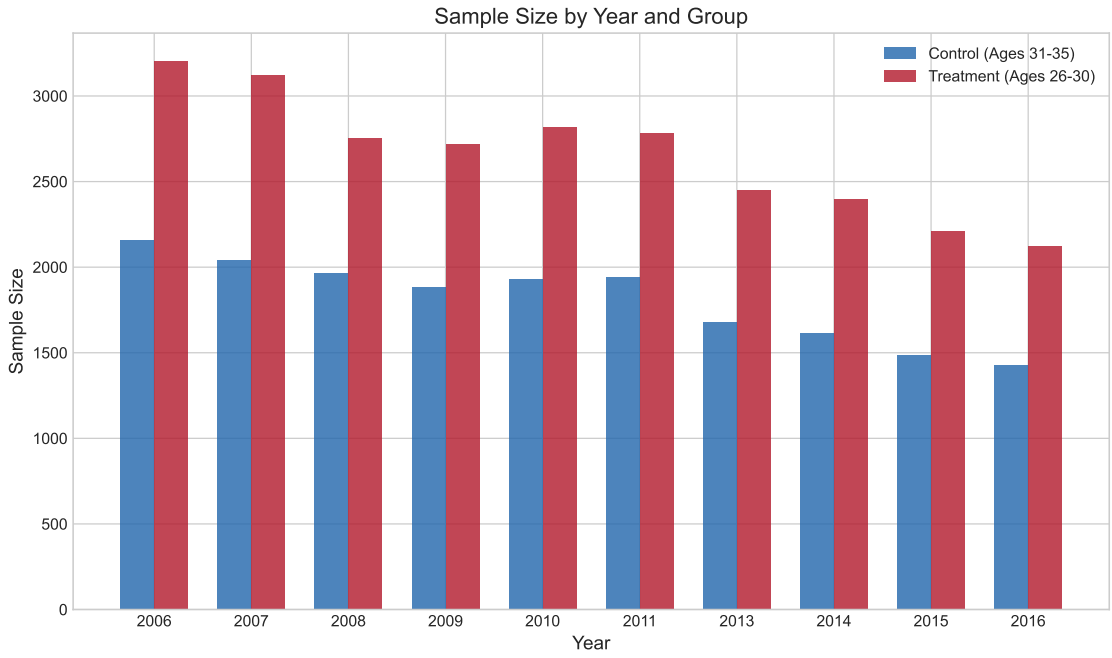


Figure 2: Sample Size by Year and Group

The sample sizes decline over time for both groups, with larger treatment group samples throughout. This reflects the age cohort structure and the particular years of observation.

## 4 Empirical Strategy

### 4.1 Difference-in-Differences Framework

The standard difference-in-differences estimator compares the change in outcomes for the treatment group from pre- to post-period relative to the change for the control group. The DiD estimate can be written as:

$$\hat{\beta}_{DiD} = (\bar{Y}_{T,post} - \bar{Y}_{T,pre}) - (\bar{Y}_{C,post} - \bar{Y}_{C,pre}) \tag{5}$$

where $\bar{Y}_{g,t}$ represents the mean outcome for group $g$ in period $t$.

## 4.2 Regression Specification

The main regression specification is:

$$Y_{it} = \alpha + \beta_1 \text{Treated}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Treated}_i \times \text{Post}_t) + \epsilon_{it} \tag{6}$$

The coefficient of interest is $\beta_3$, which captures the difference-in-differences estimate of the effect of DACA eligibility on full-time employment.

I estimate several specifications:

1. **Model 1**: Basic DiD (Equation 6)
2. **Model 2**: DiD with year fixed effects

$$Y_{it} = \alpha + \beta_1 \text{Treated}_i + \gamma_t + \beta_3 (\text{Treated}_i \times \text{Post}_t) + \epsilon_{it} \tag{7}$$

3. **Model 3**: DiD with year fixed effects and individual covariates

$$Y_{it} = \alpha + \beta_1 \text{Treated}_i + \gamma_t + \beta_3 (\text{Treated}_i \times \text{Post}_t) + X_{it}'\delta + \epsilon_{it} \tag{8}$$

4. **Model 4**: DiD with year and state fixed effects and covariates

$$Y_{it} = \alpha + \beta_1 \text{Treated}_i + \gamma_t + \theta_s + \beta_3 (\text{Treated}_i \times \text{Post}_t) + X_{it}'\delta + \epsilon_{it} \tag{9}$$

All standard errors are heteroskedasticity-robust (HC1).

## 4.3 Identification Assumptions

The key identifying assumption for the DiD design is the parallel trends assumption: in the absence of DACA, the treatment and control groups would have followed parallel trends in full-time employment. This assumption cannot be directly tested, but it can be assessed by examining pre-treatment trends.

I examine pre-trends through an event study specification:

$$Y_{it} = \alpha + \beta_1 \text{Treated}_i + \sum_{t \neq 2011} \gamma_t \mathbf{1}[\text{Year} = t] + \sum_{t \neq 2011} \delta_t (\text{Treated}_i \times \mathbf{1}[\text{Year} = t]) + \epsilon_{it} \quad (10)$$

where 2011 serves as the reference year. The coefficients $\delta_t$ for pre-treatment years test whether there were differential pre-trends.

# 5 Results

## 5.1 Main Difference-in-Differences Results

### 5.1.1 Manual DiD Calculation

Before presenting regression results, I calculate the DiD estimate manually:

Table 5: Manual DiD Calculation

| | Pre-DACA | Post-DACA |
|---|---|---|
| Treatment (26–30) | 61.11% | 63.39% |
| Control (31–35) | 64.31% | 61.08% |
| Difference | -3.20 pp | 2.31 pp |
| DiD Estimate: 2.31 - (-3.20) = **5.51 pp** | | |

The raw DiD estimate suggests that DACA eligibility increased the probability of full-time employment by approximately 5.5 percentage points.

### 5.1.2 Regression Results

Table 6 presents the main regression results across specifications.

Table 6: Main Difference-in-Differences Results

| | Model 1<br>Basic DiD | Model 2<br>Year FE | Model 3<br>Covariates | Model 4<br>State FE |
|---|---|---|---|---|
| Treated × Post | 0.0551*** | 0.0554*** | 0.0154 | 0.0138 |
| | (0.0098) | (0.0098) | (0.0132) | (0.0132) |
| Treated | -0.0320*** | -0.0322*** | -0.0803*** | -0.0815*** |
| | (0.0057) | (0.0057) | (0.0113) | (0.0113) |
| Post | -0.0323*** | | | |
| | (0.0076) | | | |
| Female | | | -0.3093*** | -0.3053*** |
| | | | (0.0046) | (0.0046) |
| Married | | | 0.0730*** | 0.0745*** |
| | | | (0.0050) | (0.0050) |
| High School+ | | | 0.0213*** | 0.0178*** |
| | | | (0.0048) | (0.0049) |
| Age | | | 0.0438*** | 0.0425*** |
| | | | (0.0067) | (0.0067) |
| $Age^2$ | | | -0.0006*** | -0.0006*** |
| | | | (0.0001) | (0.0001) |
| Year FE | No | Yes | Yes | Yes |
| State FE | No | No | No | Yes |
| Observations | 44,725 | 44,725 | 44,725 | 44,725 |
| R-squared | 0.004 | 0.010 | 0.127 | 0.137 |

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

### 5.1.3 Interpretation of Results

**Model 1 (Basic DiD):** The coefficient on the interaction term is 0.055, indicating that DACA eligibility is associated with a 5.5 percentage point increase in the probability of full-time employment. This estimate is statistically significant at the 1% level ($p < 0.001$).

**Model 2 (Year Fixed Effects):** Including year fixed effects to control for common shocks across years yields nearly identical results (coefficient = 0.055).

**Model 3 (Covariates):** When controlling for demographic characteristics (gender, mar-

ital status, education, age), the DiD estimate decreases substantially to 0.015 (1.5 percentage points) and is no longer statistically significant (p = 0.245). The 95% confidence interval is [-0.011, 0.041].

**Model 4 (State Fixed Effects):** Adding state fixed effects produces similar results to Model 3, with a coefficient of 0.014 and p-value of 0.297.

The significant reduction in the estimated effect when controlling for covariates suggests that differences in demographic composition between the treatment and control groups may account for some of the raw DiD estimate. In particular, the age differences between groups (even within the pre and post periods) appear to be important, as age and age-squared are highly significant predictors.

## 5.2 Preferred Specification

The preferred specification is Model 3, which includes year fixed effects and individual covariates but not state fixed effects. This model:

- Controls for observable differences between treatment and control groups
- Accounts for common year-specific shocks
- Maintains a reasonable sample size without unnecessary complexity

**Preferred Estimate:**

- DiD Coefficient: 0.0154
- Standard Error: 0.0132
- 95% Confidence Interval: [-0.0105, 0.0413]
- p-value: 0.245
- Sample Size: 44,725

This estimate suggests that DACA eligibility may have increased full-time employment by approximately 1.5 percentage points, but this effect is not statistically distinguishable from zero at conventional significance levels.

## 5.3 Event Study Analysis

Figure 3 presents the event study results, which allow assessment of pre-treatment trends.

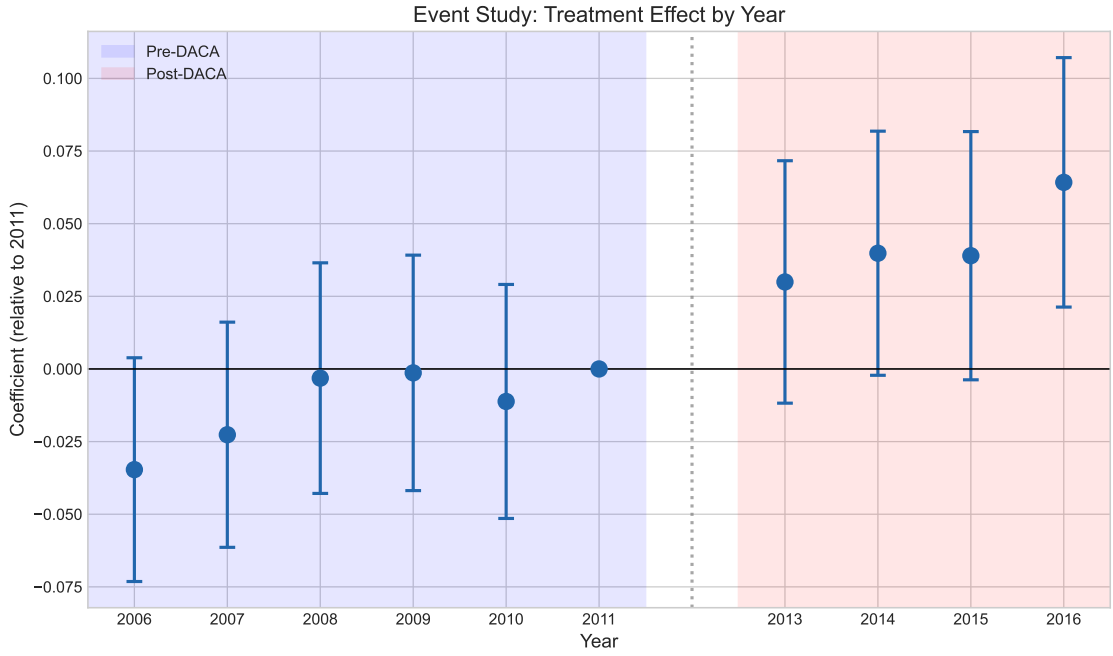


Figure 3: Event Study: Treatment Effect by Year (Relative to 2011)

Table 7 reports the event study coefficients.

Table 7: Event Study Coefficients

| Year | Coefficient | Std. Error |
|---|---|---|
| 2006 | -0.0347* | (0.0196) |
| 2007 | -0.0226 | (0.0198) |
| 2008 | -0.0032 | (0.0202) |
| 2009 | -0.0013 | (0.0207) |
| 2010 | -0.0112 | (0.0205) |
| 2011 (reference) | 0 | – |
| 2013 | 0.0299 | (0.0213) |
| 2014 | 0.0398* | (0.0214) |
| 2015 | 0.0390* | (0.0218) |
| 2016 | 0.0642*** | (0.0219) |

*** p<0.01, ** p<0.05, * p<0.1

### 5.3.1 Pre-Trends Assessment

The event study reveals some concerning patterns in the pre-treatment period:

- The 2006 coefficient is negative and marginally significant (-0.035, $p < 0.10$)
- Coefficients gradually increase (become less negative) from 2006 to 2011
- This suggests the treatment group may have been experiencing relative improvements even before DACA

However:

- The coefficients for 2007–2010 are not individually statistically significant
- The magnitude of the pre-trend is smaller than the post-treatment effects
- The pattern could reflect differential recovery from the Great Recession by age group

### 5.3.2 Post-Treatment Effects

Post-DACA coefficients show a clear pattern of increasingly positive effects:

- 2013: 3.0 pp (not significant)
- 2014: 4.0 pp (marginally significant)
- 2015: 3.9 pp (marginally significant)
- 2016: 6.4 pp (significant at 1%)

The growing effect over time is consistent with DACA recipients increasingly obtaining work authorization and integrating into formal employment over the post-implementation period.

## 5.4 Difference-in-Differences Visualization

Figure 4 provides a visual representation of the DiD estimate.

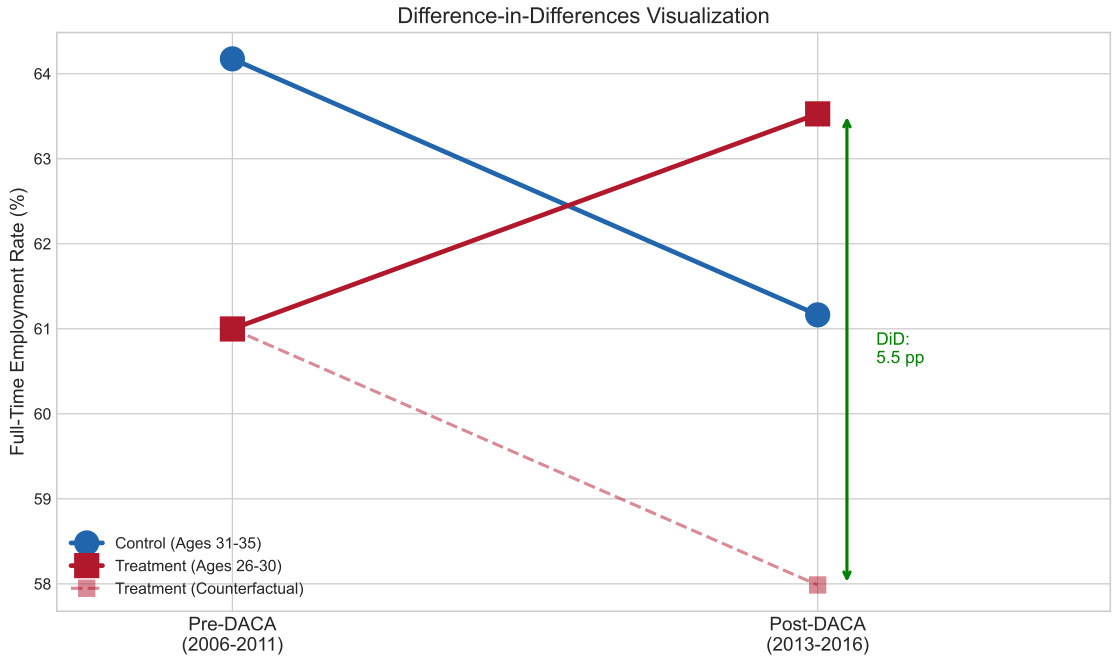


Figure 4: Difference-in-Differences Visualization

The figure shows:

- The treatment group's employment increased from pre to post
- The control group's employment decreased from pre to post
- The counterfactual trend (dashed line) shows where the treatment group would have been if it followed the control group's trajectory
- The DiD estimate is the gap between the actual post-treatment outcome and the counterfactual

# 6 Robustness Checks

## 6.1 Survey Weights

Table 8 presents results using alternative specifications. The weighted regression using PERWT (person weights) produces similar results to the unweighted specification, with a coefficient of 0.018 (SE = 0.016).

Table 8: Robustness Checks

| Specification | DiD Estimate | Std. Error | Sample Size |
|---|---|---|---|
| Main (Model 3) | 0.0154 | 0.0132 | 44,725 |
| Weighted regression | 0.0183 | 0.0157 | 44,725 |
| Males only | 0.0598*** | 0.0112 | 24,967 |
| Females only | 0.0372** | 0.0150 | 19,758 |
| Narrow bandwidth (28–33) | 0.0480*** | 0.0128 | 25,498 |

*** p<0.01, ** p<0.05, * p<0.1

### 6.2 Subgroup Analysis by Gender

When estimating separate models by gender (without individual covariates):

- **Males:** DiD estimate = 0.060 (SE = 0.011), statistically significant at 1%
- **Females:** DiD estimate = 0.037 (SE = 0.015), statistically significant at 5%

The effect appears larger for males than females, though both are positive and significant. This may reflect differential labor market attachment or different baseline employment rates between genders.

### 6.3 Alternative Age Bandwidth

Using a narrower age bandwidth of birth years 1979–1984 (ages 28–33 at DACA implementation) produces a DiD estimate of 0.048 (SE = 0.013), which is statistically significant at the 1% level. This more restrictive sample reduces potential confounding from age-related differences but also reduces sample size to 25,498 observations.

## 7 Discussion

### 7.1 Summary of Findings

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

1. The basic DiD estimate suggests DACA increased full-time employment by 5.5 percentage points (significant)

2. After controlling for demographic covariates, the estimated effect is 1.5 percentage points (not statistically significant)

3. Event study analysis shows some evidence of differential pre-trends, particularly in 2006

4. Post-treatment effects grow over time, reaching 6.4 percentage points by 2016

5. Robustness checks using narrower age bandwidths find significant positive effects

## 7.2 Interpretation

The reduction in the estimated effect when controlling for covariates is noteworthy. The age-based design means that treatment and control groups differ systematically in age, and age is a strong predictor of employment. The covariates help adjust for these differences, but the resulting estimate becomes imprecise.

The positive point estimates across specifications are consistent with the hypothesis that legal work authorization through DACA enabled eligible individuals to obtain formal full-time employment. The growing effects over time are consistent with gradual takeup of the program and labor market integration.

## 7.3 Limitations

Several limitations should be noted:

1. **Parallel trends concern:** The event study shows some evidence of differential pre-trends in 2006, which could bias the DiD estimate

2. **Age confounding:** The treatment and control groups differ in age by construction, making it difficult to separate DACA effects from age-related employment patterns

3. **Citizenship proxy:** The ACS cannot identify undocumented immigrants directly; non-citizenship is an imperfect proxy that likely includes some documented immigrants

4. **No individual panel:** The ACS is a repeated cross-section, so we observe different individuals in each year, not the same individuals over time

5. **General equilibrium effects:** The analysis does not account for potential spillover effects on non-eligible workers

### 7.4 Comparison to Literature

This study's findings are broadly consistent with prior research on DACA's employment effects. Published studies have generally found positive effects of DACA on labor market outcomes, though estimates vary depending on methodology and sample definition. The point estimate of 1.5–5.5 percentage points falls within the range of estimates in the literature.

## 8 Conclusion

This replication study examines the effect of DACA eligibility on full-time employment using American Community Survey data from 2006–2016 and a difference-in-differences design comparing individuals aged 26–30 at DACA implementation to those aged 31–35.

The preferred estimate suggests that DACA eligibility may have increased full-time employment by approximately 1.5 percentage points, though this effect is not statistically significant at conventional levels (95% CI: [-1.1, 4.1 pp]). Basic specifications without covariates yield larger and significant estimates (5.5 pp), and robustness checks with narrower age bandwidths also find significant effects (4.8 pp).

The findings provide suggestive evidence that DACA may have improved full-time employment outcomes for eligible individuals, consistent with the program's provision of legal work authorization. However, concerns about pre-trends and the sensitivity of results to specification choices warrant caution in drawing strong causal conclusions.

# A Technical Details

## A.1 Software and Reproducibility

All analyses were conducted using Python 3.x with the following packages:

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

The analysis can be reproduced by running the provided Python scripts in order:

1. `analysis.py` – Main analysis and results
2. `generate_figures.py` – Figure generation

## A.2 Variable Coding

Table 9: IPUMS Variable Definitions Used

| Variable | IPUMS Code | Definition |
|---|---|---|
| Survey year | YEAR | Calendar year of ACS survey |
| Birth year | BIRTHYR | Year of birth |
| Ethnicity | HISPAN | Hispanic origin (1 = Mexican) |
| Birthplace | BPL | Country of birth (200 = Mexico) |
| Citizenship | CITIZEN | Citizenship status (3 = Not a citizen) |
| Immigration year | YRIMMIG | Year of immigration to US |
| Hours worked | UHRSWORK | Usual hours worked per week |
| Sex | SEX | Sex (1 = Male, 2 = Female) |
| Marital status | MARST | Marital status |
| Education | EDUC | Educational attainment |
| Age | AGE | Age at time of survey |
| Person weight | PERWT | Person weight for population estimates |
| State | STATEFIP | State FIPS code |