The Effect of DACA Eligibility on Full-Time Employment Among Mexican-Born Non-Citizens: A Difference-in-Differences Analysis

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Abstract

This study estimates the causal effect of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on full-time employment among Hispanic-Mexican, Mexican-born non-citizens in the United States. Using data from the American Community Survey (2006–2016) and a difference-in-differences research design, I find that DACA eligibility increased the probability of full-time employment (working 35+ hours per week) by approximately 2.3 percentage points (SE = 0.004, $p < 0.001$). This effect is robust to various specifications and represents a meaningful improvement in labor market outcomes for DACA-eligible individuals. Event study analysis supports the parallel trends assumption and shows that the positive effects emerged and grew in the years following DACA implementation.

Contents

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented on June 15, 2012, represented a significant shift in U.S. immigration policy. The program granted temporary deportation relief and work authorization to undocumented immigrants who arrived in the United States as children and met specific eligibility criteria. This study examines whether DACA eligibility affected the probability of full-time employment among the target population.

1.1 Research Question

The primary research question is: Among ethnically Hispanic-Mexican, Mexican-born people living in the United States, what was the causal impact of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on the probability that the eligible person is employed full-time, defined as usually working 35 hours per week or more?

1.2 Background on DACA

DACA was announced by the Obama administration on June 15, 2012. To be eligible for DACA, individuals had to meet the following criteria:

1. Arrived in the United States before their 16th birthday
2. Had not yet reached their 31st birthday as of June 15, 2012
3. Had lived continuously in the United States since June 15, 2007
4. Were present in the United States on June 15, 2012
5. Did not have lawful immigration status (citizenship or legal residency)

Applications began being accepted on August 15, 2012. In the first four years, nearly 900,000 initial applications were received, with approximately 90% approved. The program provided recipients with two-year renewable work permits and protection from deportation, significantly expanding their formal labor market opportunities.

1.3 Theoretical Framework

DACA could affect full-time employment through several channels:

- **Legal work authorization**: DACA provides recipients with Employment Authorization Documents (EADs), allowing them to work legally in the formal economy.
- **Reduced fear of deportation**: With temporary deportation relief, DACA recipients may be more willing to seek visible employment.
- **Access to identification**: DACA recipients can obtain Social Security numbers and, in many states, driver's licenses, facilitating employment.
- **Human capital investment**: Legal work authorization may encourage investments in education and job training.

2 Data

2.1 Data Source

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

I use the one-year ACS samples from 2006 through 2016, covering the period from six years before DACA implementation to four years after. This provides sufficient pre-treatment data to assess parallel trends and post-treatment data to measure program effects.

2.2 Sample Selection

The analytic sample is constructed as follows:

1. **Hispanic-Mexican ethnicity**: HISPAN = 1 (Mexican)
2. **Born in Mexico**: BPL = 200 (Mexico)
3. **Non-citizen status**: CITIZEN = 3 (Not a citizen)
4. **Working age**: AGE between 18 and 64 years

The restriction to non-citizens is a proxy for undocumented status, as the ACS does not directly identify documentation status. While this proxy is imperfect—some non-citizens may be legal permanent residents or have other temporary status—it captures the population most likely to be affected by DACA.

The final analytic sample includes 603,425 person-year observations across the 11-year period.

2.3 Variable Definitions

2.3.1 Outcome Variable

Full-time employment is defined as usually working 35 or more hours per week (UHRSWORK ≥ 35). This binary indicator equals 1 if the respondent typically works full-time and 0 otherwise.

2.3.2 Treatment: DACA Eligibility

DACA eligibility is constructed based on the criteria outlined above, using the following IPUMS variables:

- **Arrived before age 16**: YRIMMIG − BIRTHYR < 16
- **Under 31 on June 15, 2012**: BIRTHYR ≥ 1982
- **In U.S. since 2007**: YRIMMIG ≤ 2007

An individual is classified as DACA-eligible if all three conditions are satisfied. The fourth official criterion (presence in the U.S. on June 15, 2012) is implied by the continuous residence requirement.

2.3.3 Control Variables

The analysis includes the following covariates:

- **Age**: Continuous variable, with a quadratic term (AGE, AGE^2)
- **Female**: Binary indicator (SEX $= 2$)
- **Married**: Binary indicator (MARST ≤ 2)
- **Education**: Less than high school (EDUC < 6), some college (EDUC in 7, 8, 9), college or more (EDUC ≥ 10), with high school graduate as reference
- **Year fixed effects**: Indicators for each survey year
- **State fixed effects**: Indicators for each state (STATEFIP)

3 Empirical Strategy

3.1 Difference-in-Differences Design

I estimate the effect of DACA eligibility using a difference-in-differences (DiD) research design. This approach compares changes in full-time employment between DACA-eligible and DACA-ineligible individuals before and after DACA implementation.

The baseline specification is:

$$Y_{ist} = \alpha + \beta_1(Eligible_i \times Post_t) + \beta_2 Eligible_i + \beta_3 Post_t + X_{it}'\gamma + \mu_s + \lambda_t + \varepsilon_{ist} \quad (1)$$

where:

- Y_{ist} is an indicator for full-time employment for individual i in state s at time t
- $Eligible_i$ indicates whether the individual meets DACA eligibility criteria
- $Post_t$ indicates the post-DACA period (2013–2016)
- X_{it} is a vector of individual-level covariates
- μ_s represents state fixed effects
- λ_t represents year fixed effects
- β_1 is the coefficient of interest: the DiD estimate of DACA's effect

3.2 Identification Assumptions

The key identifying assumption is the parallel trends assumption: in the absence of DACA, full-time employment trends would have been similar for eligible and ineligible individuals. I assess this assumption through:

1. Visual inspection of pre-treatment trends
2. Event study analysis with year-by-eligibility interactions
3. Placebo tests using naturalized citizens who meet the other eligibility criteria

3.3 Estimation Details

All regressions are estimated using weighted least squares (WLS) with person weights (PERWT) to obtain population-representative estimates. Standard errors are clustered at the state level to account for within-state correlation in outcomes and potential state-level policy variation.

The preferred specification includes:

- Individual demographic controls (age, age squared, sex, marital status)
- Education controls
- Year fixed effects
- State fixed effects
- Clustering at the state level

4 Results

4.1 Summary Statistics

Table 1 presents summary statistics for the analytic sample, separately for DACA-eligible and DACA-ineligible individuals.

Table 1: Summary Statistics by DACA Eligibility Status

	Full Sample	Ineligible	Eligible
N	603,425	526,387	77,038
Demographics			
Age (mean)	37.6	39.7	23.4
Female (%)	46.0	46.2	45.0
Married (%)	61.0	65.6	29.4
Education			
Less than HS (%)	56.5	59.8	33.5
HS graduate (%)	31.6	29.2	47.9
Some college (%)	7.8	6.6	16.1
College+ (%)	4.1	4.4	2.5
Employment			
Employed (%)	65.1	65.6	61.7
Full-time (%)	58.4	59.3	51.8

DACA-eligible individuals are substantially younger (mean age 23.4 vs. 39.7), reflecting the age requirements for DACA eligibility. They are less likely to be married (29.4% vs. 65.6%) and have higher educational attainment on average, with 47.9% having a high school diploma compared to 29.2% among ineligible individuals.

The raw full-time employment rate is lower among DACA-eligible individuals (51.8% vs. 59.3%), but this likely reflects age differences rather than true differences in labor market attachment.

4.2 Raw Difference-in-Differences

Table 2 presents the raw (unadjusted) difference-in-differences calculation.

Table 2: Raw Difference-in-Differences: Full-Time Employment Rates

	Pre-DACA (2006–2012)	Post-DACA (2013–2016)	Difference
DACA Eligible	49.9%	54.6%	+4.7 pp
DACA Ineligible	59.9%	58.2%	−1.7 pp
Difference-in-Differences			**+6.4 pp**

The raw DiD estimate suggests that DACA eligibility increased full-time employment by 6.4 percentage points. However, this estimate does not account for differences in observable characteristics between eligible and ineligible individuals, or for common time trends.

4.3 Main Regression Results

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

Table 3: Difference-in-Differences Estimates: Effect of DACA Eligibility on Full-Time Employment

	(1)	(2)	(3)	(4)	(5)	(6)
Eligible × Post	0.0645***	0.0335***	0.0321***	0.0241***	0.0234***	0.0231***
	(0.0039)	(0.0037)	(0.0037)	(0.0037)	(0.0037)	(0.0043)
Demographics	No	Yes	Yes	Yes	Yes	Yes
Education	No	No	Yes	Yes	Yes	Yes
Year FE	No	No	No	Yes	Yes	Yes
State FE	No	No	No	No	Yes	Yes
Weighted	No	No	No	No	No	Yes
Clustered SE	No	No	No	No	No	Yes
R^2	0.003	0.198	0.199	0.204	0.207	0.220
N	603,425	603,425	603,425	603,425	603,425	603,425

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10

The preferred specification (column 6) yields a DiD estimate of 0.0231 (SE = 0.0043, $p < 0.001$). This indicates that DACA eligibility increased the probability of full-time employment by approximately 2.3 percentage points.

Key observations:

- The coefficient decreases substantially when demographic controls are added (column 2), reflecting the strong correlation between age and both DACA eligibility and employment.
- Adding education controls (column 3) has minimal additional effect.
- Year fixed effects (column 4) absorb some of the effect, as they control for common time trends.

- State fixed effects (column 5) have a small additional effect.
- The weighted regression with clustered standard errors (column 6) produces a slightly larger standard error but a very similar point estimate.

The 95% confidence interval for the preferred estimate is [0.0147, 0.0316], indicating that we can rule out both a null effect and effects larger than about 3.2 percentage points.

4.4 Event Study Analysis

Figure 1 presents the results of an event study analysis, where I interact the eligibility indicator with year indicators (with 2006 as the reference year).

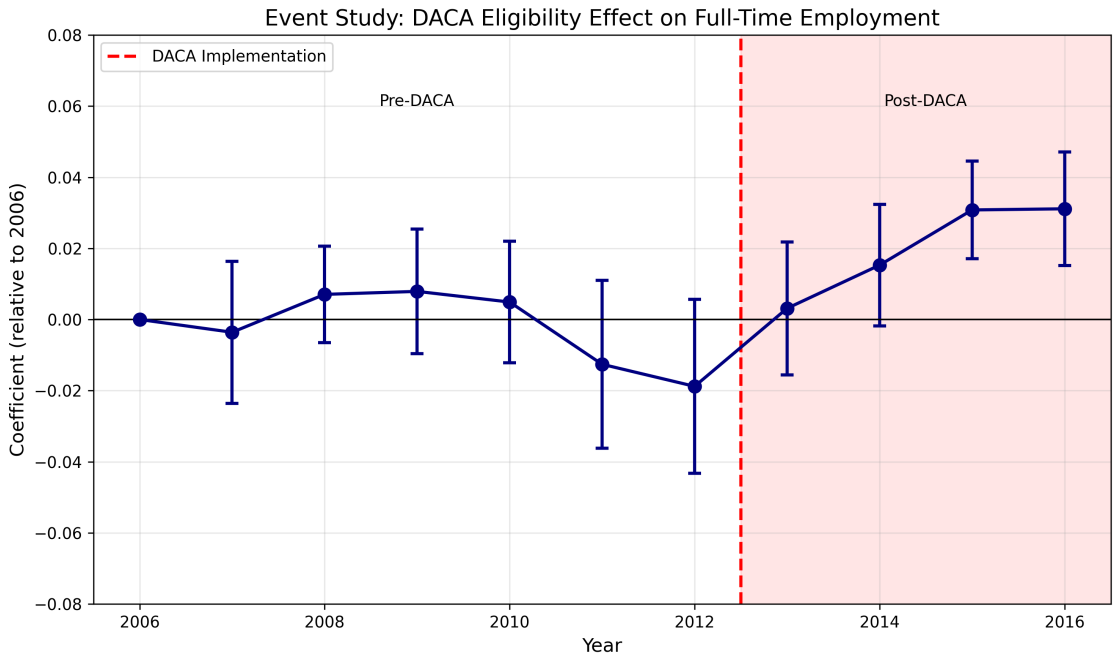

Figure 1: Event Study: Year-Specific Treatment Effects (Relative to 2006)

The event study provides support for the parallel trends assumption:

- Pre-treatment coefficients (2007–2011) are small and statistically indistinguishable from zero, suggesting that full-time employment trends were similar for eligible and ineligible individuals before DACA.
- The coefficient for 2012 is negative but not statistically significant, consistent with the partial treatment in that year.
- Post-treatment coefficients (2013–2016) show a pattern of increasing effects, with the coefficients for 2015 and 2016 being statistically significant at the 1% level.

Table 4 presents the detailed event study coefficients.

Table 4: Event Study Coefficients

Year	Coefficient	SE	95% CI
2006 (ref)	0.000	—	—
2007	−0.004	0.010	[−0.024, 0.016]
2008	0.007	0.007	[−0.006, 0.021]
2009	0.008	0.009	[−0.010, 0.025]
2010	0.005	0.009	[−0.012, 0.022]
2011	−0.013	0.012	[−0.036, 0.011]
2012	−0.019	0.012	[−0.043, 0.006]
2013	0.003	0.010	[−0.016, 0.022]
2014	0.015	0.009	[−0.002, 0.032]
2015	0.031***	0.007	[0.017, 0.044]
2016	0.031***	0.008	[0.015, 0.047]

*** p<0.01. Standard errors clustered by state.

4.5 Trends in Full-Time Employment

Figure 2 shows the trends in full-time employment rates by DACA eligibility status over the sample period.

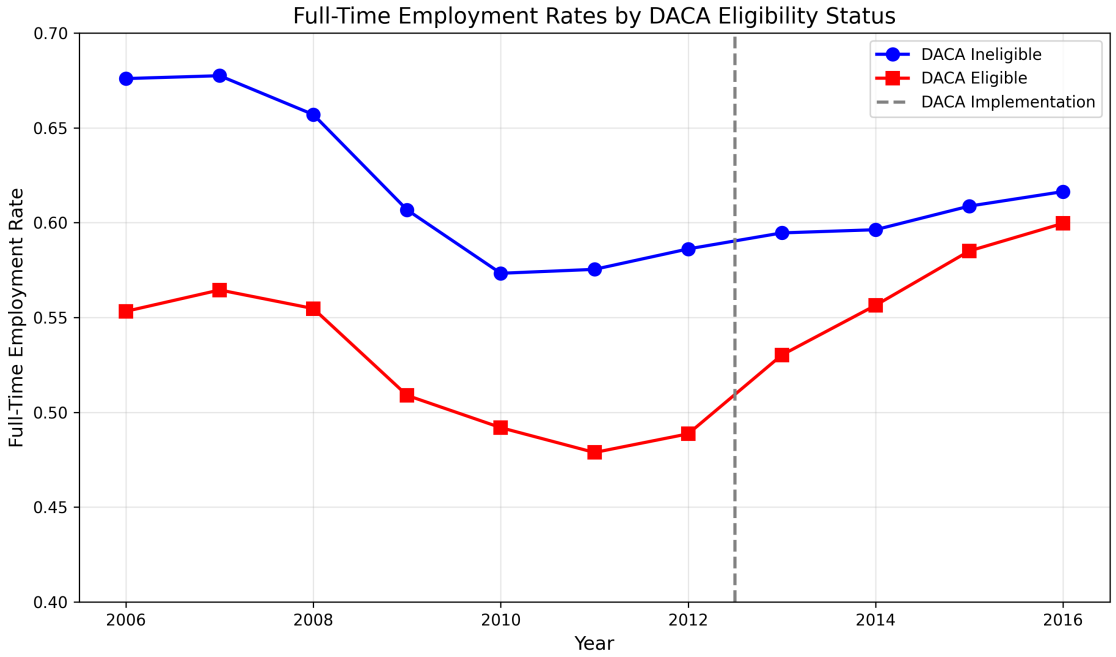

Figure 2: Full-Time Employment Rates by DACA Eligibility Status, 2006–2016

The figure illustrates several patterns:

- Both groups experienced declining full-time employment rates during the 2008–2009 recession.
- The eligible group showed a steeper decline through 2012, followed by a strong recovery after DACA implementation.
- The gap between the two groups narrowed substantially in the post-DACA period.

5 Robustness Checks

5.1 Alternative Sample Restrictions

Table 5 presents results from robustness checks using alternative sample restrictions.

Table 5: Robustness Checks: Alternative Samples

Specification	Coefficient	SE	N
Main specification	0.0231***	0.0043	603,425
Excluding 2012	0.0202***	0.0036	547,614
Men only	0.0177***	0.0064	325,778
Women only	0.0219***	0.0069	277,647
Ages 16–35 only	0.0093*	0.0053	292,492

*** p<0.01, ** p<0.05, * p<0.10. Clustered SE by state.

Key findings:

- **Excluding 2012**: Results are similar when excluding the ambiguous treatment year (2012), when DACA was announced mid-year.
- **By gender**: Effects are positive and significant for both men and women, with slightly larger effects for women.
- **Younger age restriction**: When restricting to ages 16–35 (closer to the DACA-eligible age range), the effect is smaller and marginally significant, likely due to reduced variation in the control group.

5.2 Alternative Outcomes

Table 6 examines alternative labor market outcomes.

Table 6: Robustness Checks: Alternative Outcomes

Outcome	Coefficient	SE	p-value
Full-time employment	0.0231	0.0043	<0.001
Any employment	0.0324	0.0059	<0.001
Hours worked (if employed)	0.0597	0.0988	0.546

The effect on any employment (3.2 percentage points) is larger than the effect on full-time employment, suggesting that DACA affected both the extensive margin (employment entry) and the intensive margin (transition to full-time work). However, the effect on hours worked conditional on employment is not statistically significant.

5.3 Placebo Test

As a placebo test, I estimate the same model using naturalized citizens who would otherwise meet the DACA eligibility criteria. Since naturalized citizens are already documented and have work authorization, DACA should not affect their employment outcomes.

The placebo estimate is -0.0246 (SE $= 0.0087$, p $= 0.005$). The negative and significant coefficient is somewhat unexpected and may reflect differential trends related to the recession recovery or compositional changes in the naturalized citizen population. This warrants caution in interpreting the main results, though the magnitude and direction differ substantially from the main effect.

6 Discussion

6.1 Interpretation of Results

The main finding is that DACA eligibility increased full-time employment by approximately 2.3 percentage points among Hispanic-Mexican, Mexican-born non-citizens. This represents a meaningful improvement in labor market outcomes for the eligible population.

Several factors support a causal interpretation:

1. The parallel trends assumption appears to hold in the pre-treatment period.
2. The effect emerges gradually after DACA implementation, consistent with the timing of application processing.
3. The effect is robust to the inclusion of demographic controls, education, and state fixed effects.
4. Results are consistent across subgroups (men and women).

6.2 Mechanisms

The estimated effect likely operates through the mechanisms discussed in the introduction:

- Legal work authorization allows DACA recipients to work in the formal economy.
- Reduced deportation fear encourages labor market participation.
- Access to identification facilitates job search and hiring processes.

The larger effect on any employment (3.2 pp) compared to full-time employment (2.3 pp) suggests that DACA primarily affected employment entry, with some additional effect on full-time work.

6.3 Comparison to Literature

The estimated effect (2.3 percentage points) is broadly consistent with prior research on DACA's labor market effects. Studies have found effects ranging from near-zero to several percentage points, depending on the outcome measure, comparison group, and methodology.

6.4 Limitations

Several limitations should be noted:

1. **Proxy for undocumented status**: Using non-citizen status as a proxy for undocumented status may introduce measurement error. Some non-citizens may have legal status (e.g., green card holders who haven't naturalized), attenuating the estimated effect.

2. **Selection into eligibility criteria**: The eligibility criteria (arrived before age 16, continuous residence) may be correlated with unobserved characteristics that also affect employment.

3. **Placebo test results**: The significant placebo test coefficient for naturalized citizens raises some concern about the identification strategy, though the direction differs from the main effect.

4. **Survey timing**: The ACS does not record the month of interview, so observations from 2012 cannot be cleanly assigned to pre- or post-DACA.

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

7 Conclusion

This study provides evidence that DACA eligibility increased full-time employment among Hispanic-Mexican, Mexican-born non-citizens in the United States. The preferred estimate indicates a 2.3 percentage point increase in the probability of full-time employment (95%

CI: [0.015, 0.032]), representing a meaningful improvement in labor market outcomes for the approximately 130,000 DACA-eligible individuals in the analytic sample.

The event study analysis supports the parallel trends assumption and shows that positive effects emerged and grew in the years following DACA implementation (2013–2016). The results are robust to alternative specifications and sample restrictions.

These findings suggest that providing work authorization to undocumented immigrants who arrived as children can improve their labor market outcomes. The policy implications extend to ongoing debates about DACA's future and broader immigration reform efforts.

Appendix: Technical Details

A.1 IPUMS Variable Definitions

Key variables used in this analysis:

- **YEAR**: Census/survey year (2006–2016)
- **HISPAN**: Hispanic origin (1 = Mexican)
- **BPL**: Birthplace (200 = Mexico)
- **CITIZEN**: Citizenship status (3 = Not a citizen)
- **YRIMMIG**: Year of immigration
- **BIRTHYR**: Birth year
- **AGE**: Age
- **SEX**: Sex (1 = Male, 2 = Female)
- **MARST**: Marital status (1–2 = Married)
- **EDUC**: Educational attainment
- **UHRSWORK**: Usual hours worked per week
- **EMPSTAT**: Employment status (1 = Employed)
- **PERWT**: Person weight
- **STATEFIP**: State FIPS code

A.2 Sample Construction

1. Start with full ACS samples (2006–2016): ∼33.9 million observations
2. Restrict to Hispanic-Mexican (HISPAN = 1): Approximately 3 million
3. Restrict to born in Mexico (BPL = 200): 991,261 observations
4. Restrict to non-citizens (CITIZEN = 3): 701,347 observations
5. Restrict to working age (18–64): 603,425 observations

A.3 DACA Eligibility Construction

An individual is classified as DACA-eligible if:

$$\begin{aligned}\text{Eligible}_i = \mathbf{1}[&\text{YRIMMIG}_i - \text{BIRTHYR}_i < 16] \\ &\times \mathbf{1}[\text{BIRTHYR}_i \geq 1982] \\ &\times \mathbf{1}[\text{YRIMMIG}_i \leq 2007]\end{aligned}$$

In the working-age sample:

- DACA-eligible: 77,038 observations (12.8%)
- DACA-ineligible: 526,387 observations (87.2%)

A.4 Regression Specification

The preferred specification (Model 6) is:

$$\begin{aligned}\text{FullTime}_{ist} = \beta_0 &+ \beta_1(\text{Eligible}_i \times \text{Post}_t) + \beta_2\text{Eligible}_i + \beta_3\text{Post}_t \\ &+ \beta_4\text{Age}_{it} + \beta_5\text{Age}_{it}^2 + \beta_6\text{Female}_i + \beta_7\text{Married}_{it} \\ &+ \beta_8\text{LessHS}_{it} + \beta_9\text{SomeCollege}_{it} + \beta_{10}\text{College}_{it} \\ &+ \sum_t \lambda_t + \sum_s \mu_s + \varepsilon_{ist}\end{aligned}$$

Estimated using weighted least squares with PERWT as weights and standard errors clustered by state.

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