

# The Causal Impact of DACA Eligibility on Full-Time Employment Among Mexican-Born Hispanic Non-Citizens in the United States

Independent Replication Study

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## Abstract

This study estimates the causal impact of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on full-time employment among Mexican-born, Hispanic-Mexican, non-citizen individuals in the United States. Using American Community Survey data from 2006–2016 and a difference-in-differences identification strategy, I compare employment outcomes between DACA-eligible individuals and similar but non-eligible Mexican-born non-citizens before and after DACA’s implementation in 2012. The preferred specification indicates that DACA eligibility increased the probability of full-time employment by 3.2 percentage points (95% CI: 2.4 to 4.0 percentage points). This effect is statistically significant and robust across multiple specifications. Event study analysis provides evidence consistent with the parallel trends assumption, with treatment effects emerging only after DACA implementation.

**Keywords:** DACA, immigration policy, employment, difference-in-differences, causal inference

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# 1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, enacted on June 15, 2012, represents one of the most significant immigration policy changes in recent U.S. history. The program provides eligible undocumented immigrants who arrived in the United States as children with temporary protection from deportation and authorization to work legally. Given that DACA conferred legal work authorization to a population previously constrained to informal employment, understanding its labor market effects has important policy implications.

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 DACA on the probability of full-time employment (defined as usually working 35 hours per week or more)?*

The identification strategy leverages variation in DACA eligibility based on arrival age, birth year, and year of immigration. By comparing employment outcomes of DACA-eligible individuals to similar but non-eligible Mexican-born non-citizens before and after DACA implementation, I estimate the causal effect using a difference-in-differences (DID) framework.

The main finding is that DACA eligibility increased the probability of full-time employment by approximately 3.2 percentage points. This effect is economically meaningful, representing a 7.5% increase relative to the pre-DACA baseline full-time employment rate of eligible individuals (43.1%). The results are robust to alternative specifications, control groups, and sample restrictions.

# 2 Background

## 2.1 DACA Program Overview

DACA was announced by the Obama administration on June 15, 2012, with applications beginning to be received on August 15, 2012. The program offered two-year renewable periods of deferred action and employment authorization to eligible undocumented immigrants.

## 2.2 Eligibility Criteria

To be eligible for DACA, individuals must have:

1. Arrived in the United States before their 16th birthday
2. Not yet had their 31st birthday as of June 15, 2012 (i.e., born after June 15, 1981)

3. Lived continuously in the United States since June 15, 2007
4. Been present in the United States on June 15, 2012 without lawful immigration status

## 2.3 Expected Effects on Employment

DACA eligibility could affect employment through several channels:

- **Legal work authorization:** DACA recipients can work legally, enabling access to formal sector employment that requires documentation.
- **Reduced deportation risk:** Protection from deportation may reduce job search frictions and increase labor supply.
- **Access to identification:** In many states, DACA recipients can obtain driver's licenses, facilitating transportation to work.
- **Occupational upgrading:** Legal status may enable workers to transition from informal to formal employment, potentially including full-time positions with benefits.

## 3 Data

### 3.1 Data Source

The analysis uses data from the American Community Survey (ACS) provided by IPUMS USA. The sample includes the 1-year ACS files from 2006 through 2016, excluding 2012 (the implementation year) to ensure clean pre- and post-treatment periods.

### 3.2 Sample Construction

The analysis sample is constructed with the following restrictions:

1. **Hispanic-Mexican ethnicity:** HISPAN = 1 (Mexican origin)
2. **Born in Mexico:** BPL = 200 (birthplace is Mexico)
3. **Non-citizen:** CITIZEN = 3 (not a citizen)
4. **Working-age population:** AGE between 16 and 64
5. **Exclude 2012:** The implementation year is excluded because ACS does not indicate interview month, creating ambiguity about pre/post status

These restrictions yield a sample of 561,470 person-year observations.

### 3.3 Key Variables

#### 3.3.1 Outcome Variable

The primary outcome is **full-time employment**, defined as a binary indicator equal to 1 if the individual usually works 35 or more hours per week ( $UHRSWORK \geq 35$ ), and 0 otherwise.

#### 3.3.2 Treatment Definition: DACA Eligibility

An individual is coded as DACA-eligible if they meet all of the following criteria:

- Arrived before 16th birthday:  $(YRIMMIG - BIRTHYR) < 16$
- Born after June 15, 1981:  $BIRTHYR > 1981$  OR  $(BIRTHYR = 1981 \text{ AND } BIRTHQTR \geq 3)$
- Arrived by 2007:  $YRIMMIG \leq 2007$
- Valid immigration year:  $YRIMMIG > 0$

Note: Since citizenship status is already restricted to non-citizens ( $CITIZEN = 3$ ), and we cannot distinguish documented from undocumented non-citizens in the data, all non-citizens who meet the other criteria are assumed to be potentially DACA-eligible.

#### 3.3.3 Control Variables

- **Age and Age<sup>2</sup>**: Continuous variables capturing nonlinear age effects
- **Female**: Binary indicator ( $SEX = 2$ )
- **Married**: Binary indicator ( $MARST \in \{1, 2\}$ )
- **High school or more**: Binary indicator ( $EDUC \geq 7$ )
- **Year fixed effects**: Categorical indicators for each year
- **State fixed effects**: Categorical indicators for state of residence ( $STATEFIP$ )

### 3.4 Descriptive Statistics

Table 1 presents descriptive statistics by DACA eligibility status, pooled across all years.

Key observations from Table 1:

Table 1: Descriptive Statistics by DACA Eligibility Status

	Non-Eligible	DACA-Eligible
Age (years)	39.52	22.53
Female (%)	46.1	44.9
Married (%)	65.5	25.9
High School+ (%)	10.8	15.8
College+ (%)	2.9	2.4
Full-time Employed (%)	59.4	45.9
Employed (%)	65.6	55.1
N	477,859	83,611

Note: Sample includes Mexican-born, Hispanic-Mexican, non-citizen individuals aged 16–64 from ACS 2006–2011 and 2013–2016. Full-time employment defined as usually working 35+ hours per week.

- DACA-eligible individuals are substantially younger (22.5 vs. 39.5 years on average), reflecting the age-based eligibility criteria.
- Eligible individuals have lower marriage rates (25.9% vs. 65.5%), consistent with their younger age.
- The eligible group has somewhat higher high school completion rates (15.8% vs. 10.8%), possibly reflecting greater educational opportunities for those who arrived young.
- Baseline full-time employment is lower among eligible individuals (45.9% vs. 59.4%), which may reflect age and life-cycle effects.

## 4 Empirical Strategy

### 4.1 Identification Strategy

The causal effect of DACA eligibility on full-time employment is identified using a difference-in-differences (DID) design. The key identifying assumption is that, in the absence of DACA, the full-time employment trends for DACA-eligible and non-eligible Mexican-born non-citizens would have been parallel.

### 4.2 Econometric Specification

The baseline DID model is:

$$\text{Fulltime}_{ist} = \beta_0 + \beta_1 \text{Eligible}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Eligible}_i \times \text{Post}_t) + \epsilon_{ist} \quad (1)$$

where:

- $\text{Fulltime}_{ist}$ : Binary indicator for full-time employment for individual  $i$  in state  $s$  at time  $t$
- $\text{Eligible}_i$ : Binary indicator for DACA eligibility
- $\text{Post}_t$ : Binary indicator for post-DACA period (2013–2016)
- $\beta_3$ : The DID estimator—the causal effect of DACA eligibility on full-time employment

The preferred specification adds controls and fixed effects:

$$\text{Fulltime}_{ist} = \beta_1 \text{Eligible}_i + \beta_3 (\text{Eligible}_i \times \text{Post}_t) + X'_i \gamma + \delta_t + \lambda_s + \epsilon_{ist} \quad (2)$$

where:

- $X_i$ : Vector of individual controls (age, age<sup>2</sup>, female, married, education)
- $\delta_t$ : Year fixed effects
- $\lambda_s$ : State fixed effects

The preferred specification uses person weights (PERWT) to make estimates representative of the U.S. population. Standard errors are robust to heteroskedasticity (HC1).

### 4.3 Parallel Trends Assessment

To assess the validity of the parallel trends assumption, I estimate an event study model:

$$\text{Fulltime}_{ist} = \sum_{k \neq 2011} \gamma_k (\text{Eligible}_i \times \mathbf{1}\{t = k\}) + \beta_1 \text{Eligible}_i + X'_i \gamma + \delta_t + \lambda_s + \epsilon_{ist} \quad (3)$$

where 2011 (the last pre-DACA year) is the reference period. The coefficients  $\gamma_k$  for pre-treatment years (2006–2010) should be close to zero if parallel trends hold.

# 5 Results

## 5.1 Main Results

Table 2 presents the main difference-in-differences results across four specifications.

Table 2: Effect of DACA Eligibility on Full-Time Employment

	(1) Basic	(2) Controls	(3) Year FE	(4) State & Year FE
Eligible × Post	0.0902*** (0.0038)	0.0403*** (0.0035)	0.0348*** (0.0035)	0.0321*** (0.0042)
Eligible	-0.1730*** (0.0025)	-0.0406*** (0.0028)	-0.0285*** (0.0028)	-0.0242*** (0.0034)
Controls	No	Yes	Yes	Yes
Year FE	No	No	Yes	Yes
State FE	No	No	No	Yes
Weighted	No	No	No	Yes
N	561,470	561,470	561,470	561,470
R-squared	0.011	0.208	0.213	0.228

Note: Robust standard errors in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . The dependent variable is a binary indicator for full-time employment (35+ hours/week). Controls include age, age squared, female, married, and high school education indicators. Column (4) uses person weights from ACS.

The results show:

1. **Column (1) - Basic DID:** Without controls, the raw DID estimate suggests a 9.0 percentage point increase in full-time employment for DACA-eligible individuals post-treatment. This estimate is likely upward biased due to differential trends related to age and other factors.
2. **Column (2) - With Controls:** Adding demographic controls reduces the estimate substantially to 4.0 percentage points, indicating that compositional differences between eligible and non-eligible individuals explain much of the raw differential.
3. **Column (3) - Year Fixed Effects:** Adding year fixed effects further refines the estimate to 3.5 percentage points, accounting for aggregate time trends.
4. **Column (4) - Preferred Specification:** The fully specified weighted model with state and year fixed effects yields an estimate of 3.2 percentage points ( $SE = 0.0042$ ,  $p < 0.001$ ), with a 95% confidence interval of [2.4, 4.0] percentage points.

### 5.1.1 Interpretation of Main Result

The preferred estimate indicates that DACA eligibility increased the probability of full-time employment by 3.2 percentage points. Relative to the pre-DACA baseline full-time employment rate of 43.1% among eligible individuals, this represents a 7.5% relative increase.

This effect is:

- **Statistically significant:**  $p < 0.001$ , with narrow confidence intervals
- **Economically meaningful:** A 3.2 percentage point increase translates to substantial labor market gains for the DACA-eligible population
- **Robust:** The effect remains positive and significant across all specifications

## 5.2 Event Study Results

Table 3 presents the event study coefficients, showing the year-specific differences between eligible and non-eligible groups relative to 2011 (the last pre-treatment year).

Table 3: Event Study: Year-Specific Treatment Effects

Year	Coefficient	Std. Error	P-value
2006	-0.0161	0.0097	0.098
2007	-0.0142	0.0094	0.131
2008	-0.0018	0.0095	0.848
2009	0.0056	0.0094	0.553
2010	0.0069	0.0091	0.449
2011 (Reference)	—	—	—
2013	0.0129	0.0091	0.154
2014	0.0239	0.0091	0.009
2015	0.0401	0.0091	0.000
2016	0.0422	0.0093	0.000

Note: Coefficients represent the difference in full-time employment between eligible and non-eligible groups in each year, relative to 2011. Weighted regression with state and year fixed effects, demographic controls, and robust standard errors.

The event study results provide important evidence on the parallel trends assumption:

- **Pre-treatment coefficients (2006–2010):** None are statistically significant at conventional levels, and all are small in magnitude. This supports the parallel trends assumption.

- **Post-treatment coefficients (2013–2016):** Effects become positive and growing over time. The 2013 coefficient is positive but not yet significant; by 2014, the effect becomes statistically significant, and it continues to grow through 2015–2016.
- **Dynamic pattern:** The increasing magnitude of effects over time is consistent with gradual take-up of DACA benefits and increasing labor market adjustments.

### 5.3 Yearly Employment Trends

Table 4 shows the weighted full-time employment rates by year and eligibility status.

Table 4: Full-Time Employment Rates by Year and Eligibility Status

Year	Non-Eligible	DACA-Eligible
<i>Pre-DACA Period</i>		
2006	0.675	0.469
2007	0.677	0.483
2008	0.657	0.478
2009	0.606	0.439
2010	0.572	0.429
2011	0.573	0.430
<i>Post-DACA Period</i>		
2013	0.593	0.481
2014	0.594	0.508
2015	0.606	0.539
2016	0.613	0.558

Note: Full-time employment rates are weighted by person weights (PERWT).

Key observations:

- Both groups experienced employment declines during the Great Recession (2008–2011) and recovery thereafter.
- The eligible group's recovery is notably steeper: from 43.0% in 2011 to 55.8% in 2016, compared to the non-eligible group's recovery from 57.3% to 61.3%.
- The differential improvement for the eligible group (12.8 percentage points) compared to the non-eligible group (4.0 percentage points) is consistent with a positive DACA effect.

## 5.4 Robustness Checks

Table 5 presents results from several robustness checks.

Table 5: Robustness Checks

	Restricted Control	Employment (Extensive)	Men Only	Women Only
Eligible $\times$ Post	0.0344*** (0.0044)	0.0424*** (0.0041)	0.0275*** (0.0055)	0.0277*** (0.0063)
N	350,440	561,470	303,717	257,753

Note: Robust standard errors in parentheses. \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . All specifications include demographic controls and year fixed effects, weighted by person weights. “Restricted Control” limits the control group to those who arrived at ages 16–25. “Employment” uses any employment as the outcome.

### 5.4.1 Robustness Check 1: Restricted Control Group

Limiting the control group to individuals who arrived at ages 16–25 (closer to the eligibility threshold) yields a similar estimate of 3.4 percentage points. This addresses concerns that the full control group may be too different from the treated group.

### 5.4.2 Robustness Check 2: Extensive Margin (Any Employment)

Using any employment (rather than full-time employment) as the outcome yields an estimate of 4.2 percentage points, suggesting DACA increased overall labor force participation as well.

### 5.4.3 Robustness Check 3–4: Gender-Specific Effects

Effects are similar for men (2.8 pp) and women (2.8 pp), suggesting DACA’s employment benefits were broadly distributed across genders.

## 6 Discussion

### 6.1 Summary of Findings

This study provides causal evidence that DACA eligibility increased full-time employment among Mexican-born Hispanic non-citizens in the United States. The preferred estimate

indicates a 3.2 percentage point increase in the probability of full-time employment, which is robust across multiple specifications and subgroups.

## 6.2 Mechanisms

The observed employment gains likely operate through several channels:

1. **Formalization of employment:** DACA enabled previously informal workers to obtain formal employment, which is more likely to be full-time with regular hours.
2. **Occupational upgrading:** Legal work authorization opened access to jobs requiring documentation, potentially including higher-quality positions with more hours.
3. **Reduced labor market frictions:** Protection from deportation and access to identification documents (such as driver's licenses) may have reduced barriers to employment.
4. **Human capital investment:** The security provided by DACA may have encouraged investments in education and training, improving employment prospects (note the higher education rates among eligible individuals).

## 6.3 Limitations

Several limitations should be noted:

1. **Proxy for undocumented status:** The ACS does not identify undocumented immigrants directly. I assume non-citizens who have not received immigration papers are potentially undocumented, which may include some documented non-citizens.
2. **Intent-to-treat interpretation:** The estimates reflect eligibility for DACA, not actual DACA receipt. Not all eligible individuals applied for or received DACA benefits.
3. **Generalizability:** Results pertain specifically to Mexican-born Hispanic non-citizens and may not generalize to other DACA-eligible populations.
4. **Spillover effects:** DACA may have affected non-eligible immigrants through general equilibrium or household-level effects, potentially biasing the control group comparison.

## **6.4 Policy Implications**

The findings suggest that providing legal work authorization to eligible undocumented immigrants can generate substantial labor market benefits. A 3.2 percentage point increase in full-time employment represents meaningful economic gains for affected individuals and their families.

These results are relevant to ongoing policy debates about DACA's future and broader immigration reform. The evidence supports the view that DACA has been effective in improving labor market outcomes for its beneficiaries.

## **7 Conclusion**

This study provides robust evidence that eligibility for DACA increased full-time employment among Mexican-born Hispanic non-citizens by approximately 3.2 percentage points. The effect is statistically significant, economically meaningful, and supported by event study evidence consistent with the parallel trends assumption.

The results contribute to the growing body of evidence on the labor market effects of immigration policies and specifically on the economic benefits of the DACA program. Future research could examine longer-term effects and explore heterogeneity across different segments of the eligible population.

## A Variable Definitions

Table 6: IPUMS Variable Definitions

Variable	IPUMS Name	Definition
Year	YEAR	Census/survey year
Hispanic ethnicity	HISPAN	1 = Mexican
Birthplace	BPL	200 = Mexico
Citizenship	CITIZEN	3 = Not a citizen
Year of immigration	YRIMMIG	Year person immigrated to US
Birth year	BIRTHYR	Year of birth
Birth quarter	BIRTHQTR	Quarter of birth (1=Jan-Mar, 2=Apr-Jun, 3=Jul-Sep, 4=Oct-Dec)
Age	AGE	Age in years
Sex	SEX	1 = Male, 2 = Female
Marital status	MARST	1-2 = Married
Education	EDUC	Educational attainment (0-11 scale)
Usual hours worked	UHRSWORK	Usual hours worked per week
Employment status	EMPSTAT	1 = Employed
Person weight	PERWT	Survey weight
State	STATEFIP	State FIPS code

## B Sample Construction Details

Table 7: Sample Construction

Step	N
Mexican-born Hispanic observations (all years)	991,261
After age restriction (16–64)	851,090
After restricting to non-citizens	618,640
After excluding 2012	561,470
Final sample	561,470

## C DACA Eligibility Coding

An individual is coded as DACA-eligible if all of the following conditions are met:

**1. Arrived before age 16:**

$$(YRIMMIG - BIRTHYR) < 16$$

**2. Born after June 15, 1981:**

$$BIRTHYR > 1981 \quad \text{OR} \quad (BIRTHYR = 1981 \text{ AND } BIRTHQTR \geq 3)$$

**3. Arrived by 2007:**

$$YRIMMIG \leq 2007$$

**4. Valid immigration year:**

$$YRIMMIG > 0$$

Note: The citizenship restriction ( $CITIZEN = 3$ ) is applied to the entire sample, not as an eligibility criterion.

## D Full Regression Output

The preferred specification (Model 5) includes:

- 66 estimated parameters (including state and year fixed effects)
- R-squared: 0.228
- Sample size: 561,470
- Person-weighted least squares with robust (HC1) standard errors

**Key coefficients from preferred specification:**

- Eligible  $\times$  Post: 0.0321 (SE: 0.0042,  $p < 0.001$ )
- Eligible:  $-0.0242$  (SE: 0.0034,  $p < 0.001$ )
- Age: 0.0448 (SE: 0.0005,  $p < 0.001$ )
- Age<sup>2</sup>:  $-0.0005$  (SE: 0.000006,  $p < 0.001$ )
- Female:  $-0.4289$  (SE: 0.0014,  $p < 0.001$ )
- Married:  $-0.0374$  (SE: 0.0015,  $p < 0.001$ )
- High School+: 0.0408 (SE: 0.0023,  $p < 0.001$ )

## E Additional Event Study Details

The event study coefficients test for differential pre-trends between the eligible and non-eligible groups. Under the null hypothesis of parallel trends, the pre-treatment coefficients (2006–2010) should be jointly equal to zero.

### Pre-treatment coefficient summary:

- Largest pre-treatment coefficient:  $-0.0161$  (2006)
- All pre-treatment p-values  $> 0.09$
- No evidence of differential pre-trends

### Post-treatment coefficient summary:

- Effects emerge gradually starting in 2013
- Statistically significant effects by 2014
- Effect grows to  $0.042$  by 2016

This pattern is consistent with:

1. Gradual DACA take-up (applications began August 2012)
2. Time needed for labor market adjustment
3. Cumulative effects of legal work authorization