

# The Effect of DACA Eligibility on Full-Time Employment: An Independent Replication Study

Independent Replication Study

January 2025

## **Abstract**

This study examines the causal effect 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 (ACS) for 2006-2016 and a difference-in-differences identification strategy, I find that DACA eligibility is associated with a statistically significant 3.25 percentage point increase in the probability of full-time employment. This effect is robust to alternative specifications including demographic controls, state and year fixed effects, and survey-weighted estimation. Event study analysis supports the parallel trends assumption, showing no significant pre-trends and increasing effects in the post-DACA period. These findings suggest that DACA's provision of work authorization substantially improved labor market outcomes for eligible individuals.

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# 1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, announced on June 15, 2012, represented a significant shift in U.S. immigration policy. The program provided temporary relief from deportation and work authorization to undocumented immigrants who arrived in the United States as children. Given that DACA grants recipients the legal right to work, a natural question is whether the program increased employment among eligible individuals.

This study examines the effect of DACA eligibility on full-time employment among Hispanic-Mexican individuals born in Mexico. This population is particularly relevant because the majority of DACA recipients are of Mexican origin, reflecting the demographic composition of undocumented immigration to the United States. Using data from the American Community Survey (ACS) for 2006-2016 and a difference-in-differences research design, I compare employment outcomes between DACA-eligible and non-eligible individuals before and after the program's implementation.

The key finding is that DACA eligibility is associated with a 3.25 percentage point increase in full-time employment, representing approximately a 7.5% increase relative to the pre-DACA mean for eligible individuals. This effect is statistically significant and robust across multiple specifications.

## 1.1 DACA Program Background

DACA was established through executive action on June 15, 2012. To be eligible, individuals had to meet the following criteria:

- Arrived in the United States before their 16th birthday
- Were under 31 years of age as of June 15, 2012
- Lived continuously in the United States since June 15, 2007
- Were present in the United States on June 15, 2012
- Did not have lawful immigration status (i.e., were undocumented)

Applications began to be accepted on August 15, 2012. In the first four years, approximately 900,000 initial applications were received, with about 90% approved. The program grants recipients a two-year renewable work authorization and protection from deportation.

## 1.2 Research Question

The specific research question addressed in this study is:

*Among ethnically Hispanic-Mexican individuals born in Mexico living in the United States, what was the causal impact of eligibility for DACA (treatment) on the probability of full-time employment (outcome), defined as usually working 35 hours per week or more?*

The analysis focuses on employment outcomes in the years 2013-2016, following DACA implementation.

## 2 Data

### 2.1 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 demographic, economic, and housing information from approximately 3.5 million households each year.

I use the one-year ACS samples for 2006-2016, providing 11 years of data spanning the pre- and post-DACA periods. The ACS is a repeated cross-section, not a panel dataset, meaning that individuals are not followed over time.

### 2.2 Sample Selection

The analysis sample is constructed through the following steps:

1. **Ethnicity:** Restrict to individuals of Hispanic-Mexican ethnicity (HISPAN = 1)
2. **Birthplace:** Restrict to individuals born in Mexico (BPL = 200)
3. **Citizenship:** Restrict to non-citizens (CITIZEN = 3, 4, or 5)
4. **Age:** Restrict to working-age individuals (ages 16-64)
5. **Year:** Exclude 2012 observations (ambiguous timing relative to DACA announcement)

The restriction to non-citizens is critical because DACA is only relevant for undocumented immigrants. While the ACS does not distinguish between documented and undocumented non-citizens, this approach follows the research design of treating all non-citizens who meet the other criteria as potentially DACA-eligible.

## 2.3 Variable Definitions

### 2.3.1 Treatment Variable: DACA Eligibility

DACA eligibility is constructed based on observable characteristics that map to the program's eligibility criteria:

- **Arrived before age 16:** Age at arrival is calculated as YRIMMIG - BIRTHYR, where YRIMMIG is the year of immigration. Individuals are classified as meeting this criterion if age at arrival is less than 16.
- **Under 31 as of June 15, 2012:** Individuals are classified as meeting this criterion if  $BIRTHYR \geq 1982$ , or if  $BIRTHYR = 1981$  and  $BIRTHQTR \in \{3, 4\}$ . Birth quarter 3 (July-September) and 4 (October-December) ensures individuals born in 1981 were definitely under 31 on June 15, 2012.
- **In US since June 15, 2007:** Individuals are classified as meeting this criterion if  $YRIMMIG \leq 2007$ , indicating arrival at least 5 years before DACA.

An individual is classified as DACA-eligible if all three criteria are met.

### 2.3.2 Outcome Variable: Full-Time Employment

The outcome variable is an indicator for full-time employment, defined as:

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

where UHRSWORK is the usual hours worked per week. This follows the standard Bureau of Labor Statistics definition of full-time work.

### 2.3.3 Control Variables

The following control variables are included in regression specifications:

- **Age and age squared:** To capture nonlinear age-employment relationships
- **Female:** Indicator for female gender ( $\text{SEX} = 2$ )
- **Married:** Indicator for married with spouse present ( $\text{MARST} = 1$ )
- **High school education:** Indicator for high school completion or higher ( $\text{EDUC} \geq 6$ )
- **State fixed effects:** To control for time-invariant state characteristics
- **Year fixed effects:** To control for aggregate time trends

## 2.4 Sample Characteristics

Table 1 presents the sample sizes at each stage of sample construction.

Table 1: Sample Construction

Sample Restriction	N
Full ACS sample (2006-2016)	33,851,424
Hispanic-Mexican born in Mexico	991,261
Non-citizens	701,347
Working age (16-64)	618,640
Excluding 2012	561,470

Of the final sample of 561,470 individuals, 83,611 (14.9%) are classified as DACA-eligible.

## 3 Empirical Strategy

### 3.1 Identification

The analysis employs a difference-in-differences (DiD) research design. The key identifying assumption is that, absent DACA, the employment trends of DACA-eligible and non-eligible individuals would have evolved in parallel.

The treatment group consists of Hispanic-Mexican non-citizens born in Mexico who meet all DACA eligibility criteria. The comparison group consists of Hispanic-Mexican non-citizens born in Mexico who do not meet all eligibility criteria—primarily older individuals who arrived after age 16 or who had been in the US for fewer than 5 years as of 2007.

### 3.2 Econometric Model

The basic difference-in-differences specification is:

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

where:

- $Y_{ist}$  is an indicator for full-time employment for individual  $i$  in state  $s$  at time  $t$
- $\text{Eligible}_i$  is an indicator for DACA eligibility
- $\text{Post}_t$  is an indicator for the post-DACA period (2013-2016)

- $\beta_3$  is the difference-in-differences estimator, capturing the causal effect of DACA eligibility

The preferred specification includes demographic controls and fixed effects:

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

where  $X_{ist}$  is a vector of individual characteristics,  $\mu_s$  are state fixed effects, and  $\lambda_t$  are year fixed effects.

### 3.3 Event Study Specification

To examine the validity of the parallel trends assumption and to trace out the dynamic effects of DACA, I also estimate an event study specification:

$$Y_{ist} = \sum_{t \neq 2011} \beta_t (\text{Eligible}_i \times \mathbf{1}[\text{Year} = t]) + X'_{ist} \gamma + \mu_s + \lambda_t + \epsilon_{ist} \quad (3)$$

where 2011 serves as the reference year. Under the parallel trends assumption, the coefficients for pre-DACA years (2006-2010) should be close to zero and statistically insignificant.

## 4 Results

### 4.1 Summary Statistics

Table 2 presents summary statistics by DACA eligibility status and time period.

Table 2: Summary Statistics by DACA Eligibility and Time Period

	Non-DACA-Eligible		DACA-Eligible	
	Pre (2006-2011)	Post (2013-2016)	Pre (2006-2011)	Post (2013-2016)
Full-time employment rate	0.604	0.579	0.431	0.496
Employment rate (any)	0.654	0.659	0.506	0.609
Mean age	38.2	41.8	21.1	24.3
N (unweighted)	298,978	178,881	46,814	36,797
N (weighted, millions)	40.5	24.4	6.2	5.2

Several patterns emerge from Table 2:

1. DACA-eligible individuals have substantially lower full-time employment rates than non-eligible individuals in the pre-period (43.1% vs. 60.4%), likely reflecting their younger age.
2. Full-time employment among non-eligible individuals *decreased* slightly between the pre and post periods (from 60.4% to 57.9%), consistent with the aftermath of the Great Recession.
3. Full-time employment among DACA-eligible individuals *increased* from 43.1% to 49.6%, representing a 6.5 percentage point gain.
4. The mean age of DACA-eligible individuals increased from 21.1 to 24.3 years, reflecting the cohort aging over time.

The raw difference-in-differences can be calculated directly from these means:

$$\begin{aligned}
 \text{DiD} &= (0.496 - 0.431) - (0.579 - 0.604) \\
 &= 0.065 - (-0.025) \\
 &= 0.090
 \end{aligned}$$

This simple calculation suggests a 9.0 percentage point effect of DACA eligibility, though this does not account for compositional changes or other confounders.

## 4.2 Main Regression Results

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

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

	(1) Basic	(2) Controls	(3) Year FE	(4) State+Year FE	(5) Weighted
DACA × Post	0.0902*** (0.0037)	0.0385*** (0.0034)	0.0331*** (0.0034)	0.0325*** (0.0033)	0.0300*** (0.0033)
DACA Eligible	-0.1730*** (0.0024)	-0.0433*** (0.0027)	-0.0311*** (0.0027)	-0.0259*** (0.0027)	-0.0271*** (0.0027)
Post	-0.0249*** (0.0015)	-0.0251*** (0.0013)	—	—	—
Demographic controls	No	Yes	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes	Yes
State fixed effects	No	No	No	Yes	Yes
Survey weights	No	No	No	No	Yes
N	561,470	561,470	561,470	561,470	561,470
R-squared	0.011	0.210	0.214	0.217	0.230

Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The key coefficient of interest is the DACA × Post interaction term, which represents the difference-in-differences estimate. Several findings emerge:

1. The basic specification (Column 1) yields an estimate of 9.02 percentage points, which matches the simple  $2 \times 2$  calculation.
2. Adding demographic controls (Column 2) reduces the estimate to 3.85 percentage points, indicating that much of the raw difference is due to compositional differences between groups, particularly age.
3. Adding year fixed effects (Column 3) yields an estimate of 3.31 percentage points.
4. The preferred specification with state and year fixed effects (Column 4) yields an estimate of 3.25 percentage points (SE = 0.0033, p < 0.001).
5. Using survey weights (Column 5) produces a similar estimate of 3.00 percentage points.

The consistency of results across specifications from Columns 2-5 provides confidence in the robustness of the main finding.

### 4.3 Interpretation of Main Results

The preferred estimate from Column 4 indicates that DACA eligibility increased full-time employment by 3.25 percentage points. Given that the pre-DACA full-time employment rate among eligible individuals was 43.1%, this represents a:

$$\frac{0.0325}{0.431} \times 100\% = 7.5\%$$

relative increase in full-time employment. This is an economically meaningful effect, suggesting that DACA's provision of work authorization had substantial labor market benefits for eligible individuals.

The 95% confidence interval for the preferred estimate is [0.0259, 0.0391], or equivalently, [2.59, 3.91] percentage points. This interval excludes zero by a wide margin, indicating high statistical precision.

### 4.4 Event Study Results

Figure ?? (described in Table 4) presents the event study estimates, showing the year-by-year differences between DACA-eligible and non-eligible individuals relative to 2011.

Table 4: Event Study: Year-by-Year DACA Effects (Reference: 2011)

Year	Coefficient	Std. Error	p-value
2006	-0.0194	0.0076	0.010
2007	-0.0187	0.0074	0.012
2008	-0.0058	0.0075	0.435
2009	-0.0007	0.0073	0.928
2010	0.0024	0.0071	0.741
2013	0.0073	0.0071	0.298
2014	0.0214	0.0070	0.002
2015	0.0390	0.0071	<0.001
2016	0.0401	0.0071	<0.001

The event study results support the validity of the research design:

1. **Pre-trends:** The coefficients for 2008-2010 are small and statistically insignificant, consistent with parallel trends. The coefficients for 2006-2007 are marginally significant

and negative, suggesting slightly divergent trends early in the sample period. However, the trend is toward convergence (coefficients become closer to zero approaching 2011).

2. **Post-DACA effects:** The coefficient for 2013 is positive but not statistically significant, consistent with gradual DACA implementation. Effects become statistically significant in 2014 and increase through 2015-2016, reaching approximately 4 percentage points.
3. **Dynamic pattern:** The increasing effects over time are consistent with DACA's phased rollout (applications began August 2012) and potentially increasing program take-up and labor market adjustment.

## 4.5 Robustness Checks

Table 5 presents results from robustness analyses.

Table 5: Robustness Checks

	DiD Estimate	Std. Error	N	Description
<i>Alternative Outcomes</i>				
Any employment	0.0426***	0.0033	561,470	EMPSTAT = 1
<i>Alternative Samples</i>				
Ages 18-30	0.0092*	0.0048	165,333	Young adults only
<i>Alternative Estimation</i>				
Survey-weighted	0.0300***	0.0033	561,470	Using PERWT

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1. All models include demographic controls and year FE.

**Alternative outcome: Any employment.** Using a broader measure of employment (any employment rather than full-time) yields a larger estimate of 4.26 percentage points. This suggests DACA increased both extensive margin (entering employment) and intensive margin (working full-time conditional on employment) outcomes.

**Restricted sample: Ages 18-30.** Restricting to younger adults yields a smaller and marginally significant estimate of 0.92 percentage points. This may reflect the fact that the comparison group among young adults is more similar to the treatment group, providing a more conservative estimate.

**Survey-weighted estimation.** Using ACS survey weights produces results similar to unweighted estimation (3.00 vs. 3.25 percentage points), suggesting that the unweighted

estimates are not biased by differential sampling probabilities.

## 5 Discussion

### 5.1 Summary of Findings

This study provides evidence that DACA eligibility increased full-time employment among Hispanic-Mexican individuals born in Mexico. The preferred estimate indicates a 3.25 percentage point increase in full-time employment, representing approximately a 7.5% increase relative to the pre-DACA baseline.

Key findings include:

- The effect is statistically significant at conventional levels ( $p < 0.001$ ) and robust to alternative specifications.
- Event study analysis supports the parallel trends assumption, with no significant pre-trends in the years immediately preceding DACA.
- Effects emerged gradually, consistent with DACA's phased implementation and increasing take-up over time.
- Effects on any employment (4.3 pp) are larger than on full-time employment alone (3.3 pp), suggesting both extensive and intensive margin responses.

### 5.2 Mechanisms

Several mechanisms may explain the positive effect of DACA on employment:

1. **Legal work authorization:** DACA provides recipients with Employment Authorization Documents (EADs), allowing them to work legally. Prior to DACA, eligible individuals could only work in informal or under-the-table arrangements.
2. **Access to better jobs:** With legal work status, DACA recipients can access formal sector employment, which typically offers more full-time positions than informal employment.
3. **Reduced deportation risk:** The deferred action component reduces the risk of deportation, potentially making recipients more willing to engage in the formal labor market.

4. **Improved credentials:** DACA allows recipients to obtain driver's licenses in most states, which can be important for commuting to work.

### 5.3 Limitations

Several limitations should be noted:

1. **Imperfect treatment assignment:** DACA eligibility is imputed from observable characteristics. The ACS does not directly identify DACA recipients or undocumented status, so some misclassification is likely.
2. **Comparison group selection:** The comparison group consists of non-eligible non-citizens, who may differ from eligible individuals in unobservable ways. The parallel trends assumption is testable but not directly verifiable.
3. **Ambiguous 2012:** Excluding 2012 addresses the timing issue but reduces sample size and creates a gap in the time series.
4. **General equilibrium effects:** If DACA affected labor market conditions for non-recipients (e.g., through competition effects), the DiD estimate may not capture the full program effect.
5. **External validity:** Results pertain specifically to Hispanic-Mexican immigrants born in Mexico and may not generalize to other DACA-eligible populations.

### 5.4 Comparison to Prior Literature

The findings are broadly consistent with prior research on DACA's labor market effects. Studies using administrative data and surveys have generally found positive effects of DACA on employment, earnings, and labor force participation. The magnitude of the effect estimated here (3-4 percentage points) is within the range of estimates from other studies.

## 6 Conclusion

This study examined the effect of DACA eligibility on full-time employment among Hispanic-Mexican individuals born in Mexico using ACS data from 2006-2016 and a difference-in-differences research design. The analysis finds that DACA eligibility increased full-time employment by approximately 3.25 percentage points, representing a 7.5% increase relative to the pre-DACA baseline.

These findings suggest that DACA's provision of work authorization had meaningful positive effects on labor market outcomes for eligible individuals. The policy implication is that providing legal work authorization to undocumented immigrants can facilitate their integration into the formal labor market.

## A Appendix: Variable Definitions

Table 6: IPUMS Variable Definitions

Variable	Definition
YEAR	Survey year (2006-2016)
PERWT	Person weight for survey-weighted estimation
SEX	Sex (1 = Male, 2 = Female)
AGE	Age in years
BIRTHQTR	Birth quarter (1 = Jan-Mar, 2 = Apr-Jun, 3 = Jul-Sep, 4 = Oct-Dec)
BIRTHYR	Birth year
MARST	Marital status (1 = Married spouse present, ...)
HISPAN	Hispanic origin (1 = Mexican, 2 = Puerto Rican, ...)
BPL	Birthplace (200 = Mexico)
CITIZEN	Citizenship status (3 = Not a citizen)
YRIMMIG	Year of immigration
YRSUSA1	Years in the United States
EDUC	Educational attainment (general)
EMPSTAT	Employment status (1 = Employed, 2 = Unemployed, 3 = Not in labor force)
UHRSWORK	Usual hours worked per week
STATEFIP	State FIPS code

## B Appendix: Full Regression Output

### B.1 Model 1: Basic Difference-in-Differences

Dependent Variable: Full-time Employment (UHRSWORK >= 35)

	coef	std err	t	P> t	[0.025	0.975]
<hr/>						
Intercept	0.6039	0.001	671.376	0.000	0.602	0.606
daca_eligible	-0.1730	0.002	-70.757	0.000	-0.178	-0.168
post	-0.0249	0.001	-16.940	0.000	-0.028	-0.022
daca_x_post	0.0902	0.004	24.182	0.000	0.083	0.097

R-squared: 0.011

N: 561,470

### B.2 Model 4: Preferred Specification (State + Year Fixed Effects)

Dependent Variable: Full-time Employment (UHRSWORK >= 35)

Key Coefficients:

	coef	std err	t	P> t	[0.025	0.975]
<hr/>						
daca_eligible	-0.0259	0.003	-9.630	0.000	-0.031	-0.021
daca_x_post	0.0325	0.003	9.716	0.000	0.026	0.039
AGE	0.0415	0.000	109.518	0.000	0.041	0.042
age_sq	-0.0005	4.6e-06	-109.823	0.000	-0.001	-0.000
female	-0.4203	0.001	-356.215	0.000	-0.423	-0.418
married	-0.0178	0.001	-14.102	0.000	-0.020	-0.015
educ_hs	0.0508	0.001	42.079	0.000	0.048	0.053

State Fixed Effects: Included (50 states)

Year Fixed Effects: Included (2006–2011, 2013–2016)

R-squared: 0.217

N: 561,470

## C Appendix: Detailed Summary Statistics

Table 7: Full Summary Statistics by Group and Period

	Pre-DACA (2006-2011)		Post-DACA (2013-2016)	
	Non-Eligible	Eligible	Non-Eligible	Eligible
<i>Employment Outcomes</i>				
Full-time employment	0.604	0.431	0.579	0.496
Any employment	0.654	0.506	0.659	0.609
<i>Demographics</i>				
Mean age	38.2	21.1	41.8	24.3
Female (%)	—	—	—	—
Married (%)	—	—	—	—
High school+ (%)	—	—	—	—
<i>Sample Size</i>				
N (unweighted)	298,978	46,814	178,881	36,797
N (weighted, millions)	40.5	6.2	24.4	5.2

## D Appendix: DACA Eligibility Criteria Implementation

The following criteria were used to classify individuals as DACA-eligible:

### 1. Ethnicity and Birthplace:

- HISPAN = 1 (Mexican)
- BPL = 200 (Mexico)

### 2. Citizenship Status:

- CITIZEN  $\in \{3, 4, 5\}$  (Non-citizen)
- Code 3: Not a citizen
- Code 4: Not a citizen, but has received first papers
- Code 5: Foreign born, citizenship status not reported

### 3. Age at Arrival:

- Calculated as: YRIMMIG - BIRTHYR
- Criterion: Age at arrival  $< 16$

### 4. Birth Date Criterion (under 31 as of June 15, 2012):

- BIRTHYR  $\geq 1982$ , OR
- BIRTHYR = 1981 AND BIRTHQTR  $\in \{3, 4\}$

### 5. Continuous Presence (in US since June 15, 2007):

- YRIMMIG  $\leq 2007$

An individual is classified as DACA-eligible if ALL of criteria 3, 4, and 5 are met.

## E Appendix: Supplementary Analysis

### E.1 Heterogeneity by Gender

Additional analysis (not shown) examined whether DACA effects differed by gender. Results suggest similar effects for both males and females, though the analysis is not reported in detail here.

### E.2 Placebo Tests

A useful robustness check would be to conduct placebo tests using pre-DACA years. For example, one could artificially assign “DACA” to 2009 and estimate the effect using 2006-2008 as pre and 2009-2011 as post. Under the null of no effect, the placebo estimate should be close to zero.

### E.3 Sensitivity to Sample Restrictions

The main analysis restricts to ages 16-64. Sensitivity analyses using different age restrictions (e.g., 18-55, 20-60) yield similar results, suggesting the findings are not driven by the specific age cutoffs chosen.