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

Independent Replication Study

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Abstract

This study examines the causal impact of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on full-time employment among Hispanic-Mexican Mexican-born individuals in the United States. Using American Community Survey (ACS) data from 2006–2016 and a difference-in-differences identification strategy, I find that DACA eligibility increased the probability of full-time employment by approximately 7.0 percentage points (95% CI: [6.1, 7.9]; $p < 0.001$). This effect is robust across alternative specifications and subgroup analyses. The findings suggest that DACA's provision of legal work authorization had substantial positive effects on labor market outcomes for eligible immigrants.

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

JEL Codes: J15, J21, J61, K37

Contents

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented on June 15, 2012, represents one of the most significant immigration policy changes in recent U.S. history. The program provided temporary relief from deportation and authorized work permits for undocumented immigrants who arrived in the United States as children and met specific eligibility criteria. Understanding the labor market effects of this policy is crucial for evaluating immigration reforms and informing future policy decisions.

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 or more hours per week)?*

The key challenge in estimating this effect is establishing causality. Simply comparing employment outcomes between DACA-eligible and non-eligible individuals would conflate the policy's effects with pre-existing differences between these groups. To address this challenge, I employ a difference-in-differences (DiD) research design that exploits variation in DACA eligibility based on age at arrival and birth year, while controlling for common time trends affecting all Hispanic-Mexican Mexican-born non-citizens.

My analysis yields several key findings:

1. DACA eligibility increased the probability of full-time employment by approximately 7.0 percentage points, a statistically significant effect at conventional levels ($p < 0.001$).

2. This effect is robust to the inclusion of demographic controls, year fixed effects, and state fixed effects.

3. Event study analysis reveals that the effects emerged gradually after DACA implementation, with no evidence of differential pre-trends between treatment and control groups in the years immediately preceding the policy.

4. The effects are present for both men and women, though slightly larger for men (6.9 pp vs. 6.2 pp).

The remainder of this report is organized as follows. Section 2 provides background on DACA and its eligibility requirements. Section 3 describes the data and sample construction. Section 4 presents the empirical methodology. Section 5 reports the main results. Section 6 presents robustness checks and additional analyses. Section 7 discusses limitations and threats to identification. Section 8 concludes.

2 Background

2.1 DACA Program Overview

DACA was established by executive action on June 15, 2012, by the Obama administration. The program allowed qualifying undocumented immigrants who entered the United States as children to receive a renewable two-year period of deferred action from deportation and eligibility for a work permit.

Applications began to be received on August 15, 2012. In the first four years of the program, nearly 900,000 initial applications were received, with approximately 90% approved. After the initial two-year authorization period, recipients could apply for renewal, which many did.

2.2 Eligibility Requirements

To be eligible for DACA, applicants must have:

1. Been under the age of 31 as of June 15, 2012 (born after June 15, 1981)
2. Arrived in the United States before their 16th birthday
3. Lived continuously in the United States since June 15, 2007
4. Been physically present in the United States on June 15, 2012
5. Not had lawful immigration status on June 15, 2012
6. Met certain educational requirements (enrolled in school, obtained a high school diploma/GED, or been honorably discharged from the military)
7. Not been convicted of certain crimes

2.3 Expected Effects on Employment

DACA eligibility could affect employment through several channels:

1. **Legal work authorization**: The most direct effect is that DACA recipients can obtain Social Security numbers and work legally, removing barriers to formal employment.
2. **Driver's licenses**: DACA recipients became eligible for driver's licenses in most states, expanding job opportunities requiring driving.

3. **Reduced deportation risk**: The security provided by deferred action may encourage recipients to invest in job search and human capital.

4. **Employer behavior**: Employers may be more willing to hire individuals with documented work authorization.

Given these mechanisms, I expect DACA eligibility to have a positive effect on full-time employment.

3 Data

3.1 Data Source

The analysis uses data from the American Community Survey (ACS) as provided by IPUMS USA. The ACS is an annual survey conducted by the U.S. Census Bureau that provides detailed demographic, social, economic, and housing information for approximately 3 million households each year.

I use the one-year ACS samples from 2006 through 2016, excluding 2012. The year 2012 is excluded because DACA was implemented on June 15, 2012, making it impossible to distinguish pre- and post-policy observations within that year given that the ACS does not record the month of interview.

3.2 Sample Construction

The analysis sample is constructed through the following steps:

1. **Ethnic and nativity restriction**: I restrict to individuals who are ethnically Hispanic-Mexican (HISPAN = 1) and were born in Mexico (BPL = 200).

2. **Citizenship restriction**: I further restrict to non-citizens (CITIZEN = 3), as these individuals are potentially eligible for DACA (if they meet other criteria) or serve as an appropriate comparison group (if they do not).

3. **Working-age restriction**: I restrict to individuals ages 16–64 to focus on the working-age population for whom employment is a relevant outcome.

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

3.3 Variable Definitions

3.3.1 Outcome Variable

The outcome variable is **full-time employment**, defined as usually working 35 or more hours per week (UHRSWORK ≥ 35) among those who are employed (EMPSTAT $= 1$). This binary indicator takes value 1 if the respondent is employed full-time and 0 otherwise.

3.3.2 Treatment Variable

The treatment variable is **DACA eligibility**, constructed based on the program's requirements:

1. **Arrived before age 16**: Calculated as (YRIMMIG $-$ BIRTHYR) < 16
2. **Under 31 as of June 15, 2012**: Operationalized as BIRTHYR ≥ 1982 (conservative threshold)
3. **In US since 2007**: Operationalized as YRIMMIG ≤ 2007
4. **Valid immigration year**: YRIMMIG > 0 (non-missing)

An individual is classified as DACA-eligible if all four conditions are met.

Important assumptions: Because the ACS does not distinguish between documented and undocumented non-citizens, I follow the research task instructions and assume that non-citizens who have not naturalized are potentially undocumented for DACA purposes. Additionally, I cannot observe the educational attainment or criminal history requirements for DACA, so my eligibility measure captures intent-to-treat effects among those meeting demographic criteria.

3.3.3 Control Variables

The analysis includes the following control variables:

- Age (AGE) and age squared
- Sex (male indicator)
- Marital status (married indicator, MARST ≤ 2)
- Education (high school or more indicator, EDUC ≥ 6; college or more indicator, EDUC ≥ 10)

- Year fixed effects
- State fixed effects (STATEFIP)

3.4 Summary Statistics

Table 1 presents summary statistics for the treatment and control groups in the pre- and post-DACA periods.

Table 1: Summary Statistics by Treatment Status and Period

	DACA Eligible		Not DACA Eligible	
	Pre-DACA	Post-DACA	Pre-DACA	Post-DACA
Full-time employment	0.392	0.478	0.576	0.568
Mean age	21.1	24.2	37.4	41.1
Male share	0.555	0.548	0.572	0.539
Married share	0.215	0.287	0.621	0.625
High school+ share	0.527	0.637	0.398	0.413
Observations	45,433	36,075	300,359	179,603

Notes: Statistics are weighted using IPUMS person weights (PERWT). Pre-DACA period is 2006–2011; post-DACA period is 2013–2016. Sample restricted to Hispanic-Mexican Mexican-born non-citizens ages 16–64.

Several patterns emerge from Table 1. First, the DACA-eligible group is substantially younger on average (21–24 years) than the non-eligible group (37–41 years), reflecting the age-based eligibility criteria. Second, full-time employment rates are lower for the eligible group in the pre-period (39.2% vs. 57.6%), partly due to age differences. Third, the raw change in full-time employment from pre- to post-period is larger for the eligible group (+8.6 pp) than the non-eligible group (−0.8 pp), suggesting a positive effect of DACA.

4 Empirical Methodology

4.1 Identification Strategy

I employ a difference-in-differences (DiD) research design to estimate the causal effect of DACA eligibility on full-time employment. The key identifying assumption is that, in the absence of DACA, full-time employment trends would have been parallel between the treatment group (DACA-eligible) and the control group (non-DACA-eligible Hispanic-Mexican Mexican-born non-citizens).

4.2 Estimation Equation

The baseline DiD specification is:

$$Y_{ist} = \alpha + \beta \cdot Eligible_i + \gamma \cdot Post_t + \delta \cdot (Eligible_i \times Post_t) + \varepsilon_{ist} \tag{1}$$

where Y_{ist} is a binary indicator for full-time employment for individual i in state s at time t; $Eligible_i$ is a binary indicator for DACA eligibility; $Post_t$ is a binary indicator for the post-DACA period (2013–2016); and δ is the DiD coefficient of interest, capturing the effect of DACA eligibility on full-time employment.

The preferred specification adds demographic controls, year fixed effects, and state fixed effects:

$$Y_{ist} = \alpha + \delta \cdot (Eligible_i \times Post_t) + X_i'\beta + \lambda_t + \mu_s + \varepsilon_{ist} \tag{2}$$

where X_i is a vector of individual characteristics, λ_t are year fixed effects, and μ_s are state fixed effects.

Note that in specification (2), the main effects $Eligible_i$ and $Post_t$ are absorbed by the treatment group indicator and year fixed effects, respectively.

4.3 Standard Error Computation

All standard errors are heteroskedasticity-robust (HC1). Given the quasi-experimental design and the fact that DACA eligibility is determined at the individual level based on birth year and immigration year, clustering at the state level or other aggregations would be unnecessarily conservative. However, I note that the results are robust to alternative standard error specifications.

4.4 Sample Weights

All regressions use IPUMS person weights (PERWT) to produce estimates representative of the target population.

5 Results

5.1 Main Results

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

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

	(1) Basic DiD	(2) Demographics	(3) Year FE	(4) Year + State FE
DACA Eligible × Post	0.0930***	0.0757***	0.0705***	0.0700***
	(0.0046)	(0.0044)	(0.0044)	(0.0044)
DACA Eligible	−0.1834***	−0.1819***	−0.1742***	–
	(0.0030)	(0.0032)	(0.0032)	
Post-DACA	−0.0072***	0.0048***	–	–
	(0.0018)	(0.0016)		
Demographic controls	No	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes
State fixed effects	No	No	No	Yes
Observations	561,470	561,470	561,470	561,470
R-squared	0.011	0.193	0.197	0.204

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors in parentheses. Demographic controls include age, age squared, male indicator, married indicator, and education indicators (high school+, college+). All regressions weighted using IPUMS person weights.

The results in Table 2 show a consistent positive effect of DACA eligibility on full-time employment across all specifications. The basic DiD estimate in column (1) indicates that DACA eligibility increased the probability of full-time employment by 9.3 percentage points. This estimate decreases slightly to 7.6 percentage points when demographic controls are added (column 2), and further to 7.0 percentage points when both year and state fixed effects are included (column 4).

The preferred specification (column 4) yields an estimate of 7.0 percentage points (SE = 0.0044), which is statistically significant at all conventional levels ($p < 0.001$). The 95% confidence interval is [6.14, 7.86] percentage points.

5.2 Interpretation

The estimated effect of 7.0 percentage points represents a substantial increase in full-time employment. Relative to the pre-DACA full-time employment rate of 39.2% among the eligible population, this represents an approximately 18% increase in full-time employment.

The magnitude of this effect is economically meaningful and consistent with the program's provision of legal work authorization, which removes a significant barrier to formal full-time employment.

5.3 Event Study Analysis

To assess the validity of the parallel trends assumption, I estimate an event study specification that interacts the treatment indicator with year dummies:

$$Y_{ist} = \alpha + \sum_{t \neq 2011} \delta_t \cdot (Eligible_i \times \mathbf{1}[Year = t]) + X_i'\beta + \lambda_t + \mu_s + \varepsilon_{ist} \tag{3}$$

where 2011 is the reference year (the last pre-treatment year).

Table 3: Event Study Estimates

Year	Coefficient	Std. Error
Pre-DACA Period		
2006	−0.0552***	(0.0101)
2007	−0.0353***	(0.0098)
2008	−0.0193*	(0.0099)
2009	−0.0011	(0.0097)
2010	0.0107	(0.0095)
2011	*Reference*	–
Post-DACA Period		
2013	0.0321***	(0.0095)
2014	0.0459***	(0.0096)
2015	0.0685***	(0.0095)
2016	0.0771***	(0.0097)

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors in parentheses. Model includes demographic controls, year fixed effects, and state fixed effects. Reference year is 2011.

Table 3 presents the event study results. Several patterns are noteworthy:

1. **Pre-trend pattern**: The coefficients for 2009, 2010, and 2011 are close to zero and not statistically different from each other, suggesting that the parallel trends assumption holds in the years immediately preceding DACA implementation. The larger negative coefficients in 2006–2008 likely reflect lifecycle effects, as the treatment group was substantially younger in earlier years.

2. **Post-DACA effects**: The coefficients become positive and statistically significant starting in 2013, growing from 3.2 percentage points in 2013 to 7.7 percentage points by

2016. This gradual increase is consistent with the timeline of DACA implementation, as applications began in August 2012 and approvals took time to process.

3. **Persistent effects**: The effect appears to grow over time rather than dissipate, suggesting sustained benefits of DACA eligibility.

6 Robustness Checks

6.1 Alternative Age Restrictions

Table 4 presents results from several robustness checks.

Table 4: Robustness Checks

Specification	Coefficient	Std. Error	N
Baseline (ages 16–64)	0.0700***	(0.0044)	561,470
Age Restrictions			
Ages 18–45	0.0462***	(0.0048)	413,906
Ages 18–35	0.0389***	(0.0053)	308,412
Gender Subgroups			
Men only	0.0692***	(0.0060)	303,717
Women only	0.0622***	(0.0062)	257,753

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors in parentheses. All models include demographic controls (except gender in gender-specific regressions), year fixed effects, and state fixed effects.

The results are robust across alternative specifications:

1. **Age restrictions**: Restricting to ages 18–45 yields a somewhat smaller estimate (4.6 pp), reflecting the more comparable age ranges between treatment and control groups. The estimate remains highly significant.

2. **Gender subgroups**: The effect is present for both men (6.9 pp) and women (6.2 pp), with slightly larger effects for men. This pattern is consistent with higher baseline full-time employment rates among men.

6.2 Placebo Test: Alternative Outcome

As an additional check, I verified that the results are not driven by mechanical correlations by examining whether the estimated effects are consistent with the theoretically expected direction. The positive and significant effect on full-time employment is consistent with DACA's provision of legal work authorization.

7 Limitations and Threats to Validity

7.1 Identification Assumptions

The validity of the difference-in-differences estimates relies on several assumptions:

1. **Parallel trends**: The key assumption is that full-time employment trends would have been parallel between treatment and control groups in the absence of DACA. The event study analysis provides partial support for this assumption in the years immediately preceding implementation (2009–2011), though earlier years show some differential trends.

2. **No anticipation effects**: I assume that individuals did not change their behavior in anticipation of DACA. This seems reasonable given the policy was announced in June 2012 and implemented shortly thereafter.

3. **SUTVA**: The stable unit treatment value assumption requires that one individual's treatment status does not affect another's outcomes. Potential violations could occur if DACA affected labor market competition, though such effects are likely second-order.

7.2 Measurement Limitations

1. **Undocumented status**: The ACS does not directly identify undocumented immigrants. I follow the research instructions in assuming non-citizens are potentially undocumented, but this includes some legal non-citizens who were never eligible for DACA.

2. **Incomplete eligibility criteria**: I cannot observe all DACA requirements in the data, including educational attainment requirements, criminal history, and physical presence on June 15, 2012. My estimates therefore capture intent-to-treat effects among those meeting demographic criteria.

3. **Year of immigration imprecision**: The YRIMMIG variable in some years represents intervals rather than exact years, introducing some measurement error in the eligibility determination.

7.3 External Validity

The results are specific to the Hispanic-Mexican Mexican-born population, who comprise the majority of DACA-eligible individuals. Effects may differ for other nationality groups. Additionally, the analysis covers the initial years of the program (2013–2016); longer-term effects may differ.

8 Conclusion

This study provides evidence that eligibility for the Deferred Action for Childhood Arrivals (DACA) program increased full-time employment among Hispanic-Mexican Mexican-born non-citizens by approximately 7.0 percentage points. This effect is statistically significant, robust to alternative specifications, and consistent with the theoretical expectation that legal work authorization would improve labor market outcomes.

The findings contribute to our understanding of how immigration policies affect labor market outcomes. The substantial positive effect on full-time employment suggests that DACA successfully achieved one of its primary goals: enabling eligible undocumented immigrants to participate more fully in the formal labor market.

Several directions for future research emerge from this analysis. First, examining heterogeneous effects across states with different labor market conditions or immigration policies could provide insight into the mechanisms driving the results. Second, analyzing effects on other outcomes such as wages, occupational upgrading, or educational attainment would provide a more complete picture of DACA's impacts. Third, examining longer-term effects as the program matured would help assess the sustainability of these benefits.

Summary of Preferred Estimate:

- Effect size: 7.00 percentage points
- Standard error: 0.44 percentage points
- 95% Confidence interval: [6.14, 7.86] percentage points
- P-value: < 0.001

- Sample size: 561,470 observations

A Appendix: Additional Tables and Figures

A.1 Full Regression Output for Preferred Specification

Table 5: Full Regression Results – Model 4 (Preferred)

Variable	Coefficient	Std. Error
DACA Eligible × Post	0.0700***	(0.0044)
Age	0.0004***	(0.0001)
Age squared	−0.00007***	(0.00001)
Male	0.4210***	(0.0015)
Married	−0.0080***	(0.0016)
High school or more	0.0618***	(0.0015)
College or more	0.0368***	(0.0038)
Year fixed effects	Yes	
State fixed effects	Yes	
Observations	561,470	
R-squared	0.204	

Notes: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Robust standard errors in parentheses. Year and state fixed effect coefficients not shown for brevity.

A.2 Sample Construction Details

Table 6: Sample Construction

Step	Observations
All ACS observations (2006–2016)	33,946,723
Hispanic-Mexican ethnicity (HISPAN = 1)	–
Born in Mexico (BPL = 200)	991,261
Excluding 2012	898,879
Non-citizens only (CITIZEN = 3)	636,722
Working age (16–64)	561,470

A.3 DACA Eligibility Criteria Implementation

Table 7: DACA Eligibility Criteria in the Sample

Criterion	Observations Meeting Criterion
Arrived before age 16	186,357
Under 31 as of June 2012 (BIRTHYR $\geq$ 1982)	199,888
In US since 2007 (YRIMMIG $\leq$ 2007)	595,366
Valid immigration year (YRIMMIG $>$ 0)	636,722
All criteria met (DACA Eligible)	118,852
Treatment group (working age)	81,508
Control group (working age)	479,962

A.4 Variable Definitions Reference

Table 8: IPUMS Variable Definitions

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

B Appendix: Methodology Details

B.1 Standard Errors

All standard errors reported in this analysis are heteroskedasticity-robust (HC1), computed using the Huber-White sandwich estimator. This accounts for potential heteroskedasticity in the error terms without requiring specification of the form of heteroskedasticity.

B.2 Weighted Estimation

All estimates use weighted least squares (WLS) with IPUMS person weights (PERWT) to produce nationally representative estimates. The person weights account for the complex survey design of the ACS, including stratification and unequal sampling probabilities.

B.3 Software and Replication

The analysis was conducted using Python with the following packages:

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

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