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

Replication Study 50

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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 Mexican-born Hispanic non-citizens in the United States. Using data from the American Community Survey (2006–2016) and a difference-in-differences design that exploits the age-at-arrival eligibility criterion, I find that DACA eligibility increased the probability of full-time employment by approximately 4.3 percentage points. This effect is statistically significant at the 1% level and robust across multiple specifications. The event study analysis confirms parallel pre-treatment trends between treatment and control groups, supporting the validity of the identification strategy. These findings suggest that legal work authorization provided by DACA enabled previously undocumented immigrants to access formal, full-time employment opportunities.

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

Preferred Estimate: Effect size = 0.0427, Sample size = 64,082, Standard error = 0.0087, 95% CI: [0.0256, 0.0599]

Contents

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, enacted on June 15, 2012, represented one of the most significant immigration policy changes in recent U.S. history. The program provided temporary relief from deportation and work authorization to undocumented immigrants who arrived in the United States as children. Given that DACA offered legal work authorization to recipients, a natural question arises: did DACA eligibility affect employment outcomes among the eligible population?

This study examines the effect of DACA eligibility on full-time employment among Hispanic-Mexican individuals born in Mexico and living in the United States without citizenship. Using data from the American Community Survey (ACS) for the years 2006–2016, I employ a difference-in-differences (DiD) research design that exploits the age-at-arrival eligibility criterion to identify a credible control group.

The key eligibility criterion I exploit is that applicants must have arrived in the United States before their 16th birthday. This creates a natural comparison between individuals who arrived just before age 16 (eligible for DACA) and those who arrived just after age 16 (ineligible), holding other characteristics constant. This identification strategy provides a cleaner comparison than alternative approaches based on birth-year cutoffs, as it controls for cohort effects and produces more credible parallel pre-treatment trends.

The main finding of this study is that DACA eligibility increased the probability of full-time employment by approximately 4.3 percentage points, representing about a 7% increase relative to the control group mean. This effect is precisely estimated and robust across various specifications and subgroup analyses.

2 Background

2.1 The DACA Program

DACA was announced by the Department of Homeland Security on June 15, 2012, and applications began to be accepted on August 15, 2012. The program was established through executive action by the Obama administration and provided two years of deferred action (relief from deportation) and work authorization to eligible individuals, with the possibility of renewal.

To be eligible for DACA, applicants 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. Lived continuously in the United States since June 15, 2007
4. Were present in the United States on June 15, 2012 and did not have lawful immigration status
5. Had no felony or significant misdemeanor convictions
6. Were currently in school, had graduated from high school, obtained a GED, or were honorably discharged from the military

In the first four years of the program, nearly 900,000 initial applications were received, with approximately 90% approved. While the program was not specific to any national origin, the vast majority of recipients were from Mexico due to the structure of undocumented immigration to the United States.

2.2 Theoretical Mechanisms

DACA eligibility could affect full-time employment through several channels:

Legal Work Authorization: The most direct mechanism is that DACA provides legal authorization to work. Prior to DACA, undocumented immigrants faced significant barriers to formal employment and often worked in informal sectors or under the table. With work authorization, DACA recipients could seek formal, full-time employment without fear of legal consequences.

Access to Better Jobs: Beyond simply being able to work legally, DACA recipients gained access to a broader range of employment opportunities. Many employers require documentation for hiring, and DACA recipients could now meet these requirements.

Reduced Fear of Deportation: The deferred action component of DACA reduced the risk of deportation, which may have increased willingness to engage in formal employment where records are maintained.

Driver's Licenses and Identification: In many states, DACA recipients became eligible for driver's licenses and state identification cards, reducing barriers to employment, particularly in jobs requiring transportation.

3 Data

3.1 Data Source

This study 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 detailed demographic, social, economic, and housing information from approximately 3.5 million households each year.

I use the one-year ACS files for 2006–2016, providing 11 years of data spanning the pre-treatment period (2006–2011), the implementation year (2012), and the post-treatment period (2013–2016). The 2012 survey year is excluded from the main analysis because DACA was announced mid-year (June 15, 2012), making it impossible to distinguish pre- and post-treatment observations.

The total sample from the ACS includes 33,851,424 person-level observations across all years.

3.2 Sample Construction

The analysis sample is constructed through the following steps:

1. **Hispanic-Mexican ethnicity:** Restrict to individuals identified as Hispanic-Mexican (HISPAN = 1). This reduces the sample to 2,945,521 observations.

2. **Mexican birthplace:** Restrict to individuals born in Mexico (BPL = 200). This reduces the sample to 991,261 observations.

3. **Non-citizenship:** Restrict to non-citizens (CITIZEN = 3). Since the ACS does not identify undocumented status directly, non-citizenship is used as a proxy for potential undocumented status. This reduces the sample to 701,347 observations.

4. **Valid immigration year:** Restrict to observations with valid year of immigration information (YRIMMIG > 0). The sample remains at 701,347 observations.

5. **Eligibility criteria:** Apply DACA eligibility criteria:

    - Under 31 years old as of June 15, 2012 (born 1982 or later, or born in 1981 Q3–Q4)
    - In the United States since at least 2007 (YRIMMIG ≤ 2007)

6. **Treatment and control groups based on arrival age:**

    - Treatment group: Arrived at age 12–15 (DACA-eligible by arrival age criterion)
    - Control group: Arrived at age 16–19 (not DACA-eligible)

7. **Working age:** Restrict to ages 18–55.

8. **Exclude 2012:** Remove observations from the transition year.

The final analysis sample contains 64,082 observations, with 23,752 in the treatment group and 40,330 in the control group.

3.3 Variables

3.3.1 Outcome Variable

The primary outcome variable is **full-time employment**, defined as an indicator equal to 1 if the individual reports usually working 35 or more hours per week (UHRSWORK $\geq$ 35). This definition follows standard practice in labor economics and is consistent with the Bureau of Labor Statistics definition of full-time work.

3.3.2 Treatment Variable

The treatment variable is an indicator for DACA eligibility based on age at arrival:

$$\text{Treat}_i = \mathbf{1}[\text{Age at Immigration}_i < 16] \tag{1}$$

In the main specification, I compare those who arrived at ages 12–15 (treatment) to those who arrived at ages 16–19 (control).

3.3.3 Control Variables

The analysis includes the following control variables:

- **Age:** Continuous measure of age in years, plus age squared to capture nonlinear age effects
- **Female:** Indicator for female gender (SEX = 2)
- **Married:** Indicator for currently married with spouse present (MARST = 1)
- **High school:** Indicator for high school completion or higher (EDUC $\geq$ 6)

- **Year fixed effects:** Indicators for each survey year

3.3.4 Survey Weights

All analyses use person weights (PERWT) provided by IPUMS to produce nationally representative estimates. Standard errors are heteroscedasticity-robust (HC1).

4 Empirical Strategy

4.1 Identification Strategy

I employ a difference-in-differences (DiD) design that exploits the age-at-arrival eligibility criterion. The identifying assumption is that, in the absence of DACA, full-time employment trends would have evolved similarly for those who arrived just before age 16 and those who arrived just after age 16.

This identification strategy has several advantages over alternative approaches:

1. **Similar characteristics:** Individuals who arrived at ages 12–15 versus 16–19 are similar in terms of years in the United States, socioeconomic background, and other observable characteristics.

2. **Controls for cohort effects:** Unlike designs based on birth-year cutoffs, the arrival-age design controls for cohort-specific trends that might differentially affect younger versus older individuals.

3. **Credible parallel trends:** As demonstrated in the event study analysis, the pre-treatment trends in full-time employment are parallel between treatment and control groups.

4.2 Estimation

The main specification is:

$$Y_{it} = \alpha + \beta_1 \text{Treat}_i + \beta_2 \text{Post}_t + \delta(\text{Treat}_i \times \text{Post}_t) + X_{it}'\gamma + \mu_t + \varepsilon_{it} \tag{2}$$

where:

- Y_{it} is full-time employment for individual i in year t
- Treat_i is an indicator for DACA eligibility (arrived before age 16)
- Post_t is an indicator for the post-DACA period (2013–2016)
- δ is the DiD coefficient of interest
- X_{it} is a vector of individual controls
- μ_t are year fixed effects
- ε_{it} is the error term

The coefficient δ captures the causal effect of DACA eligibility on full-time employment under the parallel trends assumption.

4.3 Event Study

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

$$Y_{it} = \alpha + \sum_{k \neq 2011} \theta_k(\text{Treat}_i \times \mathbf{1}[t = k]) + X_{it}'\gamma + \mu_t + \varepsilon_{it} \tag{3}$$

where 2011 is the reference year (last pre-treatment year). The coefficients θ_k for $k < 2012$ test for differential pre-trends, while the coefficients for $k \geq 2013$ trace out the dynamic treatment effects.

5 Results

5.1 Summary Statistics

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

Table 1: Summary Statistics by Treatment Group and Period

	Pre-Period (2006–2011)		Post-Period (2013–2016)	
	Control	Treatment	Control	Treatment
Full-time employment rate	0.622	0.571	0.607	0.626
Employment rate (any)	0.672	0.628	0.683	0.706
Mean age	23.71	22.59	29.51	27.29
Mean age at immigration	17.46	13.81	17.46	13.75
N (observations)	25,272	14,199	15,058	9,553
Sum of weights	3,641,239	1,953,526	2,275,787	1,418,682

Several patterns emerge from the summary statistics. First, the treatment group (those who arrived before age 16) has a lower baseline full-time employment rate in the pre-period compared to the control group (0.571 vs. 0.622). This is expected as those who arrived younger tend to be younger at the time of the survey. Second, the treatment group experiences a larger increase in full-time employment from the pre- to post-period (5.5 percentage points) compared to the control group (decrease of 1.5 percentage points), providing preliminary evidence of a positive DACA effect.

5.2 Main Results

Table 2 presents the main difference-in-differences results.

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

	(1) Basic DiD	(2) With Controls	(3) With Year FE
Treat × Post	0.0709***	0.0489***	0.0427***
	(0.0097)	(0.0087)	(0.0087)
Treat	−0.0558***	−0.0050	−0.0149***
	(0.0062)	(0.0057)	(0.0056)
Post	−0.0147***	0.0219***	–
	(0.0053)	(0.0067)	–
Age	–	0.0929***	0.0920***
	–	(0.0063)	(0.0061)
Age^2	–	−0.0016***	−0.0016***
	–	(0.0001)	(0.0001)
Female	–	−0.4687***	−0.4685***
	–	(0.0043)	(0.0043)
Married	–	−0.0404***	−0.0436***
	–	(0.0043)	(0.0043)
High School	–	0.0224***	0.0212***
	–	(0.0040)	(0.0040)
Year Fixed Effects	No	No	Yes
N	64,082	64,082	64,082
R^2	0.005	0.236	0.240

Notes: Weighted least squares with person weights. Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

The results show a consistently positive and statistically significant effect of DACA eligibility on full-time employment. In the basic DiD specification (Column 1), the treatment effect is 7.09 percentage points. Adding demographic controls (Column 2) reduces the estimate to 4.89 percentage points, suggesting that some of the raw difference is explained by observable characteristics. The preferred specification with year fixed effects (Column 3) yields an estimate of 4.27 percentage points with a standard error of 0.87 percentage points.

Interpretation: The preferred estimate indicates that DACA eligibility increased the probability of full-time employment by 4.27 percentage points. Given that the pre-period full-time employment rate for the treatment group was 57.1%, this represents approximately

a 7.5% increase in the likelihood of full-time employment.

5.3 Event Study

Figure ?? and Table 3 present the event study results, which test for parallel pre-trends and trace out the dynamic treatment effects.

Table 3: Event Study Coefficients

Year	Coefficient	Standard Error	Significance
2006	−0.0156	0.0197	
2007	−0.0135	0.0191	
2008	−0.0034	0.0192	
2009	0.0078	0.0194	
2010	0.0081	0.0192	
2011	(reference)	–	–
2013	0.0432	0.0190	**
2014	0.0274	0.0194	
2015	0.0377	0.0193	*
2016	0.0567	0.0197	***

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

The event study results provide strong support for the parallel trends assumption. All pre-treatment coefficients (2006–2010) are small in magnitude, ranging from −0.016 to 0.008, and none are statistically significant. This indicates that there were no differential trends in full-time employment between the treatment and control groups prior to DACA implementation.

In contrast, the post-treatment coefficients (2013–2016) are positive and generally statistically significant. The effect appears to grow over time, from 0.043 in 2013 to 0.057 in 2016. This pattern is consistent with the interpretation that DACA recipients gradually transitioned into full-time employment as they obtained work authorization and adjusted to the formal labor market.

5.4 Robustness Checks

Table 4 presents results from several robustness checks.

Table 4: Robustness Checks

Specification	DiD Estimate	SE	N
Main specification	0.0427***	0.0087	64,082
Alternative bandwidth			
Narrow (age 14–15 vs 16–17)	0.0317***	0.0113	35,350
Subgroup analyses			
Men only	0.0365***	0.0101	38,567
Women only	0.0495***	0.0154	25,515
Alternative outcome			
Any employment	0.0373***	0.0082	64,082

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

5.4.1 Narrower Bandwidth

To test whether the results are sensitive to the definition of treatment and control groups, I estimate the model using a narrower bandwidth around the age-16 cutoff, comparing those who arrived at ages 14–15 to those who arrived at ages 16–17. The estimated effect is 3.17 percentage points, somewhat smaller than the main specification but still statistically significant at the 1% level. The attenuation may reflect the smaller sample size and increased noise in this specification.

5.4.2 Gender Subgroups

I estimate separate models for men and women to examine whether the effect differs by gender. The effect for men (3.65 percentage points) is smaller than for women (4.95 percentage points), though both are statistically significant. The larger effect for women is noteworthy and may reflect that women faced greater barriers to formal employment prior to DACA, perhaps due to occupational segregation into sectors with more employer documentation requirements.

5.4.3 Alternative Outcome

Using any employment (employed vs. not employed) as the outcome, I find a positive effect of 3.73 percentage points. This effect is slightly smaller than the effect on full-time employment, suggesting that DACA primarily affected the intensive margin (hours worked conditional on employment) rather than the extensive margin (employment status).

6 Discussion

6.1 Interpretation of Results

The findings indicate that DACA eligibility led to a meaningful increase in full-time employment among Mexican-born Hispanic non-citizens. The estimated effect of 4.27 percentage points represents approximately a 7.5% increase relative to the pre-treatment mean. This effect is economically significant given the policy context.

Several mechanisms likely contribute to this effect:

1. **Direct work authorization:** DACA provides legal authorization to work, removing a fundamental barrier to formal employment.

2. **Access to better job matches:** With documentation, DACA recipients can pursue jobs that better match their skills and preferences, which are more likely to be full-time positions.

3. **Employer willingness to hire:** Employers who previously could not or would not hire undocumented workers can now legally employ DACA recipients.

4. **Reduced fear:** The deferred action component reduces fear of deportation, encouraging recipients to engage more fully in the formal labor market.

6.2 Comparison with Prior Literature

The findings are broadly consistent with prior research on DACA and employment outcomes. Studies using various identification strategies have generally found positive effects of DACA on labor market outcomes, though the magnitude of estimates varies depending on the outcome measured and the identification approach used.

The contribution of this study is the use of the arrival-age discontinuity, which provides a clean identification strategy with parallel pre-trends. The event study results demonstrating no differential pre-trends strengthen confidence in the causal interpretation of the findings.

6.3 Limitations

Several limitations should be noted:

1. **Proxy for undocumented status:** The ACS does not identify undocumented immigrants directly. I use non-citizenship as a proxy, which includes legal non-citizens who would not be eligible for DACA. This likely attenuates the estimated effect, as some individuals in the "treatment" group were not actually affected by DACA.

2. **Arrival age measurement:** Age at immigration is calculated as the difference between immigration year and birth year, which may introduce measurement error.

3. **Sample composition:** The treatment and control groups differ in average age at the time of survey, though I control for age and age-squared in the regressions.

4. **General equilibrium effects:** The analysis estimates partial equilibrium effects and does not account for potential general equilibrium effects on the labor market.

6.4 Policy Implications

The findings suggest that providing work authorization to undocumented immigrants can have meaningful positive effects on their formal labor market participation. Full-time em-

ployment is associated with higher earnings, better benefits, and greater economic stability. By enabling DACA recipients to access full-time employment, the policy may have contributed to improved economic outcomes for this population.

The results also highlight the economic costs of maintaining a large population of undocumented workers without legal work authorization. When workers cannot legally access formal employment, both workers and employers lose potential gains from better job matches.

7 Conclusion

This study provides evidence that DACA eligibility increased full-time employment among Mexican-born Hispanic non-citizens by approximately 4.27 percentage points. Using a difference-in-differences design that exploits the age-at-arrival eligibility criterion, I find robust effects across multiple specifications. The event study analysis confirms parallel pretrends, supporting the causal interpretation of the findings.

These results contribute to our understanding of the labor market effects of immigration policy and work authorization programs. The finding that legal work authorization significantly increases formal employment suggests that immigration policy has important consequences for labor market outcomes among affected populations.

Appendix: Technical Details

A.1 Variable Definitions

Table 5: Variable Definitions

Variable	Definition
YEAR	Survey year (2006–2016)
HISPAN	Hispanic origin: 1 = Mexican
BPL	Birthplace: 200 = Mexico
CITIZEN	Citizenship status: 3 = Not a citizen
YRIMMIG	Year of immigration to the United States
BIRTHYR	Year of birth
BIRTHQTR	Quarter of birth (1–4)
AGE	Age in years
UHRSWORK	Usual hours worked per week
EMPSTAT	Employment status: 1 = Employed
PERWT	Person weight
SEX	Sex: 1 = Male, 2 = Female
MARST	Marital status: 1 = Married, spouse present
EDUC	Educational attainment

A.2 Sample Construction Details

Table 6: Sample Construction

Step	N
Total ACS observations (2006–2016)	33,851,424
Hispanic-Mexican (HISPAN = 1)	2,945,521
Born in Mexico (BPL = 200)	991,261
Non-citizen (CITIZEN = 3)	701,347
Valid immigration year (YRIMMIG > 0)	701,347
Under 31 as of June 2012 & in US since 2007	177,422
Treatment (arrived age 12–15) or Control (arrived age 16–19)	73,991
Working age (18–55)	70,273
Excluding 2012	64,082

A.3 DACA Eligibility Criteria Implementation

The following criteria were applied to identify DACA-eligible individuals:

1. **Age requirement:** Individual must have been under 31 years old on June 15, 2012. Implemented as: BIRTHYR $\geq$ 1982, or (BIRTHYR = 1981 and BIRTHQTR $\in$ {3, 4}).

2. **Arrival age requirement:** Individual must have arrived in the United States before their 16th birthday. Implemented as: (YRIMMIG $-$ BIRTHYR) $<$ 16.

3. **Continuous residence:** Individual must have lived continuously in the United States since June 15, 2007. Implemented as: YRIMMIG $\leq$ 2007.

4. **Immigration status:** Individual must not have had lawful status. Implemented as: CITIZEN = 3 (not a citizen).

A.4 Stata-equivalent Code

The analysis was conducted in Python using pandas and statsmodels. The equivalent Stata code for the main specification would be:

```
* Load data
use data.dta, clear


* Sample restrictions
keep if hispan == 1
keep if bpl == 200
keep if citizen == 3
keep if yrimmig > 0
keep if birthyr >= 1982 | (birthyr == 1981 & birthqtr >= 3)
keep if yrimmig <= 2007
gen age_immig = yrimmig - birthyr
keep if (age_immig >= 12 & age_immig <= 15) | ///
```

```
        (age_immig >= 16 & age_immig <= 19)
keep if age >= 18 & age <= 55
drop if year == 2012

* Variable construction
gen treat = (age_immig < 16)
gen post = (year >= 2013)
gen treat_post = treat * post
gen fulltime = (uhrswork >= 35)
gen female = (sex == 2)
gen married = (marst == 1)
gen educ_hs = (educ >= 6)

* Main regression
reg fulltime treat treat_post i.year c.age c.age#c.age ///
    female married educ_hs [pw=perwt], robust
```

A.5 Full Model Output

```
==============================================================================
                            WLS Regression Results
==============================================================================
Dep. Variable:               fulltime   R-squared:                       0.240
Model:                            WLS   Adj. R-squared:                  0.240
Method:                 Least Squares   F-statistic:                     872.3
Date:                Sun, 25 Jan 2026   Prob (F-statistic):               0.00
No. Observations:               64082
Df Residuals:                   64065
Covariance Type:                  HC1
==============================================================================
                             coef    std err          z      P>|z|   [0.025  0.975]
------------------------------------------------------------------------------
Intercept                 -0.4133      0.078     -5.311      0.000  -0.566  -0.261
C(year_factor)[T.2007]     0.0054      0.009      0.620      0.535  -0.012   0.022
C(year_factor)[T.2008]    -0.0324      0.009     -3.702      0.000  -0.050  -0.015
C(year_factor)[T.2009]    -0.0852      0.009     -9.516      0.000  -0.103  -0.068
C(year_factor)[T.2010]    -0.1077      0.009    -11.786      0.000  -0.126  -0.090
C(year_factor)[T.2011]    -0.1076      0.010    -11.201      0.000  -0.126  -0.089
C(year_factor)[T.2013]    -0.1028      0.010    -10.020      0.000  -0.123  -0.083
C(year_factor)[T.2014]    -0.0899      0.011     -8.499      0.000  -0.111  -0.069
C(year_factor)[T.2015]    -0.0838      0.011     -7.500      0.000  -0.106  -0.062
C(year_factor)[T.2016]    -0.0645      0.012     -5.411      0.000  -0.088  -0.041
treat                     -0.0149      0.006     -2.667      0.008  -0.026  -0.004
treat_post                 0.0427      0.009      4.884      0.000   0.026   0.060
AGE                        0.0920      0.006     14.997      0.000   0.080   0.104
```

I(AGE ** 2)	-0.0016	0.000	-13.174	0.000	-0.002	-0.001
female	-0.4685	0.004	-108.483	0.000	-0.477	-0.460
married	-0.0436	0.004	-10.208	0.000	-0.052	-0.035
educ_hs	0.0212	0.004	5.287	0.000	0.013	0.029