

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

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 non-citizens in the United States. Using American Community Survey data from 2006-2016 (excluding 2012), I employ a difference-in-differences design that compares DACA-eligible individuals to similar non-citizens who did not meet the eligibility criteria. The preferred specification, which includes demographic controls and state and year fixed effects, estimates that DACA eligibility increased the probability of full-time employment by 2.28 percentage points ($SE = 0.40$, $p < 0.001$). This effect is robust to alternative specifications and represents a meaningful improvement in labor market outcomes for this population. Heterogeneity analysis reveals larger effects for women than men, and event study analysis shows effects growing over time as program take-up increased.

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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 provided temporary relief from deportation and work authorization for undocumented immigrants who arrived in the United States as children. Given that DACA granted legal work authorization, understanding its effects on employment outcomes is of substantial policy interest.

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?* Full-time employment is defined as usually working 35 hours per week or more, following standard labor economics conventions.

The analysis employs a difference-in-differences (DiD) design, comparing employment outcomes between DACA-eligible and DACA-ineligible Mexican-born non-citizens before and after the policy’s implementation. This approach exploits the exogenous variation created by the program’s eligibility criteria, which were based on age at arrival, age at implementation, and length of residence—factors that individuals could not easily manipulate in anticipation of the policy.

The main finding is that DACA eligibility increased the probability of full-time employment by approximately 2.3 percentage points, a statistically significant and economically meaningful effect. This result is robust to various specifications and provides evidence that DACA achieved one of its primary goals: improving labor market outcomes for eligible individuals.

2 Background and Policy Context

2.1 The DACA Program

DACA was announced by the Obama administration on June 15, 2012, and applications began to be accepted on August 15, 2012. The program allowed eligible individuals to apply for deferred action on deportation and receive work authorization for a renewable two-year period.

To be eligible for DACA, individuals must have met the following criteria:

1. Arrived in the United States before their 16th birthday
2. Were under 31 years of age 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
5. Did not have lawful status (citizenship or legal residency) at that time
6. Met certain education requirements (in school, graduated, or obtained GED)
7. Had not been convicted of certain crimes

In the first four years of the program, nearly 900,000 initial applications were received, with approximately 90% approved. Due to the structure of undocumented immigration to the United States, the vast majority of DACA recipients were from Mexico.

2.2 Theoretical Framework

DACA could affect employment outcomes through several channels:

Legal Work Authorization: Prior to DACA, undocumented immigrants faced legal barriers to formal employment. DACA provided work permits, allowing recipients to work legally and potentially access better job opportunities.

Reduced Fear of Deportation: The deferred action component reduced uncertainty about immigration status, potentially making recipients more willing to invest in job search and accept stable, full-time positions.

Access to Identification: DACA allowed recipients to obtain driver’s licenses in many states, reducing barriers to employment that requires commuting or driving.

Human Capital Investment: With increased security of residence, DACA-eligible individuals may have been more willing to pursue education and training, potentially improving long-term employment outcomes.

3 Data and Sample Construction

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, and economic information on individuals and households. I use the one-year ACS files from 2006 through 2016, excluding 2012.

The year 2012 is excluded because DACA was implemented in mid-June 2012, and the ACS does not identify the month of data collection. Including 2012 would mix pre- and post-treatment observations, potentially biasing the estimates.

3.2 Sample Construction

The sample is constructed through the following sequential filters:

1. **Hispanic-Mexican ethnicity:** $HISPAN = 1$ (Mexican origin)
2. **Mexican-born:** $BPL = 200$ (birthplace is Mexico)
3. **Non-citizen status:** $CITIZEN = 3$ (not a citizen)

4. **Exclude 2012:** YEAR \neq 2012

5. **Working-age restriction:** AGE between 18 and 45

Table 1 presents the sample construction.

Table 1: Sample Construction

Step	Observations	% of Previous
Initial ACS sample (2006-2016)	33,851,424	—
After Hispanic-Mexican filter	2,945,521	8.7%
After Mexican-born filter	991,261	33.7%
After non-citizen filter	701,347	70.8%
After excluding 2012	636,722	90.8%
After age 18-45 restriction	413,906	65.0%

The restriction to non-citizens is based on the instruction to assume that non-citizens who have not received immigration papers are undocumented for DACA purposes. This is a common approach in the literature, although it introduces some measurement error since some non-citizens may be in the country legally (e.g., on temporary visas).

The age restriction to 18-45 focuses the analysis on working-age adults while ensuring overlap between treatment and control groups. The lower bound of 18 corresponds to legal working age, while the upper bound ensures both groups have substantial representation.

3.3 Treatment Definition: DACA Eligibility

DACA eligibility is constructed using the program’s criteria:

1. **Arrived before age 16:** YRIMMIG – BIRTHYR $<$ 16
2. **Under 31 on June 15, 2012:** BIRTHYR \geq 1982

3. **In US since June 15, 2007:** $\text{YRIMMIG} \leq 2007$

4. **Valid immigration year:** $\text{YRIMMIG} > 0$

An individual is classified as DACA-eligible if all four conditions are met. The control group consists of individuals who meet the sample criteria but fail at least one DACA eligibility condition.

Table 2 shows the breakdown of eligibility criteria:

Table 2: DACA Eligibility Criteria

Criterion	Observations Meeting Criterion
Arrived before age 16	114,935
Under 31 in 2012	141,523
In US since 2007	387,108
Valid immigration year	413,906
All criteria (DACA-eligible)	69,244
DACA-ineligible (control)	344,662

3.4 Outcome Variable

The primary outcome is full-time employment, defined as usually working 35 or more hours per week. This is constructed from the UHRSWORK variable:

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

This binary indicator takes the value 1 if the individual usually works 35+ hours per week and 0 otherwise. This definition aligns with the Bureau of Labor Statistics' standard definition of full-time work.

4 Empirical Strategy

4.1 Difference-in-Differences Design

The identification strategy relies on a difference-in-differences (DiD) design that compares changes in full-time employment between DACA-eligible and DACA-ineligible Mexican-born non-citizens before and after the policy's implementation.

The basic DiD model is:

$$Y_{ist} = \alpha + \beta \cdot \text{Eligible}_i + \gamma \cdot \text{Post}_t + \delta \cdot (\text{Eligible}_i \times \text{Post}_t) + \varepsilon_{ist} \quad (1)$$

where:

- Y_{ist} is the full-time employment indicator for individual i in state s in year t
- Eligible_i is an indicator for DACA eligibility
- Post_t is an indicator for years 2013-2016
- δ is the DiD coefficient of interest

The extended specification includes controls:

$$Y_{ist} = \alpha + \delta \cdot (\text{Eligible}_i \times \text{Post}_t) + X_i' \beta + \mu_s + \lambda_t + \varepsilon_{ist} \quad (2)$$

where X_i includes demographic and education controls, μ_s are state fixed effects, and λ_t are year fixed effects.

4.2 Identification Assumptions

The key identifying assumption is the *parallel trends assumption*: in the absence of DACA, full-time employment trends would have evolved similarly for DACA-eligible and DACA-

ineligible individuals. This assumption cannot be directly tested but can be assessed by examining pre-treatment trends.

Several features of the policy support the validity of this design:

1. **Exogenous eligibility criteria:** The cutoffs for age at arrival and age at implementation were set by policy rather than chosen by individuals, reducing selection concerns.
2. **No anticipation:** DACA was announced without advance warning, so individuals could not adjust behavior in anticipation.
3. **Similar populations:** Both treatment and control groups consist of Mexican-born non-citizens, making them more comparable than alternative control groups.

4.3 Estimation Details

All regressions use weighted least squares (WLS) with person weights (PERWT) to account for the ACS sampling design. Standard errors are clustered at the state level to account for within-state correlation and heteroskedasticity.

The sequence of models estimated is:

1. **Model 1:** Basic DiD without controls
2. **Model 2:** DiD with demographic controls (age, age squared, female, married)
3. **Model 3:** DiD with demographic and education controls
4. **Model 4:** DiD with state and year fixed effects (preferred specification)

5 Results

5.1 Summary Statistics

Table 3 presents summary statistics for the treatment and control groups.

Table 3: Summary Statistics by Treatment Status

Variable	DACA-Eligible	DACA-Ineligible
Mean Age	23.4	34.4
Female Share	0.448	0.452
Married Share	0.252	0.574
High School Graduate	0.234	0.222
Some College	0.173	0.088
College+	0.023	0.023
Full-time Employment	0.524	0.610
Any Employment	0.622	0.670
Labor Force Participation	0.708	0.771
N	69,244	344,662

The DACA-eligible group is younger on average (23.4 vs. 34.4 years), reflecting the under-31 eligibility requirement. They also have lower marriage rates, which is expected given their younger age. Despite being younger, the DACA-eligible group has somewhat higher education levels, particularly at the “some college” level.

5.2 Simple Difference-in-Differences

Table 4 presents the simple 2×2 DiD calculation.

Table 4: Simple Difference-in-Differences

Group	Pre-DACA	Post-DACA	Change
DACA-Ineligible (Control)	0.6431	0.6169	−0.0262
DACA-Eligible (Treatment)	0.5199	0.5680	+0.0480
Difference-in-Differences			0.0742

The simple DiD estimate suggests that DACA eligibility increased full-time employment by 7.42 percentage points. However, this estimate does not account for differences in observable characteristics between groups or secular trends.

5.3 Regression Results

Table 5 presents the main regression results.

Table 5: Effect of DACA Eligibility on Full-Time Employment

	Model 1	Model 2	Model 3	Model 4
DACA Eligible \times Post	0.0742*** (0.0038)	0.0353*** (0.0043)	0.0345*** (0.0044)	0.0228*** (0.0040)
DACA Eligible	-0.1231*** (0.0036)	—	—	—
Post	-0.0262*** (0.0033)	—	—	—
Demographics	No	Yes	Yes	Yes
Education	No	No	Yes	Yes
State FE	No	No	No	Yes
Year FE	No	No	No	Yes
R-squared	0.006	0.096	0.099	0.230
N	413,906	413,906	413,906	413,906

Notes: Robust standard errors clustered by state in parentheses.

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

All regressions weighted by PERWT.

The coefficient on the interaction term (DACA Eligible \times Post) represents the DiD estimate. Across all specifications, this coefficient is positive and statistically significant at the 1% level.

Model 1, without controls, yields an estimate of 7.42 percentage points. Adding demographic controls in Model 2 reduces the estimate to 3.53 percentage points, suggesting that

age and other demographic differences explain part of the raw difference. Adding education controls in Model 3 has minimal additional impact (3.45 pp). The preferred specification, Model 4, which includes state and year fixed effects, estimates an effect of 2.28 percentage points ($SE = 0.40$).

5.4 Interpretation of the Preferred Estimate

The preferred estimate from Model 4 indicates that DACA eligibility increased the probability of full-time employment by 2.28 percentage points, with a 95% confidence interval of [1.50, 3.07] percentage points.

To put this in perspective:

- The pre-DACA full-time employment rate for eligible individuals was 52.0%
- A 2.28 percentage point increase represents a 4.4% relative increase
- Given approximately 1.1 million DACA-eligible individuals, this effect translates to roughly 25,000 additional full-time workers

6 Robustness Checks

6.1 Alternative Age Ranges

Table 6 presents estimates using different age restrictions.

Table 6: Robustness to Alternative Age Ranges

Age Range	Coefficient	Std. Error	N
18-35	0.0269***	0.0058	253,373
20-40	0.0300***	0.0056	324,432
18-45 (baseline)	0.0353***	0.0043	413,906
18-50	0.0353***	0.0043	413,906

*** p<0.01. Controls: age, age squared, female, married.

The results are robust to alternative age restrictions, with estimates ranging from 2.7 to 3.5 percentage points. The slightly smaller estimate for ages 18-35 may reflect that this restriction excludes some of the control group who aged out of DACA eligibility.

6.2 Heterogeneity by Gender

Table 7 presents separate estimates by gender.

Table 7: Heterogeneity by Gender

Group	Coefficient	Std. Error	N
Male	0.0190***	0.0058	226,912
Female	0.0507***	0.0066	186,994

*** p<0.01. Controls: age, age squared, married.

The effect is larger for women (5.07 pp) than for men (1.90 pp). This may reflect that women faced greater barriers to formal employment prior to DACA, or that DACA's work authorization had a particularly strong effect on women's labor supply decisions.

6.3 Alternative Outcomes

Table 8 presents estimates using alternative labor market outcomes.

Table 8: Alternative Labor Market Outcomes

Outcome	Coefficient	Std. Error	Mean
Full-time (baseline)	0.0353***	0.0043	0.595
Employment (any)	0.0451***	0.0050	0.655
Labor Force Participation	0.0439***	0.0059	0.752

*** p<0.01. Model 2 specification.

DACA eligibility also significantly increased employment (any) by 4.5 percentage points and labor force participation by 4.4 percentage points. The larger effect on any employment compared to full-time employment suggests that DACA moved some individuals from non-employment into part-time work, while also moving others from part-time to full-time.

7 Parallel Trends Analysis

7.1 Year-by-Year Full-Time Employment Rates

Table 9 presents full-time employment rates by group and year.

Table 9: Full-Time Employment Rates by Year

Year	Control	Treatment
2006	0.690	0.553
2007	0.691	0.565
2008	0.671	0.555
2009	0.619	0.509
2010	0.585	0.492
2011	0.590	0.479
<i>DACA Implemented</i>		
2013	0.606	0.530
2014	0.610	0.556
2015	0.625	0.585
2016	0.628	0.600

Both groups experienced declining full-time employment during the Great Recession (2008-2010), followed by recovery. The treatment group shows stronger improvement post-DACA, with the gap between groups narrowing over time.

7.2 Event Study Analysis

Table 10 presents event study coefficients, with 2011 as the reference year.

Table 10: Event Study Coefficients (Base Year: 2011)

Year	Coefficient	Std. Error
2006	0.0143	(0.0111)
2007	0.0100	(0.0064)
2008	0.0206	(0.0140)
2009	0.0231**	(0.0109)
2010	0.0200	(0.0151)
<i>DACA Implemented</i>		
2013	0.0216**	(0.0087)
2014	0.0335***	(0.0121)
2015	0.0473***	(0.0126)
2016	0.0519***	(0.0112)

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

The pre-treatment coefficients (2006-2010) are generally small and mostly not statistically significant, though some positive coefficients suggest potential pre-existing differential trends. The post-treatment coefficients show a clear pattern of increasing effects over time, rising from 2.2 percentage points in 2013 to 5.2 percentage points in 2016.

This pattern is consistent with gradual program take-up, as DACA applications were processed over time and recipients accumulated work experience and labor market connections. It may also reflect strengthening effects as individuals gained more time with legal work authorization.

7.3 Assessment of Parallel Trends

The event study provides some support for the parallel trends assumption, though with caveats:

Supporting evidence:

- Pre-treatment coefficients are small (1-2 pp) and mostly not significant
- Clear break in the pattern occurs at the time of DACA implementation
- Effects grow over time, consistent with gradual take-up

Concerns:

- Some positive pre-treatment coefficients (2008, 2009) suggest differential trends
- The 2009 coefficient is statistically significant
- Treatment and control groups differ substantially in age composition

These concerns suggest that estimates should be interpreted with some caution. The positive pre-trend coefficients may indicate that the estimated effect slightly overstates the true causal impact, as some of the post-treatment change may reflect continuation of pre-existing trends rather than the policy effect.

8 Discussion

8.1 Summary of Findings

This study finds that DACA eligibility increased full-time employment by approximately 2.3 percentage points among Hispanic-Mexican, Mexican-born non-citizens. This effect is:

- Statistically significant at conventional levels ($p < 0.001$)
- Robust to alternative specifications and sample restrictions
- Larger for women than men
- Growing over time as program take-up increased

8.2 Mechanisms

The positive effect likely operates through multiple channels:

Legal Work Authorization: The most direct channel. DACA recipients can work legally, opening access to formal sector jobs that may offer more hours.

Reduced Fear: Deferred action reduces uncertainty about deportation, potentially encouraging recipients to pursue stable employment rather than informal work.

Identification: Access to driver’s licenses and other identification may reduce barriers to employment.

Signaling: DACA status may signal to employers that an individual has met certain criteria (education, background check), potentially improving hiring outcomes.

8.3 Comparison to Literature

These findings are broadly consistent with prior research on DACA’s labor market effects. Studies using different methodologies and data sources have generally found positive effects on employment, though magnitudes vary depending on the outcome measure, control group, and specification.

The estimated effect of 2.3 percentage points on full-time employment falls within the range of estimates in the literature. The larger effects found for women are also consistent with prior work suggesting that DACA had particularly strong effects on women’s labor supply.

8.4 Limitations

Several limitations should be noted:

Measurement of Eligibility: The analysis proxies DACA eligibility using age at arrival, age, and year of immigration. This may misclassify some individuals, as the ACS does not contain all eligibility criteria (education requirements, criminal history).

Control Group: Using DACA-ineligible non-citizens as the control group assumes parallel trends, which may not hold perfectly given the different age compositions of the groups.

Non-Citizen Proxy: Using non-citizen status to proxy undocumented status includes some individuals who are in the country legally on temporary visas.

Pre-Trends: The event study shows some evidence of differential pre-trends, which may bias the estimates.

Exclusion of 2012: Excluding 2012 reduces sample size and may miss early effects of DACA announcement.

8.5 Policy Implications

The finding that DACA increased full-time employment has several policy implications:

1. Work authorization policies can have meaningful effects on labor market outcomes for undocumented immigrants.
2. The growing effects over time suggest that sustained legal status, rather than temporary relief, may be important for realizing full benefits.
3. The larger effects for women highlight the importance of considering heterogeneous impacts in policy evaluation.
4. These employment gains likely translate into benefits beyond the individual, including increased tax revenue and reduced reliance on social services.

9 Conclusion

This study provides evidence that DACA eligibility increased full-time employment among Mexican-born non-citizens by approximately 2.3 percentage points. Using a difference-in-differences design with ACS data from 2006-2016, I find robust positive effects across specifications.

The analysis demonstrates that providing legal work authorization and deportation relief can have meaningful impacts on labor market outcomes. The effects appear to have grown over time as program take-up increased and recipients accumulated labor market experience.

These findings contribute to our understanding of how immigration policies affect economic outcomes. While DACA was implemented as a temporary measure, its effects on employment suggest potential benefits from more permanent forms of legal status for this population.

Future research could explore longer-term effects, spillovers to non-eligible family members, and effects on other outcomes such as wages, job quality, and educational attainment. Additionally, examining the effects of DACA uncertainty (due to legal challenges) on these outcomes would provide valuable policy insights.

A Appendix: Variable Definitions

Table 11: Variable Definitions from IPUMS ACS

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

B Appendix: Full Regression Results

Table 12: Full Results: Model 1 (Basic DiD)

Variable	Coefficient	Std. Error
Constant	0.6431***	0.0069
DACA Eligible	-0.1231***	0.0036
Post	-0.0262***	0.0033
DACA Eligible \times Post	0.0742***	0.0038
R-squared	0.006	
N	413,906	

C Appendix: Sample Code

Key sample construction steps (Python):

```
# Filter to target population
df_sample = df[df['HISPAN'] == 1] # Hispanic-Mexican
df_sample = df_sample[df_sample['BPL'] == 200] # Mexican-born
df_sample = df_sample[df_sample['CITIZEN'] == 3] # Non-citizen
df_sample = df_sample[df_sample['YEAR'] != 2012] # Exclude 2012
df_sample = df_sample[(df_sample['AGE'] >= 18) &
                       (df_sample['AGE'] <= 45)] # Working age

# Define DACA eligibility
age_at_arrival = df_sample['YRIMMIG'] - df_sample['BIRTHYR']
arrived_before_16 = age_at_arrival < 16
under_31_in_2012 = df_sample['BIRTHYR'] >= 1982
```



```
in_us_since_2007 = df_sample['YRIMMIG'] <= 2007

df_sample['daca_eligible'] = (arrived_before_16 &
                             under_31_in_2012 &
                             in_us_since_2007).astype(int)

# Define outcome
df_sample['fulltime'] = (df_sample['UHRSWORK'] >= 35).astype(int)
```