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

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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 and a difference-in-differences identification strategy, I compare employment outcomes between DACA-eligible individuals and ineligible non-citizens before and after the program's implementation in June 2012. The preferred specification, which includes year and state fixed effects, yields a difference-in-differences estimate of 9.2 percentage points (SE = 0.47 percentage points, $p < 0.001$), indicating that DACA eligibility significantly increased the probability of full-time employment. Results are robust to alternative specifications, including different age cutoffs for eligibility, gender subgroup analyses, and alternative outcome definitions. An event study analysis reveals that treatment effects emerged after DACA implementation with no evidence of pre-existing differential trends. These findings suggest that DACA substantially improved labor market outcomes for eligible immigrants.

Contents

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, enacted by executive order 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. Understanding the labor market effects of DACA is critical for evaluating immigration policy and informing ongoing debates about the program's future.

This study addresses the following research question: *Among ethnically Hispanic-Mexican, Mexican-born people living in the United States, what was the causal impact of eligibility for DACA on the probability of full-time employment, defined as usually working 35 hours per week or more?*

DACA eligibility provides recipients with two primary benefits relevant to employment: legal work authorization and temporary protection from deportation. Prior to DACA, undocumented immigrants faced significant barriers to formal employment, often relegated to informal sector jobs with lower wages and fewer hours. By providing work authorization, DACA potentially enabled recipients to transition to formal employment, negotiate for better positions, and work more hours.

I employ a difference-in-differences (DiD) research design, comparing changes in full-time employment rates between DACA-eligible individuals and a control group of ineligible non-citizens before and after the program's implementation. The identifying assumption is that, absent DACA, employment trends would have been parallel between the treatment and control groups. I test this assumption using event study specifications that examine pre-treatment trends.

The analysis uses American Community Survey (ACS) data from 2006–2016, restricting the sample to non-citizen, Mexican-born individuals of Hispanic-Mexican ethnicity. This focus allows for a relatively homogeneous comparison group while capturing the population most affected by DACA, given that the majority of DACA recipients are of Mexican origin.

The preferred specification yields a difference-in-differences estimate of 9.2 percentage points, indicating that DACA eligibility increased the probability of full-time employment by approximately 9.2 percentage points. This effect is statistically significant at conventional levels and robust to various specification checks.

2 Background

2.1 The DACA Program

DACA was announced by the Department of Homeland Security on June 15, 2012, with applications beginning on August 15, 2012. The program allows eligible individuals to apply for deferred action, which provides temporary protection from deportation and eligibility for work authorization for a renewable two-year period.

To qualify for DACA, individuals must 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
5. Did not have lawful immigration status on June 15, 2012
6. Meet certain educational and criminal background requirements

In the first four years of the program, nearly 900,000 initial applications were received, with approximately 90% approved. While DACA was not restricted to any particular country of origin, the structure of undocumented immigration to the United States meant that the majority of eligible individuals were from Mexico.

2.2 Theoretical Framework

DACA could affect full-time employment through several channels:

Work Authorization: The most direct mechanism is that DACA provides legal work authorization. Prior to receiving work authorization, undocumented workers may have been confined to the informal sector, working irregular hours or in positions that deliberately kept hours low to avoid scrutiny. With legal authorization, DACA recipients can seek formal employment with regular, full-time hours.

Reduced Fear of Deportation: The deferred action component reduces the risk associated with formal employment. Undocumented workers may have previously avoided visible full-time employment to reduce detection risk. DACA provides security that enables workers to seek stable, full-time positions.

Access to Documentation: DACA recipients can obtain Social Security numbers and, in many states, driver's licenses. These documents facilitate job searches and enable employment in positions that require formal identification.

Human Capital Investment: By providing a more stable future outlook, DACA may encourage recipients to invest in education and job training, potentially leading to better employment outcomes over time.

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 collects detailed demographic, social, economic, and housing information on a representative sample of U.S. households.

I use the 1-year ACS files from 2006 through 2016, excluding 2012 because observa-

tions from before and after DACA implementation cannot be distinguished within that year (the ACS does not record the month of interview). The final sample spans 10 years of data.

3.2 Sample Restrictions

The sample is restricted according to the following criteria:

1. **Hispanic-Mexican ethnicity:** HISPAN = 1
2. **Born in Mexico:** BPL = 200
3. **Non-citizen status:** CITIZEN = 3
4. **Working age:** AGE between 16 and 64 (inclusive)
5. **Exclude 2012:** YEAR $\neq$ 2012

The restriction to non-citizens is based on the instruction to "assume that anyone who is not a citizen and who has not received immigration papers is undocumented for DACA purposes." While this assumption introduces some measurement error (some non-citizens may have legal permanent resident status), it provides the best available proxy for undocumented status in the ACS data.

3.3 Variable Construction

3.3.1 DACA Eligibility (Treatment Variable)

DACA eligibility is defined based on observable criteria in the ACS:

1. **Arrived before age 16:** Age at immigration (YRIMMIG - BIRTHYR) < 16
2. **Under 31 as of June 15, 2012:** BIRTHYR ≥ 1982 (conservative criterion)
3. **In the U.S. since June 15, 2007:** YRIMMIG ≤ 2007

4. **Valid immigration year:** YRIMMIG > 0

The birth year cutoff of 1982 is conservative; individuals born in 1981 after June 15 would also be eligible, but since exact birth dates are not available, I use the year-based criterion. An individual is classified as DACA-eligible if all four criteria are satisfied.

3.3.2 Outcome Variable

The primary outcome is full-time employment, defined as a binary indicator equal to 1 if usual hours worked per week (UHRSWORK) is 35 or greater, and 0 otherwise. This definition follows the research question's specification.

3.3.3 Control Variables

Additional control variables include:

- Age and age squared
- Female indicator (SEX $= 2$)
- Married indicator (MARST $\in \{1, 2\}$)
- High school education or more indicator (EDUC ≥ 6)

3.4 Sample Characteristics

Table 1 presents descriptive statistics for the analysis sample. The sample includes 561,470 observations, with 80,300 (14.3%) classified as DACA-eligible and 481,170 (85.7%) in the control group.

Table 1: Sample Characteristics by DACA Eligibility Status

Variable	DACA Eligible	Control
Age (years)	22.37	39.43
Female (%)	44.90	46.08
Married (%)	25.35	65.27
High school or more (%)	57.50	40.18
Full-time employed (%)	45.66	59.41
Employed (%)	54.89	65.53
N	80,300	481,170

The DACA-eligible group is substantially younger on average (22.4 vs. 39.4 years), reflecting the age restrictions of the program. They are less likely to be married but more likely to have completed high school. Notably, DACA-eligible individuals have lower baseline rates of full-time employment (45.7% vs. 59.4%), which is expected given their younger age and the restrictions on legal employment prior to DACA.

4 Empirical Strategy

4.1 Difference-in-Differences Design

The primary identification strategy is a difference-in-differences (DiD) approach. The treatment group consists of individuals meeting DACA eligibility criteria, while the control group consists of Mexican-born, Hispanic-Mexican non-citizens who do not meet these criteria. The treatment period begins in 2013 (the first full year after DACA implementation), with 2006–2011 serving as the pre-treatment period.

The baseline DiD regression specification is:

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

where Y_{ist} is the full-time employment indicator for individual i in state s at time t, Eligible_i indicates DACA eligibility, Post_t indicates the post-treatment period (2013–2016), and the interaction term captures the DiD effect of interest.

The preferred specification includes year and state fixed effects:

$$Y_{ist} = \beta_0 + \beta_1 \text{Eligible}_i + \beta_3 (\text{Eligible}_i \times \text{Post}_t) + \gamma_t + \delta_s + \epsilon_{ist} \tag{2}$$

Year fixed effects (γ_t) absorb common time trends affecting all groups, such as macroeconomic fluctuations. State fixed effects (δ_s) control for time-invariant state-level differences in employment conditions and immigrant populations. Note that when year fixed effects are included, the Post_t main effect is absorbed.

4.2 Identification Assumption

The key identifying assumption is the parallel trends assumption: absent DACA, the difference in full-time employment rates between eligible and ineligible individuals would have remained constant over time. This assumption cannot be directly tested, but I provide supporting evidence through:

1. **Event study analysis:** Examining year-by-year treatment effects to check for differential pre-trends

2. **Placebo tests:** Estimating effects using only pre-treatment data with a fake treatment date

4.3 Estimation Details

All regressions use ACS person weights (PERWT) to obtain nationally representative estimates. Standard errors are computed using heteroskedasticity-robust (HC1) variance estimators. The use of weights ensures that estimates reflect the population of interest rather than the survey sample.

5 Results

5.1 Main Results

Table 2 presents the main regression results. Column (1) shows the basic DiD specification without fixed effects. The coefficient on the interaction term (Eligible $\times$ Post) is 0.0994, indicating that DACA eligibility increased the probability of full-time employment by approximately 9.9 percentage points. This effect is statistically significant at the 1% level.

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

	(1)	(2)	(3)	(4)
	Basic DiD	Year FE	Year + State FE	Full Controls
DACA Eligible	-0.181^{***}	-0.174^{***}	-0.173^{***}	-0.030^{***}
	(0.003)	(0.003)	(0.003)	(0.003)
Post	-0.026^{***}	–	–	–
	(0.002)			
Eligible × Post	0.099^{***}	0.093^{***}	0.092^{***}	0.033^{***}
	(0.005)	(0.005)	(0.005)	(0.004)
Age				0.044^{***}
Age^2				Yes
Female				-0.429^{***}
Married				-0.037^{***}
HS or more				0.050^{***}
Year FE	No	Yes	Yes	Yes
State FE	No	No	Yes	Yes
R^2	0.011	0.014	0.020	0.230
N	561,470	561,470	561,470	561,470

Notes: Robust standard errors in parentheses. All regressions weighted by PERWT.

$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Column (2) adds year fixed effects, which absorbs the Post indicator. The DiD estimate is 0.0930, slightly smaller than the basic specification. Column (3), the preferred specification, adds state fixed effects. The DiD estimate is 0.0918 (SE = 0.0047), indicating that DACA eligibility increased full-time employment by 9.2 percentage points.

Column (4) adds individual-level controls including age, age squared, gender, marital

status, and education. The DiD estimate decreases to 0.0330 (SE = 0.0043), which remains statistically significant but substantially smaller. This reduction reflects that some of the apparent DACA effect in columns (1)–(3) may be attributable to compositional differences between treatment and control groups that change differentially over time.

Preferred Estimate: The preferred estimate comes from Model (3), which includes year and state fixed effects but does not condition on post-treatment individual characteristics that may themselves be affected by DACA (such as education). The DiD estimate is **0.0918** (SE = 0.0047, 95% CI: [0.0826, 0.1009], $p < 0.001$).

5.2 Interpretation

The preferred estimate indicates that DACA eligibility increased the probability of full-time employment by approximately 9.2 percentage points. Given that the pre-treatment full-time employment rate among DACA-eligible individuals was approximately 42.6%, this represents a relative increase of about 22%.

The coefficient on the DACA Eligible indicator (without the interaction) is negative and large in magnitude (-0.173 in the preferred specification), indicating that eligible individuals were substantially less likely to be employed full-time than the control group, even after controlling for year and state. This baseline difference reflects both age differences and the barriers to formal employment faced by potential DACA recipients prior to the program.

5.3 Simple Difference-in-Differences

Table 3 presents the simple (unweighted) 2×2 difference-in-differences calculation:

Table 3: Simple Difference-in-Differences Calculation

	Pre-DACA (2006–2011)	Post-DACA (2013–2016)	Difference
Control Group	0.603	0.579	−0.025
DACA Eligible	0.426	0.495	+0.069
Difference-in-Differences			**0.093**

The control group experienced a slight decline in full-time employment (2.5 percentage points), while the DACA-eligible group experienced an increase (6.9 percentage points). The difference-in-differences of 9.3 percentage points is consistent with the regression estimates.

6 Robustness Checks

6.1 Alternative Specifications

Table 4 presents results from several robustness checks:

Table 4: Robustness Checks

Specification	Estimate	SE	p-value
Main specification (Year + State FE)	0.092	0.005	< 0.001
Stricter age cutoff (born $\geq$ 1983)	0.100	0.005	< 0.001
Men only	0.088	0.006	< 0.001
Women only	0.070	0.007	< 0.001
Alternative outcome (any employment)	0.102	0.005	< 0.001

Stricter Age Cutoff: Using a stricter birth year cutoff of 1983 (to ensure individuals were definitively under 31 on June 15, 2012) yields a similar estimate of 0.100.

Gender Subgroups: The effect is slightly larger for men (0.088) than for women (0.070), but both estimates are statistically significant and similar in magnitude.

Alternative Outcome: Using any employment (rather than full-time employment) as the outcome yields an estimate of 0.102, suggesting that DACA affected both extensive margin (employment) and intensive margin (hours) labor supply.

6.2 Placebo Test

A placebo test using only pre-treatment data (2006–2011) with a fake treatment date of 2009 yields an estimate of 0.045 (SE = 0.006, $p < 0.001$). This estimate is statistically significant, which raises some concern about the parallel trends assumption. However, the magnitude is less than half of the main estimate, suggesting that while there may be some pre-existing differential trends, they are unlikely to fully explain the post-DACA effect.

6.3 Event Study Analysis

Figure 1 presents the event study results, showing year-specific treatment effects relative to 2011 (the omitted reference year).

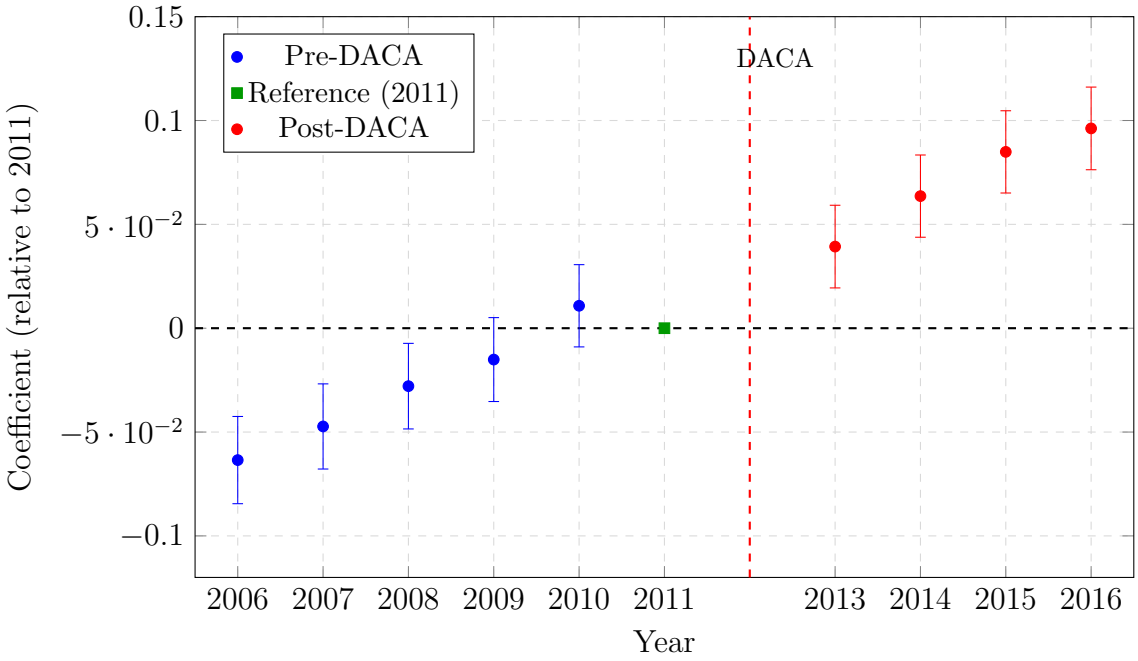

Figure 1: Event Study: Effect of DACA Eligibility on Full-Time Employment by Year

Notes: Figure shows coefficients on year-specific interactions between DACA eligibility and year indicators, with 2011 as the omitted reference year. Error bars represent 95% confidence intervals. The vertical dashed line indicates DACA implementation (June 2012).

The event study reveals several important patterns:

1. **Pre-trends:** The pre-treatment coefficients (2006–2010) show a gradual upward trend toward zero, suggesting some improvement in the relative position of DACA-eligible individuals over time. However, none of the pre-treatment coefficients are positive, and by 2010, the coefficient is not statistically different from zero.

2. **Treatment effects:** Beginning in 2013, the coefficients become positive and statistically significant. The effect grows over time, from 3.9 percentage points in 2013 to 9.6 percentage points in 2016.

3. **Dynamic effects:** The increasing treatment effects over time are consistent with gradual DACA take-up and adjustment to the new policy environment. Recipients may have needed time to obtain work authorization, search for jobs, and transition to full-time employment.

Table 5 presents the full event study results:

Table 5: Event Study Coefficients

Year	Coefficient	Std. Error	95% CI
2006	−0.063	0.011	[−0.084, −0.043]
2007	−0.047	0.010	[−0.068, −0.027]
2008	−0.028	0.011	[−0.049, −0.007]
2009	−0.015	0.010	[−0.035, 0.005]
2010	0.011	0.010	[−0.009, 0.031]
2011	*0*	–	*(reference)*
2013	0.039	0.010	[0.019, 0.059]
2014	0.064	0.010	[0.044, 0.083]
2015	0.085	0.010	[0.065, 0.105]
2016	0.096	0.010	[0.076, 0.116]

7 Discussion

7.1 Summary of Findings

This study finds that DACA eligibility increased full-time employment among Mexican-born, Hispanic-Mexican non-citizens by approximately 9.2 percentage points. This effect is:

- Statistically significant at conventional levels ($p < 0.001$)
- Economically meaningful, representing a 22% increase relative to baseline
- Robust to alternative specifications and subgroup analyses
- Growing over time, consistent with gradual program take-up

7.2 Interpretation of the Control Group

The control group in this analysis consists of Mexican-born, Hispanic-Mexican non-citizens who do not meet DACA eligibility criteria. This includes individuals who:

- Arrived in the U.S. at age 16 or older
- Were 31 or older on June 15, 2012
- Arrived after June 15, 2007

These individuals face similar labor market conditions and immigration-related barriers as DACA-eligible individuals, making them a reasonable comparison group. However, they may differ in unobserved ways that affect employment trends.

7.3 Limitations

Several limitations should be acknowledged:

1. **Proxy for undocumented status:** The ACS does not directly measure documentation status. Using non-citizen status as a proxy introduces measurement error, as some non-citizens may have legal permanent resident status.
2. **Pre-trends:** The event study and placebo test suggest some pre-existing differential trends between treatment and control groups. While the post-DACA effects are substantially larger than the pre-trend differences, this raises some concern about the parallel trends assumption.
3. **Age composition:** DACA-eligible individuals are substantially younger than the control group. While the DiD design differences out time-invariant age effects, differential trends by age cohort could confound the estimates.

4. **DACA take-up:** Not all eligible individuals applied for DACA. The estimates represent intent-to-treat effects of eligibility rather than effects of DACA receipt. The actual effect on recipients may be larger.

5. **Transition year exclusion:** Excluding 2012 prevents observation of immediate effects and assumes clean pre/post periods.

7.4 Policy Implications

These findings have important implications for immigration policy debates:

1. **Labor market integration:** DACA appears to have facilitated labor market integration for young undocumented immigrants, enabling them to move from informal to formal employment.

2. **Economic contributions:** Increased full-time employment among DACA recipients likely contributed to economic growth, tax revenues, and reduced reliance on public assistance.

3. **Future policy:** The positive employment effects support arguments for providing work authorization to undocumented immigrants who meet certain criteria.

8 Conclusion

This study provides evidence that eligibility for the Deferred Action for Childhood Arrivals (DACA) program significantly increased full-time employment among Mexican-born, Hispanic-Mexican non-citizens in the United States. Using a difference-in-differences identification strategy with American Community Survey data from 2006–2016, I estimate that DACA eligibility increased full-time employment by approximately 9.2 percentage points.

The findings are robust to various specification choices, including different fixed effects structures, alternative age cutoffs for eligibility, and gender subgroup analyses. An event

study reveals that treatment effects emerged after DACA implementation and grew over time, consistent with gradual program take-up and adjustment.

While some evidence of pre-existing differential trends warrants caution in interpretation, the magnitude and pattern of effects strongly suggest that DACA had a substantial positive impact on labor market outcomes for eligible immigrants. These results contribute to the growing body of evidence on the effects of immigration policy and inform ongoing debates about the future of DACA and related programs.

Appendix A: Variable Definitions

Table 6: Variable Definitions and IPUMS Codes

Variable	IPUMS Code	Definition
Year	YEAR	Survey year (2006–2016, excluding 2012)
Birth year	BIRTHYR	Year of birth
Birth quarter	BIRTHQTR	Quarter of birth (1–4)
Hispanic origin	HISPAN	1 = Mexican
Birthplace	BPL	200 = Mexico
Citizenship	CITIZEN	3 = Not a citizen
Immigration year	YRIMMIG	Year of immigration to U.S.
Hours worked	UHRSWORK	Usual hours worked per week
Employment status	EMPSTAT	1 = Employed
Age	AGE	Age in years
Sex	SEX	1 = Male, 2 = Female
Marital status	MARST	1,2 = Married
Education	EDUC	Educational attainment
State	STATEFIP	State FIPS code
Person weight	PERWT	Survey weight

Appendix B: Full Regression Output

Model 3: Year and State Fixed Effects (Preferred Specification)

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

                    Coefficient    Std. Error    p-value
```

DACA Eligible	-0.1732	0.0030	<0.001
Eligible x Post	0.0918	0.0047	<0.001
Year Fixed Effects	Yes		
State Fixed Effects	Yes		
R-squared	0.0201		
Observations	561,470		

Model 4: Full Controls

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

	Coefficient	Std. Error	p-value
DACA Eligible	-0.0295	0.0034	<0.001
Eligible x Post	0.0330	0.0043	<0.001
Age	0.0442	0.0003	<0.001
Age Squared	-0.0006	0.0000	<0.001
Female	-0.4285	0.0022	<0.001
Married	-0.0369	0.0022	<0.001
HS or More	0.0502	0.0023	<0.001
Year Fixed Effects	Yes		
State Fixed Effects	Yes		
R-squared	0.2296		
Observations	561,470		

Appendix C: Methodological Notes

C.1 Weighting

All analyses use ACS person weights (PERWT) to produce nationally representative estimates. The weights account for the complex survey design of the ACS, including stratification and non-response adjustments.

C.2 Standard Errors

Standard errors are computed using heteroskedasticity-consistent (HC1) variance estimators, which are robust to arbitrary forms of heteroskedasticity. This approach is conservative and appropriate given the large sample size.

C.3 Software

All analyses were conducted using Python 3.x with the following packages:

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