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

Independent Replication Study

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Abstract

This study examines the causal effect of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on full-time employment among ethnically Hispanic-Mexican, Mexican-born non-citizens in the United States. Using data from the American Community Survey (2006–2016) and a difference-in-differences identification strategy, I compare changes in full-time employment rates between DACA-eligible and non-eligible individuals before and after the program's implementation in June 2012. The preferred specification estimates that DACA eligibility increased the probability of full-time employment by 3.26 percentage points (95% CI: 2.61–3.91 pp, $p < 0.001$). This effect is robust to alternative specifications, including different eligibility definitions and subgroup analyses. The results suggest that DACA had a modest but statistically significant positive impact on formal labor market participation among eligible Mexican-born immigrants.

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1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented on June 15, 2012, represents one of the most significant immigration policy changes affecting undocumented youth in recent U.S. history. The program provides temporary protection from deportation and work authorization to undocumented immigrants who arrived in the United States as children and meet specific eligibility criteria. Given that DACA offers legal work authorization, a key question is whether the program affected employment outcomes among those eligible.

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 being employed full-time (defined as usually working 35 hours per week or more)?*

The analysis focuses on the post-implementation period of 2013–2016, comparing employment outcomes between DACA-eligible and non-eligible Mexican-born non-citizens using a difference-in-differences (DiD) framework. The identifying assumption is that, absent the DACA program, full-time employment trends would have been parallel between eligible and non-eligible groups.

2 Background

2.1 The DACA Program

DACA was announced by the Obama administration on June 15, 2012, and began accepting applications on August 15, 2012. The program was designed to provide temporary relief to undocumented immigrants who arrived in the United States as children. Key features of the program include:

- **Deferred action**: Recipients are protected from deportation for a renewable two-year period
- **Work authorization**: Recipients can legally work in the United States
- **Identification**: Recipients can obtain state driver's licenses and other identification in many states

2.2 Eligibility Criteria

To qualify for DACA, applicants 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 physically present in the United States on June 15, 2012
5. Did not have lawful immigration status (i.e., were undocumented)
6. Met certain educational or military service requirements (not measured in ACS)

2.3 Program Uptake

In the first four years following implementation, approximately 900,000 initial applications were received, with approximately 90% approved. While DACA was not restricted to any national origin, the vast majority of recipients were from Mexico, reflecting the demographic composition of the undocumented immigrant population in the United States.

2.4 Theoretical Mechanisms

DACA could affect full-time employment through several channels:

- **Legal work authorization**: DACA recipients can work legally, potentially transitioning from informal to formal employment
- **Reduced fear of deportation**: Protected status may increase willingness to seek visible employment
- **Access to identification**: Driver's licenses and IDs facilitate job searching and commuting
- **Human capital investment**: Protected status may encourage educational investments that improve employment prospects

3 Data

3.1 Data Source

The analysis uses data from the American Community Survey (ACS) provided by IPUMS USA. The ACS is an annual survey conducted by the U.S. Census Bureau that collects

demographic, social, economic, and housing information from approximately 3.5 million households annually.

3.2 Sample Selection

The sample is constructed as follows:

1. **Survey years**: 2006–2016 one-year ACS files (excluding 2012)
2. **Ethnic/national origin**: Hispanic-Mexican ethnicity (`HISPAN = 1`) AND born in Mexico (`BPL = 200`)
3. **Citizenship**: Non-citizens (`CITIZEN = 3`)
4. **Age**: Working-age population (16–64 years)
5. **Immigration year**: Valid immigration year recorded (`YRIMMIG > 0`)

The year 2012 is excluded because DACA was implemented mid-year (June 15, 2012), and the ACS does not record the month of interview, making it impossible to distinguish pre- and post-DACA observations within that year.

3.3 Key Variables

3.3.1 Outcome Variable

The outcome is full-time employment, defined as a binary indicator equal to 1 if the respondent usually works 35 or more hours per week (`UHRSWORK` ≥ 35), and 0 otherwise.

3.3.2 Treatment Variable: DACA Eligibility

DACA eligibility is constructed based on the program's criteria that can be measured in the ACS:

$$\begin{aligned} \text{Eligible} = 1 \text{ if: } & (\text{Age at immigration}) < 16 \\ & \text{AND BIRTHYR} \geq 1982 \text{ (under 31 as of June 2012)} \\ & \text{AND YRIMMIG} \leq 2007 \text{ (in US since at least 2007)} \end{aligned} \tag{1}$$

where age at immigration is approximated as `YRIMMIG` $-$ `BIRTHYR`.

Note that the ACS cannot verify:

- Physical presence on June 15, 2012
- Educational attainment or military service requirements
- Actual documentation status (non-citizens are assumed undocumented)

3.3.3 Control Variables

The analysis includes the following control variables:

- Age and age squared
- Sex (female indicator)
- Marital status (married indicator)
- Educational attainment (categorical)
- State of residence fixed effects
- Year fixed effects

3.4 Sample Characteristics

Table 1 presents the final sample characteristics.

Table 1: Sample Characteristics

Characteristic	**Value**
Total observations	561,470
DACA-eligible	81,508 (14.5%)
Non-eligible	479,962 (85.5%)
Pre-DACA observations (2006–2011)	345,792
Post-DACA observations (2013–2016)	215,678
Mean age (eligible)	22.4 years
Mean age (non-eligible)	39.5 years
Female	45.9%
Married	59.6%
Full-time employment rate	57.4%

4 Empirical Strategy

4.1 Difference-in-Differences Design

The identification strategy exploits the quasi-experimental variation in DACA eligibility. Specifically, I compare changes in full-time employment between DACA-eligible and non-eligible individuals before and after program implementation.

The basic difference-in-differences estimating equation is:

$$Y_{ist} = \beta_0 + \beta_1 \text{Eligible}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Eligible}_i \times \text{Post}_t) + \mathbf{X}_i' \gamma + \alpha_s + \delta_t + \varepsilon_{ist} \tag{2}$$

where:

- Y_{ist} is an indicator for full-time employment for individual i in state s at time t
- Eligible_i indicates DACA eligibility
- Post_t indicates post-DACA period (2013–2016)
- $\mathbf{X}_i$ is a vector of individual controls (age, age^2, sex, marital status, education)
- α_s are state fixed effects
- δ_t are year fixed effects
- ε_{ist} is the error term

The coefficient of interest is β_3, which captures the average treatment effect of DACA eligibility on full-time employment. Under the parallel trends assumption, β_3 represents the causal effect of DACA eligibility.

4.2 Identification Assumptions

The key identifying assumption is that, in the absence of DACA, trends in full-time employment would have been parallel between eligible and non-eligible groups. This assumption is partially testable by examining pre-treatment trends (see Section 6.3).

4.3 Estimation

All models are estimated using weighted least squares with person weights (`PERWT`) provided by IPUMS to account for the complex survey design. Standard errors are clustered at the individual level in the preferred specification.

5 Results

5.1 Descriptive Evidence

Table 2 presents the raw means of full-time employment rates by eligibility status and period.

Table 2: Mean Full-Time Employment Rates by Eligibility and Period

	Pre-DACA (2006–2011)	**Post-DACA (2013–2016)**
Non-Eligible	60.4%	57.9%
Eligible	42.5%	49.4%
Difference (Elig - Non-Elig)	−17.9 pp	−8.5 pp
DiD Estimate	**+9.4 pp**	

The raw difference-in-differences estimate suggests that DACA eligibility increased full-time employment by approximately 9.4 percentage points. However, this estimate does not account for compositional changes or other confounding factors.

5.2 Main Regression Results

Table 3 presents the main regression results from four specifications.

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

	(1) Basic DiD	**(2)** + Controls	**(3)** + FE	**(4)** Weighted
Eligible × Post	0.0941***	0.0399***	0.0339***	0.0326***
	(0.0038)	(0.0034)	(0.0034)	(0.0033)
Eligible	−0.1792***	−0.0408***	−0.0239***	−0.0265***
	(0.0025)	(0.0028)	(0.0028)	(0.0027)
Post	−0.0249***	−0.0242***	–	–
	(0.0015)	(0.0013)		
Individual Controls	No	Yes	Yes	Yes
State FE	No	No	Yes	Yes
Year FE	No	No	Yes	Yes
Weighted	No	No	No	Yes
N	561,470	561,470	561,470	561,470

Notes: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Individual controls: age, age^2, female, married, education.

5.2.1 Interpretation of Results

Model (1): Basic DiD. Without controls, the estimated effect is 9.41 percentage points. This large estimate reflects both the causal effect and systematic differences between eligible and non-eligible groups (e.g., age composition).

Model (2): With Individual Controls. Adding controls for age, sex, marital status, and education reduces the estimate to 3.99 percentage points. This substantial reduction indicates that compositional differences between groups explain much of the raw difference.

Model (3): With State and Year Fixed Effects. Adding geographic and temporal fixed effects yields an estimate of 3.39 percentage points, accounting for state-level differences in labor markets and time trends.

Model (4): Weighted (Preferred Specification). The preferred specification uses survey weights and estimates that DACA eligibility increased full-time employment by **3.26 percentage points** (SE = 0.0033, 95% CI: [2.61, 3.91] pp, $t = 9.84$, $p < 0.001$).

5.3 Pre-Trends Analysis

To assess the validity of the parallel trends assumption, I estimate year-specific treatment effects during the pre-DACA period (2006–2011), using 2006 as the reference year.

Table 4: Pre-Trends Test: Year-Specific Eligible × Year Coefficients

Year	Coefficient	SE	p-value
2007	0.0038	0.0081	0.641
2008	0.0182	0.0080	0.024
2009	0.0266	0.0079	0.001
2010	0.0307	0.0077	0.000
2011	0.0192	0.0077	0.012

The pre-trends analysis reveals some evidence of differential pre-trends, with the eligible group showing modestly improving relative employment outcomes even before DACA. The coefficients for 2008–2011 are statistically significant, though small in magnitude. This suggests some caution in interpreting the DiD estimates as purely causal, as the eligible group may have been on an improving trajectory independent of DACA.

5.4 Event Study Analysis

Figure **??** and Table 5 present event study estimates using 2011 as the reference year.

Table 5: Event Study Coefficients (Reference Year: 2011)

Year	Coefficient	SE	Period
2006	−0.0172	0.0077	Pre
2007	−0.0138	0.0075	Pre
2008	0.0001	0.0075	Pre
2009	0.0081	0.0074	Pre
2010	0.0118	0.0071	Pre
2011	0.0000	–	Reference
2013	0.0161	0.0070	Post
2014	0.0267	0.0070	Post
2015	0.0416	0.0070	Post
2016	0.0433	0.0070	Post

The event study reveals:

- Pre-DACA years (2006–2010) show coefficients generally closer to zero, though with an upward trend
- Post-DACA years (2013–2016) show steadily increasing positive coefficients
- The effect appears to grow over time, from 1.6 pp in 2013 to 4.3 pp in 2016

6 Robustness Checks

Table 6 presents results from several robustness checks.

Table 6: Robustness Checks

Specification	Estimate	SE
Main Result (Preferred)	0.0326	0.0033
Alternative Eligibility Definition		
Birth year $\geq$ 1981 (more inclusive)	0.0269	0.0032
Sample Restrictions		
Ages 18–35 only	0.0099	0.0041
Men only	0.0295	0.0041
Women only	0.0269	0.0053
Standard Error Adjustment		
Robust (HC1) standard errors	0.0326	0.0042

6.1 Alternative Eligibility Definition

Using a more inclusive eligibility definition (BIRTHYR $\geq$ 1981 instead of $\geq$ 1982) yields a slightly smaller estimate of 2.69 percentage points. This is expected as the broader definition includes individuals at the margin of eligibility.

6.2 Sample Restrictions

Young Sample (Ages 18–35). Restricting to a younger sample more comparable in age yields a smaller but still positive estimate of 0.99 percentage points. This suggests the main effect may partly capture age-related compositional differences.

By Sex. The effect is similar for men (2.95 pp) and women (2.69 pp), suggesting DACA benefits both sexes roughly equally.

6.3 Standard Error Adjustments

Using heteroskedasticity-robust standard errors increases the standard error from 0.0033 to 0.0042, but the estimate remains highly statistically significant.

7 Discussion

7.1 Summary of Findings

The analysis finds that DACA eligibility is associated with a statistically significant increase in full-time employment of approximately 3.3 percentage points. This effect:

- Is robust to different model specifications and control variables
- Is similar across men and women
- Appears to grow over time in the post-DACA period
- Is somewhat sensitive to the age range analyzed

7.2 Magnitude

A 3.3 percentage point increase represents a 7.8% increase relative to the baseline full-time employment rate of 42.5% among eligible individuals in the pre-period. In absolute terms, given approximately 900,000 DACA recipients nationally, this would translate to roughly 29,000 additional individuals in full-time employment.

7.3 Limitations

Several limitations should be noted:

1. **Pre-trends**: The pre-trends analysis suggests some evidence of differential trends before DACA, which may bias the estimates.

2. **Eligibility measurement**: DACA eligibility cannot be perfectly measured in the ACS. The analysis assumes all non-citizens are undocumented, which is not strictly accurate.

3. **Control group**: The non-eligible comparison group differs substantially from the eligible group in age and other characteristics. While controls are included, residual confounding may remain.

4. **Intensive vs. extensive margin**: The analysis focuses on full-time employment (an intensive margin outcome) rather than any employment. DACA may have different effects on employment entry vs. hours worked.

5. **General equilibrium effects**: The analysis cannot capture potential spillover effects on non-eligible workers or general labor market effects.

7.4 Comparison to Literature

These findings are broadly consistent with prior research on DACA's labor market effects. Several studies have found positive effects of DACA on employment and earnings outcomes, though estimates vary depending on methodology and sample definitions. The magnitude found here (3–4 percentage points) is in the range of prior estimates.

8 Conclusion

This study provides evidence that eligibility for the DACA program increased full-time employment among Mexican-born non-citizens in the United States. Using a difference-in-differences design with ACS data from 2006–2016, I estimate that DACA eligibility increased the probability of full-time employment by 3.26 percentage points (95% CI: 2.61–3.91 pp).

The findings suggest that DACA's work authorization provision had meaningful effects on labor market outcomes for eligible immigrants. However, some evidence of differential pre-trends warrants caution in interpreting these estimates as purely causal effects. The effect appears to grow over time, suggesting cumulative benefits of legal work status.

These results contribute to our understanding of how immigration policy affects labor market outcomes and have implications for ongoing debates about DACA's future and broader immigration reform.

Appendix A: Variable Definitions

Table 7: IPUMS Variable Definitions

Variable	**Source**	**Definition/Values Used**
YEAR	IPUMS	Survey year (2006–2016, excluding 2012)
HISPAN	IPUMS	Hispanic origin; 1 = Mexican
BPL	IPUMS	Birthplace; 200 = Mexico
CITIZEN	IPUMS	Citizenship status; 3 = Not a citizen
BIRTHYR	IPUMS	Year of birth
YRIMMIG	IPUMS	Year of immigration to U.S.
AGE	IPUMS	Age in years
SEX	IPUMS	Sex; 1 = Male, 2 = Female
MARST	IPUMS	Marital status; 1,2 = Married
EDUC	IPUMS	Educational attainment (categorical)
UHRSWORK	IPUMS	Usual hours worked per week
STATEFIP	IPUMS	State FIPS code
PERWT	IPUMS	Person weight for survey weighting

Appendix B: Additional Tables

Table 8: Sample Sizes by Eligibility Status and Period

	Pre-DACA (2006–2011)	**Post-DACA (2013–2016)**
Non-Eligible	300,359	179,603
Eligible	45,433	36,075
Total	345,792	215,678

Table 9: Summary Statistics by Eligibility Status

	Non-Eligible		Eligible	
Variable	Mean	SD	Mean	SD
Full-time employed	0.595	0.491	0.455	0.498
Age	39.5	10.4	22.4	4.4
Female	0.461	0.498	0.449	0.497
Married	0.654	0.476	0.253	0.435
Education level	3.95	2.57	5.15	1.86
Usual hours worked	28.5	19.7	23.3	19.8
N	479,962		81,508	

Appendix C: Analytical Decisions

C.1 Sample Restrictions

1. **Population**: Restricted to Hispanic-Mexican ethnicity (HISPAN=1) AND born in Mexico (BPL=200) per the research question specification.

2. **Citizenship**: Restricted to non-citizens (CITIZEN=3). This is necessary because DACA eligibility requires being undocumented; citizens are not eligible. The ACS does not distinguish between documented and undocumented non-citizens, so I assume all non-citizens are potentially undocumented.

3. **Age range**: Restricted to ages 16–64 to focus on the working-age population. Age 16 is the minimum for standard labor force participation; age 64 is used as an upper bound to exclude those near retirement.

4. **Year exclusion**: 2012 is excluded because DACA was implemented mid-year (June 15), and the ACS does not record month of interview.

5. **Immigration year**: Observations with missing immigration year (YRIMMIG=0) are excluded because immigration year is required to determine DACA eligibility.

C.2 Eligibility Definition

DACA eligibility is defined using three criteria that can be measured in the ACS:

1. **Arrived before age 16**: Age at immigration < 16, where age at immigration = YRIMMIG − BIRTHYR.

2. **Under 31 as of June 15, 2012**: BIRTHYR $\geq$ 1982. This is conservative; someone born in late 1981 could have been under 31 on June 15, 2012.

3. **Continuous presence since June 15, 2007**: YRIMMIG $\leq$ 2007.

C.3 Outcome Definition

Full-time employment is defined as UHRSWORK $\geq$ 35, following the standard Bureau of Labor Statistics definition of full-time work.

C.4 Control Variables

Controls were selected based on standard labor economics practice:

- Age and age squared: To capture the lifecycle pattern of employment
- Female indicator: To capture gender differences in labor supply
- Married indicator: Marital status affects labor supply decisions
- Education categories: Human capital affects employment probability
- State fixed effects: To control for geographic variation in labor markets
- Year fixed effects: To control for aggregate economic conditions

C.5 Estimation Method

Weighted least squares is used with person weights (PERWT) to produce population-representative estimates. The linear probability model is used for ease of interpretation; coefficients directly represent percentage point changes in the probability of full-time employment.