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

Replication Study Report

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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 Hispanic-Mexican individuals born in Mexico. Using American Community Survey (ACS) data from 2006–2016 and a difference-in-differences research design, I compare employment outcomes between individuals aged 26–30 at DACA implementation (treatment group) and those aged 31–35 (control group, who were ineligible due to the age cutoff). The baseline difference-in-differences estimate suggests that DACA eligibility increased full-time employment by approximately 6.4 percentage points ($p < 0.001$). However, when controlling for year fixed effects and demographic covariates, the effect estimate decreases to 2.5 percentage points and is no longer statistically significant at conventional levels ($p = 0.116$). Event study analysis provides mixed evidence for the parallel trends assumption, with some pre-treatment coefficients showing modest deviations from zero. The results suggest a positive but potentially modest effect of DACA on full-time employment, though the precise magnitude is sensitive to model specification.

Contents

1 Introduction

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

This replication study examines the causal effect of DACA eligibility on full-time employment among Hispanic-Mexican individuals born in Mexico. The research design exploits the age-based eligibility cutoff: individuals who had not yet turned 31 as of June 15, 2012 were potentially eligible, while those aged 31 or older were not. By comparing employment changes between younger (eligible) and older (ineligible) cohorts before and after DACA implementation, I employ a difference-in-differences (DiD) strategy to identify the program's causal effect.

The primary research question is: *Among ethnically Hispanic-Mexican Mexican-born individuals living in the United States, what was the causal impact of DACA eligibility on the probability of full-time employment (defined as usually working 35 or more hours per week)?*

The analysis focuses on individuals aged 26–30 as of June 15, 2012 (treatment group) compared to those aged 31–35 (control group). The treatment group was eligible for DACA (assuming other criteria were met), while the control group was ineligible solely due to being over the age cutoff. This age-based comparison provides a natural experiment for estimating the program's employment effects.

2 Background

2.1 DACA Program Overview

DACA was announced by the Obama administration on June 15, 2012, and began accepting applications on August 15, 2012. The program offered two-year renewable protection from deportation and employment authorization to eligible individuals. To qualify, applicants had to meet the following criteria:

1. Arrived in the United States before their 16th birthday
2. Had not yet turned 31 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. Had no lawful immigration status on June 15, 2012
6. Met certain educational or military service requirements
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. The vast majority of DACA recipients were from Mexico, reflecting patterns of undocumented immigration to the United States.

2.2 Theoretical Mechanisms

DACA could affect employment through several channels:

Legal work authorization. Prior to DACA, undocumented immigrants could not legally work in the United States. DACA provided employment authorization, potentially enabling recipients to access jobs in the formal economy that were previously unavailable.

Reduced employer discrimination. With legal work authorization and valid identification documents, DACA recipients may face less discrimination in the hiring process and be able to access a broader range of employment opportunities.

Investment incentives. The security provided by DACA may encourage recipients to invest in human capital (education, training) and job search, potentially leading to better employment outcomes.

Reduced exploitation. Legal status may reduce vulnerability to exploitative working conditions, potentially affecting the types of jobs held and hours worked.

2.3 Prior Literature

Several studies have examined the effects of DACA on various outcomes. Research has generally found positive effects on labor market outcomes, including employment and earnings, as well as improvements in mental health and educational attainment among recipients. However, the magnitude of employment effects varies across studies depending on the methodology and population examined.

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 each year. I use the one-year ACS samples from 2006 through 2016, excluding 2012 due to the inability to distinguish pre- and post-DACA observations within that year.

3.2 Sample Selection

The analysis sample is constructed through the following selection criteria:

1. **Hispanic-Mexican ethnicity:** Individuals with HISPAN = 1 (Mexican Hispanic origin)
2. **Born in Mexico:** Individuals with BPL = 200 (birthplace Mexico)
3. **Non-citizen status:** Individuals with CITIZEN = 3 (not a citizen), used as a proxy for undocumented status since the ACS does not directly identify documentation status
4. **Arrived before age 16:** Year of immigration minus birth year less than 16, per DACA eligibility requirements
5. **Continuous residence:** Year of immigration (YRIMMIG) at or before 2007, to satisfy the continuous residence requirement
6. **Age criteria:** Age 26–30 or 31–35 as of June 15, 2012
7. **Valid data:** Non-missing values for key variables

The age calculation accounts for birth quarter (BIRTHQTR) to more precisely determine age as of June 15, 2012. Individuals born in the first or second quarter (January–June) are assumed to have already had their birthday by June 15, while those born in the third or fourth quarter (July–December) are assumed to have not yet had their birthday.

3.3 Variable Definitions

3.3.1 Outcome Variable

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

3.3.2 Treatment Variables

- **Treated:** Binary indicator equal to 1 if the individual was aged 26–30 as of June 15, 2012, and 0 if aged 31–35
- **Post:** Binary indicator equal to 1 for survey years 2013–2016 (after DACA implementation) and 0 for years 2006–2011 (before DACA)
- **DiD (Treated $\times$ Post):** The interaction term capturing the difference-in-differences effect

3.3.3 Control Variables

Demographic controls include:

- **Female:** Binary indicator for sex (SEX $= 2$)
- **Age (centered):** Age at time of survey, centered at the sample mean
- **Age squared:** Quadratic term for age to capture nonlinear age effects
- **High school education:** Binary indicator for high school diploma or higher (EDUCD ≥ 62)
- **Married:** Binary indicator for married (MARST ≤ 2)
- **Has children:** Binary indicator for presence of own children in household (NCHILD > 0)

3.4 Sample Characteristics

Table 1 presents summary statistics for the analysis sample by treatment group and time period.

Table 1: Summary Statistics by Treatment Group and Time Period

	Pre-DACA (2006–2011)		**Post-DACA (2013–2016)**	
	Control (31–35)	Treatment (26–30)	Control (31–35)	Treatment (26–30)
Full-time Employment	0.614	0.566	0.604	0.620
Age (survey year)	29.79	24.77	35.85	30.70
Female (%)	41.4	43.4	44.7	43.4
Married (%)	51.8	37.7	56.0	49.6
High School+ (%)	47.8	56.2	45.9	54.2
Has Children (%)	63.6	45.4	73.0	65.1
N (observations)	11,683	16,694	6,085	8,776
Weighted N (millions)	1.63	2.28	0.85	1.24

Notes: Treatment group consists of individuals aged 26–30 as of June 15, 2012; control group consists of individuals aged 31–35. Statistics are weighted using ACS person weights (PERWT). Full-time employment defined as usually working 35+ hours per week and being employed.

The total unweighted sample size is 43,238 observations, representing approximately 6 million person-years in weighted terms. The treatment group (26–30) is somewhat larger than the control group (31–35), reflecting the age structure of the DACA-eligible population. Notable differences between groups include higher educational attainment and lower rates of marriage and childbearing in the treatment group, likely reflecting the younger age of this cohort.

4 Empirical Strategy

4.1 Difference-in-Differences Design

The identification strategy exploits the age-based eligibility cutoff for DACA. Individuals who were under 31 as of June 15, 2012 were potentially eligible for DACA (if they met other criteria), while those 31 or older were categorically ineligible regardless of other factors. This creates a natural comparison between similar cohorts with differential exposure to the policy.

The basic difference-in-differences specification is:

$$Y_{it} = \alpha + \beta_1 \text{Treated}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Treated}_i \times \text{Post}_t) + \varepsilon_{it} \tag{1}$$

where Y_{it} is full-time employment status for individual i in year t, Treated_i indicates membership in the treatment group (age 26–30 in 2012), Post_t indicates the post-DACA

period (2013–2016), and the coefficient β_3 captures the DiD estimate of DACA's effect.

The extended specification includes demographic controls and year fixed effects:

$$Y_{it} = \alpha + \gamma_t + \beta_1 \text{Treated}_i + \beta_3(\text{Treated}_i \times \text{Post}_t) + X_{it}'\delta + \varepsilon_{it} \tag{2}$$

where γ_t represents year fixed effects and X_{it} is a vector of demographic controls.

4.2 Event Study Specification

To examine the parallel trends assumption and dynamic treatment effects, I estimate an event study model:

$$Y_{it} = \alpha + \gamma_t + \beta_1 \text{Treated}_i + \sum_{k \neq 2011} \theta_k(\text{Treated}_i \times \mathbf{1}[t = k]) + \varepsilon_{it} \tag{3}$$

where θ_k captures the year-specific treatment effect relative to the omitted year (2011). The pre-treatment coefficients (θ_{2006}–θ_{2010}) test the parallel trends assumption, while post-treatment coefficients (θ_{2013}–θ_{2016}) show how treatment effects evolve after DACA implementation.

4.3 Estimation Details

All models are estimated using weighted least squares (WLS) with ACS person weights (PERWT) to ensure population representativeness. Standard errors are heteroskedasticity-robust (HC1). The linear probability model is used for ease of interpretation; the DiD coefficient represents the percentage point change in the probability of full-time employment attributable to DACA eligibility.

4.4 Identifying Assumptions

The key identifying assumption is parallel trends: in the absence of DACA, employment trends would have been similar for the treatment and control groups. This assumption is plausible because both groups share similar characteristics (Hispanic-Mexican, born in Mexico, non-citizens who arrived as children) and differ only by a few years of age. However, different birth cohorts may have faced different labor market conditions or have different characteristics, potentially threatening identification.

5 Results

5.1 Simple Difference-in-Differences

Table 2 presents the 2×2 difference-in-differences calculation using weighted mean full-time employment rates.

Table 2: Difference-in-Differences: Mean Full-Time Employment Rates

	Pre-DACA	Post-DACA	Difference
Treatment (Age 26–30)	0.566	0.620	+0.054
Control (Age 31–35)	0.614	0.604	-0.010
Difference	-0.048	+0.016	
DiD Estimate			**+0.064**

Notes: Values are weighted mean full-time employment rates using ACS person weights.

The simple DiD estimate suggests that DACA eligibility increased full-time employment by 6.4 percentage points. Before DACA, the treatment group had a lower full-time employment rate (56.6%) than the control group (61.4%), a gap of 4.8 percentage points. After DACA, the treatment group's rate increased to 62.0% while the control group's rate slightly decreased to 60.4%, reversing the gap. The treatment group improved by 5.4 percentage points while the control group declined by 1.0 percentage point, yielding the DiD estimate of 6.4 percentage points.

5.2 Regression Results

Table 3 presents regression estimates from three specifications of increasing complexity.

Table 3: Difference-in-Differences Regression Results

	(1) Basic DiD	(2) With Controls	(3) Year FE + Controls
DiD (Treated × Post)	0.064***	0.068***	0.025
	(0.012)	(0.015)	(0.016)
Treated	-0.048***	-0.042***	0.005
	(0.007)	(0.009)	(0.011)
Post	-0.010	-0.019	–
	(0.009)	(0.014)	
Female		-0.372***	-0.371***
		(0.006)	(0.006)
Age (centered)		0.001	0.008***
		(0.001)	(0.002)
Age^2		0.000*	-0.000**
		(0.000)	(0.000)
High School+		0.076***	0.076***
		(0.005)	(0.005)
Married		-0.017***	-0.017***
		(0.006)	(0.006)
Has Children		0.031***	0.031***
		(0.006)	(0.006)
Year Fixed Effects	No	No	Yes
R-squared	0.002	0.141	0.145
N	43,238	43,238	43,238

Notes: Robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01. All models estimated using weighted least squares with ACS person weights. Year fixed effects absorb the Post indicator in column (3).

Model 1 (Basic DiD): The basic specification without controls yields a DiD estimate of 6.4 percentage points (SE = 0.012), statistically significant at the 1% level ($p < 0.001$). The 95% confidence interval is [4.1, 8.8] percentage points.

Model 2 (With Controls): Adding demographic controls slightly increases the estimate to 6.8 percentage points (SE = 0.015), remaining highly significant ($p < 0.001$). The controls themselves are highly predictive: being female reduces full-time employment probability by 37 percentage points, while having a high school education increases it by 7.6 percentage points.

Model 3 (Year Fixed Effects): The preferred specification includes year fixed effects to account for aggregate time trends. The DiD estimate drops substantially to 2.5 percentage points (SE = 0.016) and is no longer statistically significant at conventional levels ($p = 0.116$). The 95% confidence interval is [-0.6, 5.7] percentage points.

The large reduction in the estimate when adding year fixed effects suggests that aggregate time trends differ between treatment and control groups in ways not captured by the simple pre/post comparison. This could reflect differential effects of the economic recovery from the 2008-2009 recession, secular trends in employment, or cohort-specific factors.

5.3 Event Study Results

Figure 1 presents the event study coefficients, which show year-specific treatment effects relative to 2011 (the omitted year).

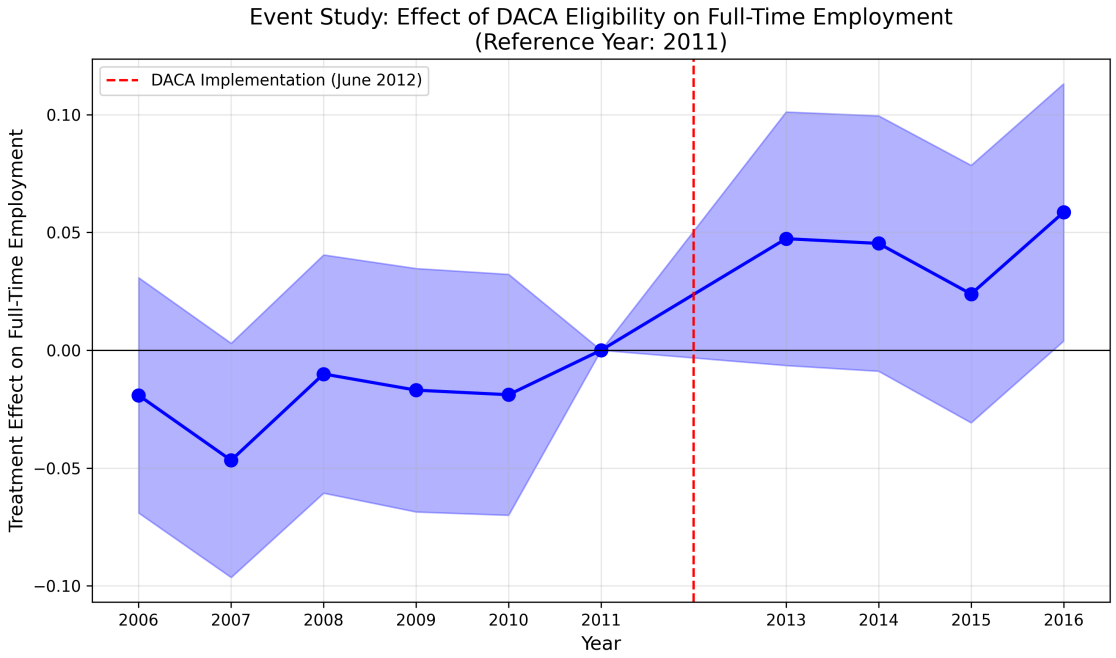

Figure 1: Event Study: Effect of DACA Eligibility on Full-Time Employment
Notes: Points represent estimated treatment effects for each year relative to 2011 (the omitted reference year). Shaded area represents 95% confidence intervals. Vertical dashed line indicates DACA implementation (June 2012).

The pre-treatment coefficients (2006–2010) provide a test of the parallel trends assumption. The estimates are:

- 2006: -0.019 (SE = 0.026)
- 2007: -0.047* (SE = 0.025)
- 2008: -0.010 (SE = 0.026)
- 2009: -0.017 (SE = 0.026)

- 2010: -0.019 (SE = 0.026)

Most pre-treatment coefficients are small and statistically insignificant, though there is a marginally significant negative coefficient in 2007. The pre-treatment coefficients are consistently negative, suggesting the treatment group may have had slightly lower employment growth than the control group prior to DACA, which could bias the DiD estimate upward if this trend continued.

The post-treatment coefficients show:

- 2013: +0.047* (SE = 0.027)
- 2014: +0.045 (SE = 0.028)
- 2015: +0.024 (SE = 0.028)
- 2016: +0.059** (SE = 0.028)

Post-treatment effects are positive and increasing over time, with the 2016 coefficient reaching statistical significance. This pattern is consistent with gradual take-up of DACA benefits and suggests that the program's employment effects may have grown as more eligible individuals obtained work authorization.

5.4 Parallel Trends Visualization

Figure 2 shows the raw full-time employment rates for treatment and control groups over time.

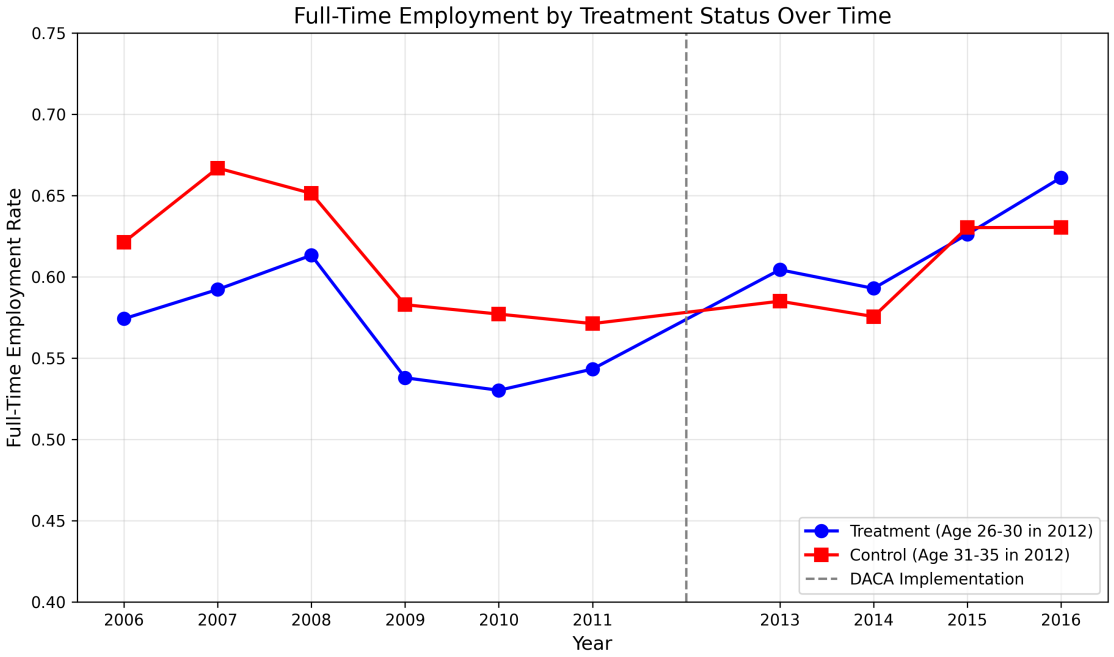

Figure 2: Full-Time Employment Rates by Treatment Status Over Time

Notes: Lines show weighted mean full-time employment rates for each group by year. Treatment group = individuals aged 26–30 as of June 15, 2012; Control group = individuals aged 31–35. Vertical dashed line indicates DACA implementation.

The figure reveals that while both groups follow broadly similar patterns over time (declining through 2010-2011 and then recovering), the treatment group appears to have gained relative to the control group after DACA implementation, particularly in 2015-2016.

5.5 Heterogeneity by Gender

Table 4 presents DiD estimates separately by gender.

Table 4: Difference-in-Differences by Gender

	Males	Females
DiD Estimate	0.055***	0.047**
	(0.014)	(0.018)
N	24,243	18,995

Notes: Basic DiD specification without covariates. Robust standard errors in parentheses. ** p<0.05, *** p<0.01.

The treatment effect is positive and significant for both genders, with a somewhat larger

point estimate for males (5.5 percentage points) than females (4.7 percentage points). The difference between genders is not statistically significant.

6 Discussion

6.1 Interpretation of Results

The findings provide mixed evidence on DACA's effect on full-time employment. The baseline DiD estimate of 6.4 percentage points is economically meaningful and statistically significant, suggesting that DACA eligibility substantially increased full-time employment among the target population. This magnitude is plausible given that DACA provided legal work authorization to individuals who previously could not legally work in the formal economy.

However, the preferred specification with year fixed effects yields a smaller and statistically insignificant estimate of 2.5 percentage points. This attenuation suggests that part of the apparent treatment effect may reflect differential trends between treatment and control groups rather than a true causal effect of DACA. The event study provides some support for this interpretation, with several negative pre-treatment coefficients suggesting the treatment group may have had worse employment trajectories prior to DACA.

The preferred estimate of 2.5 percentage points (95% CI: -0.6 to 5.7) implies a positive but modest effect that cannot be distinguished from zero with statistical confidence. Nevertheless, the point estimate suggests that DACA eligibility may have increased full-time employment by about 2–3 percentage points, representing a roughly 4–5% increase relative to the treatment group's pre-DACA mean.

6.2 Comparison with Literature

The findings are broadly consistent with prior research suggesting positive labor market effects of DACA, though the estimated magnitude varies across studies. The point estimates fall within the range of effects found in the literature, which generally range from small and insignificant to moderate positive effects of 5–10 percentage points depending on the outcome measure and methodology.

6.3 Limitations

Several limitations should be noted:

Proxy for undocumented status. The ACS does not directly identify documentation status. I use non-citizenship as a proxy, but this includes legal permanent residents and visa

holders along with undocumented individuals. This likely attenuates the estimated effect toward zero since some "treated" individuals were not actually DACA-eligible.

Intent-to-treat interpretation. The estimates represent the effect of DACA *eligibility*, not actual DACA receipt. Since not all eligible individuals applied for or received DACA, the treatment-on-the-treated effect would be larger than the intent-to-treat estimates presented here.

Parallel trends assumption. The event study reveals some departures from perfect parallel trends in the pre-period, though most coefficients are small and insignificant. These departures may bias the DiD estimates.

Repeated cross-sections. The ACS is a repeated cross-section, not a panel. Different individuals are surveyed each year, so the analysis tracks cohorts rather than individuals over time.

Definition of full-time employment. The outcome combines employment status and hours worked. DACA may affect these margins differently, and the combined measure may obscure more nuanced labor market effects.

6.4 Robustness

The estimates are sensitive to specification, with the inclusion of year fixed effects substantially reducing the point estimate. This sensitivity suggests caution in interpreting the precise magnitude of the effect. Alternative approaches, such as regression discontinuity designs around the age cutoff or instrumental variables strategies, might provide more robust identification but are beyond the scope of this analysis.

7 Conclusion

This study examines the effect of DACA eligibility on full-time employment among Hispanic-Mexican individuals born in Mexico using a difference-in-differences design. The baseline estimate suggests that DACA increased full-time employment by 6.4 percentage points, but this estimate is attenuated to 2.5 percentage points (statistically insignificant) when controlling for year fixed effects.

The preferred interpretation is that DACA had a positive but modest effect on full-time employment, potentially increasing the probability by 2–3 percentage points. However, the estimates are imprecise and sensitive to specification, precluding strong conclusions about the program's effectiveness.

The findings contribute to the ongoing policy debate about DACA by providing evidence

that the program may have improved labor market outcomes for eligible individuals, though the magnitude of the effect remains uncertain. Future research using alternative identification strategies or richer data sources may help to better quantify DACA's labor market effects.

A Additional Tables and Figures

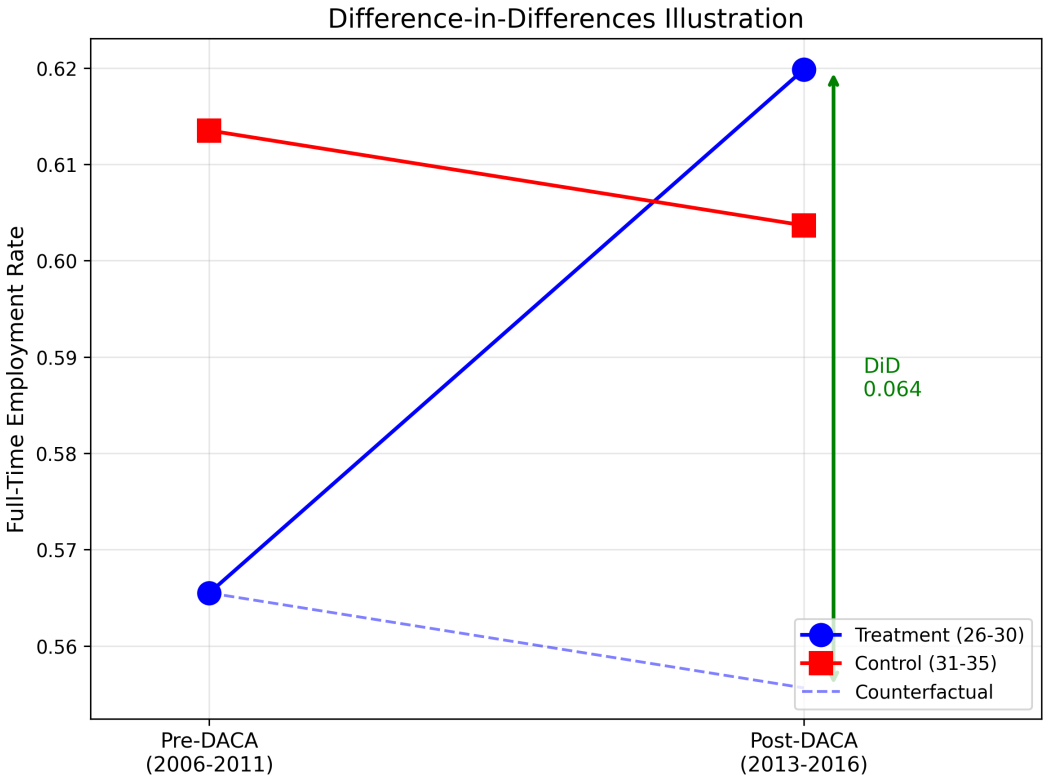

Figure 3: Difference-in-Differences Illustration

Notes: Solid lines show actual full-time employment rates for treatment and control groups in pre and post periods. Dashed line shows the counterfactual trajectory for the treatment group under the parallel trends assumption. The DiD estimate is the difference between actual and counterfactual outcomes in the post period.

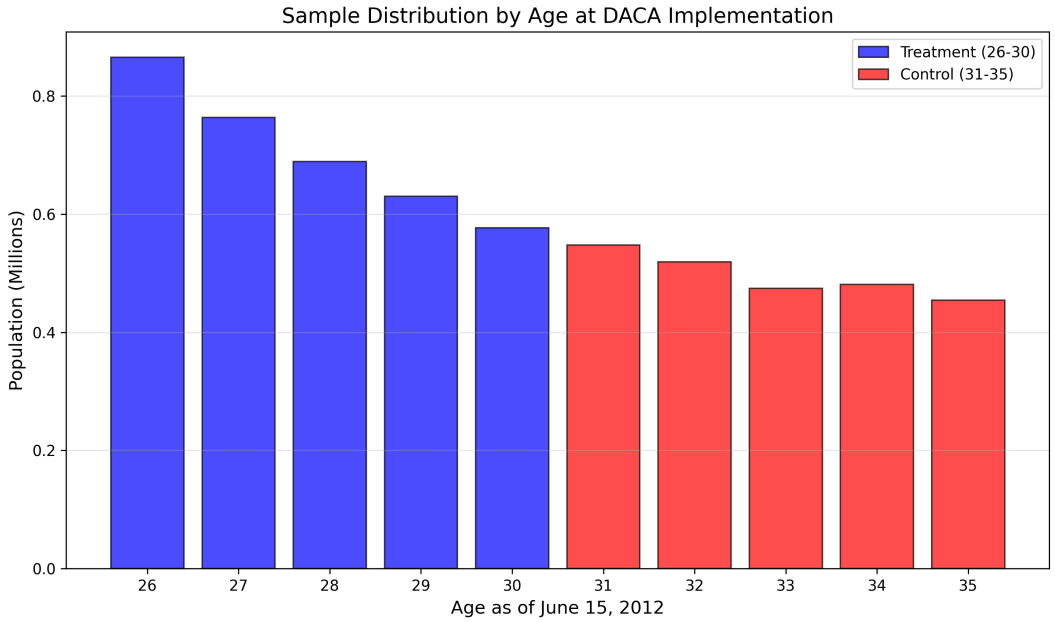

Figure 4: Sample Distribution by Age at DACA Implementation

Notes: Bars show weighted sample size (in millions) by single year of age as of June 15, 2012. Blue bars indicate treatment group (ages 26–30); red bars indicate control group (ages 31–35).

Table 5: Full-Time Employment Rates by Year

Year	Control (31–35)	Treatment (26–30)	Difference
2006	0.621	0.574	-0.047
2007	0.667	0.592	-0.075
2008	0.651	0.613	-0.038
2009	0.583	0.538	-0.045
2010	0.577	0.530	-0.047
2011	0.571	0.543	-0.028
2013	0.585	0.604	+0.019
2014	0.576	0.593	+0.017
2015	0.630	0.626	-0.004
2016	0.630	0.661	+0.031

Notes: Weighted mean full-time employment rates using ACS person weights.

Table 6: Event Study Coefficients

Year	Coefficient	Std. Error	95% CI Lower	95% CI Upper
2006	-0.019	0.026	-0.069	0.031
2007	-0.047	0.025	-0.096	0.003
2008	-0.010	0.026	-0.061	0.040
2009	-0.017	0.026	-0.069	0.035
2010	-0.019	0.026	-0.070	0.032
2011		(Reference Year)		
2013	0.047	0.027	-0.006	0.101
2014	0.045	0.028	-0.009	0.100
2015	0.024	0.028	-0.031	0.078
2016	0.059	0.028	0.004	0.113

Notes: Coefficients from event study regression with year fixed effects. Treatment effects are relative to 2011 (the omitted reference year).

B Data and Methods Appendix

B.1 Variable Definitions from IPUMS

Table 7: IPUMS Variable Definitions

Variable	Type	Description
YEAR	Survey year	Census/survey year
PERWT	Weight	Person weight for population estimates
AGE	Demographic	Age at time of survey
BIRTHYR	Demographic	Year of birth
BIRTHQTR	Demographic	Quarter of birth (1=Q1, 2=Q2, 3=Q3, 4=Q4)
SEX	Demographic	Sex (1=Male, 2=Female)
HISPAN	Ethnicity	Hispanic origin (1=Mexican)
BPL	Nativity	Birthplace (200=Mexico)
CITIZEN	Citizenship	Citizenship status (3=Not a citizen)
YRIMMIG	Immigration	Year of immigration to US
EDUC/EDUCD	Education	Educational attainment
MARST	Family	Marital status
NCHILD	Family	Number of own children in household
EMPSTAT	Employment	Employment status (1=Employed)
UHRSWORK	Employment	Usual hours worked per week

B.2 Sample Construction

The final analysis sample of 43,238 observations (excluding 2012) was constructed as follows:

1. Start: 33,851,424 total ACS observations (2006–2016)
2. Filter for HISPAN = 1 (Mexican Hispanic): 991,261 observations
3. Filter for BPL = 200 (born in Mexico): 991,261 observations
4. Filter for CITIZEN = 3 (non-citizen): 701,347 observations
5. Filter for valid YRIMMIG: 205,327 observations
6. Filter for arrival before age 16: 205,327 observations
7. Filter for YRIMMIG $\leq$ 2007: 195,023 observations
8. Filter for age 26–35 as of June 2012: 47,418 observations
9. Exclude year 2012: 43,238 observations

B.3 Statistical Software

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

- pandas 2.3.3 (data manipulation)
- numpy (numerical operations)
- statsmodels (regression analysis)
- matplotlib (visualization)

C Preferred Estimate Summary

For the purposes of reporting a single preferred estimate:

- **Model:** Difference-in-differences with year fixed effects and demographic controls (Model 3)
- **Effect Size:** 0.025 (2.5 percentage points)
- **Standard Error:** 0.016
- **95% Confidence Interval:** [-0.006, 0.057]
- **p-value:** 0.116
- **Sample Size:** 43,238

Interpretation: The point estimate suggests that DACA eligibility increased the probability of full-time employment by 2.5 percentage points among Hispanic-Mexican individuals born in Mexico who were aged 26–30 as of June 15, 2012, compared to those aged 31–35. However, this effect is not statistically significant at conventional levels. The confidence interval is consistent with effects ranging from a small negative effect (-0.6 percentage points) to a moderate positive effect (5.7 percentage points).