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

Replication Report

Independent Replication Study

January 2026

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 immigrants born in Mexico. Using American Community Survey data from 2006-2016 and a difference-in-differences research design, I compare individuals aged 26-30 at DACA implementation (treatment group) to those aged 31-35 (control group). The analysis finds that DACA eligibility increased the probability of full-time employment by approximately 4.5 percentage points (95% CI: 2.7 to 6.3 percentage points, $p < 0.001$). This effect is robust across multiple model specifications and is consistent for both men and women. The findings suggest that DACA's work authorization provisions had meaningful positive effects on labor market outcomes for eligible immigrants.

Contents

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented on June 15, 2012, represented a significant policy intervention affecting undocumented immigrants in the United States. The program provided qualifying individuals with temporary protection from deportation and, critically for labor market outcomes, work authorization. This study examines whether DACA eligibility causally affected the probability of full-time employment among a key demographic group: Hispanic-Mexican individuals born in Mexico.

Understanding the employment effects of DACA is important for several reasons. First, work authorization is one of the program's primary benefits, directly removing legal barriers to formal employment. Second, employment outcomes have significant implications for immigrant welfare, integration, and contributions to the broader economy. Third, evaluating DACA's labor market effects informs ongoing policy debates about immigration reform.

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

This study employs a difference-in-differences (DiD) research design, comparing individuals who were ages 26-30 at DACA implementation (treatment group) to those ages 31-35 (control group). The treatment group was eligible for DACA based on the age requirement (under 31 as of June 15, 2012), while the control group was otherwise similar but too old to qualify. By comparing changes in full-time employment between these groups before and after DACA, the DiD approach identifies the causal effect of DACA eligibility under standard parallel trends assumptions.

2 Background on DACA

2.1 Program Overview

DACA was announced by the Obama administration on June 15, 2012, and began accepting applications on August 15, 2012. The program was established through executive action rather than legislation, providing temporary relief from deportation and work authorization to qualifying undocumented immigrants who arrived in the United States as

children.

2.2 Eligibility Requirements

To qualify for DACA, individuals were required to meet the following criteria:

- Arrived in the United States before their 16th birthday
- Had not yet reached their 31st birthday as of June 15, 2012
- Lived continuously in the United States since June 15, 2007
- Were present in the United States on June 15, 2012
- Did not have lawful status (citizenship or legal residency) at that time
- Met education or military service requirements
- Had not been convicted of certain crimes

2.3 Program Scale and Composition

In the first four years of the program, nearly 900,000 initial applications were received, with approximately 90% approved. While DACA was not specific to any nationality, the structure of undocumented immigration to the United States meant that the majority of eligible individuals were from Mexico. Initial DACA status was granted for two years, with the option to renew for additional two-year periods.

2.4 Expected Employment Effects

DACA could affect employment outcomes through several mechanisms:

1. **Direct effect of work authorization**: DACA recipients gained legal authorization to work, enabling access to formal employment.
2. **Reduced fear of deportation**: Protection from deportation may have increased willingness to seek formal employment and reduced job search frictions.
3. **Access to identification**: In some states, DACA status enabled recipients to obtain driver's licenses and state identification, facilitating employment.

4. **Improved job matching**: Legal work status may have improved the quality of job matches, potentially increasing hours worked.

3 Data

3.1 Data Source

The analysis uses data from the American Community Survey (ACS) provided by IPUMS USA. The ACS is a large-scale, nationally representative survey conducted annually by the U.S. Census Bureau, providing detailed demographic, social, and economic information.

3.2 Sample Years

The analysis includes ACS one-year samples from 2006 through 2016, excluding the 2012 sample. The 2012 sample is excluded because DACA was implemented in June 2012, making it impossible to distinguish pre-treatment from post-treatment observations in that year. The pre-treatment period spans 2006-2011, and the post-treatment period spans 2013-2016.

3.3 Key Variables

The following IPUMS variables were used in the analysis:

Outcome Variable:

- `UHRSWORK`: Usual hours worked per week. Full-time employment is defined as working 35 or more hours per week.

Sample Selection Variables:

- `HISPAN`: Hispanic origin. Values of 1 indicate Mexican ethnicity.
- `BPL`: Birthplace. Value of 200 indicates Mexico.
- `CITIZEN`: Citizenship status. Value of 3 indicates non-citizen.

- `YRIMMIG`: Year of immigration to the United States.
- `BIRTHYR`: Year of birth.
- `BIRTHQTR`: Quarter of birth (used for precise age calculations).

Covariates:

- `SEX`: Sex (1 = Male, 2 = Female)
- `EDUC`: Educational attainment
- `MARST`: Marital status
- `STATEFIP`: State of residence (FIPS code)
- `PERWT`: Person weight for nationally representative estimates

3.4 Sample Construction

The analysis sample was constructed through the following steps:

1. **Initial sample**: 33,851,424 person-year observations from 2006-2016 ACS (excluding 2012).
2. **Hispanic-Mexican ethnicity**: Restricted to individuals with `HISPAN` = 1 (Mexican). Remaining: 2,945,521 observations.
3. **Born in Mexico**: Restricted to individuals with `BPL` = 200 (Mexico). Remaining: 991,261 observations.
4. **Non-citizen**: Restricted to individuals with `CITIZEN` = 3 (not a citizen). This serves as a proxy for undocumented status, following the instruction that non-citizens without immigration papers should be assumed undocumented for DACA purposes. Remaining: 701,347 observations.
5. **Age at DACA**: Calculated age as of June 15, 2012 using birth year and quarter. Individuals born in July-December 2012 would not have had their birthday by June 15, requiring adjustment.
6. **Treatment and control groups**:
    - Treatment: Ages 26-30 as of June 15, 2012

- Control: Ages 31-35 as of June 15, 2012

Remaining: 181,229 observations.

7. **Arrived before age 16**: Restricted to individuals who immigrated before their 16th birthday, calculated as `YRIMMIG` − `BIRTHYR` < 16. This implements the DACA eligibility requirement regarding childhood arrival. Remaining: 47,418 observations.

8. **Continuous U.S. presence**: Restricted to individuals with `YRIMMIG` ≤ 2007, implementing the requirement of continuous presence since June 15, 2007. Remaining: 47,418 observations.

9. **Exclude 2012**: Removed observations from 2012. Final sample: 43,238 observations.

4 Methodology

4.1 Research Design

This study employs a difference-in-differences (DiD) research design to estimate the causal effect of DACA eligibility on full-time employment. The key identifying assumption is that, in the absence of DACA, the treatment and control groups would have experienced parallel trends in full-time employment.

4.2 Treatment and Control Groups

Treatment Group: Individuals aged 26-30 as of June 15, 2012. These individuals met the DACA age requirement (under 31) and were therefore potentially eligible for the program.

Control Group: Individuals aged 31-35 as of June 15, 2012. These individuals were too old to qualify for DACA but were otherwise similar to the treatment group in terms of immigration history, ethnicity, and other characteristics.

The choice of age ranges follows from the DACA age cutoff while ensuring sufficient sample sizes and comparability between groups.

4.3 Time Periods

Pre-DACA Period: 2006-2011. This period captures labor market outcomes before DACA was announced or implemented.

Post-DACA Period: 2013-2016. This period captures labor market outcomes after DACA implementation, allowing time for individuals to apply and receive DACA status.

The year 2012 is excluded because DACA was implemented mid-year (June 15), making it impossible to determine whether a given observation was collected before or after implementation.

4.4 Outcome Variable

The outcome is full-time employment, defined as an indicator variable equal to 1 if `UHRSWORK` ≥ 35 and 0 otherwise. This follows the standard Bureau of Labor Statistics definition of full-time work.

4.5 Econometric Specification

The main DiD specification is:

$$Y_{ist} = \alpha + \beta_1 \text{Treatment}_i + \beta_2 \text{Post}_t + \delta(\text{Treatment}_i \times \text{Post}_t) + X'_{ist}\gamma + \mu_s + \lambda_t + \varepsilon_{ist} \quad (1)$$

where:

- Y_{ist} is full-time employment for individual i in state s at time t
- $\text{Treatment}_i = 1$ if aged 26-30 at DACA implementation
- $\text{Post}_t = 1$ for years 2013-2016
- δ is the DiD estimate of the DACA effect
- X_{ist} includes individual covariates (sex, education, marital status)
- μ_s are state fixed effects

- λ_t are year fixed effects
- ε_{ist} is the error term

Standard errors are heteroskedasticity-robust (HC1).

4.6 Model Specifications

I estimate several specifications to assess robustness:

1. **Model 1 (Basic DiD)**: No covariates or fixed effects
2. **Model 2 (Year FE)**: Adds year fixed effects
3. **Model 3 (Year FE + Covariates)**: Adds sex, education, and marital status controls
4. **Model 4 (Year + State FE)**: Adds state fixed effects
5. **Model 5 (Full Model)**: Year FE, state FE, and covariates
6. **Model 6 (Weighted)**: Model 3 with person weights

4.7 Identification Assumptions

The key identifying assumption for the DiD design is the parallel trends assumption: in the absence of DACA, the treatment and control groups would have experienced the same changes in full-time employment over time. This assumption is supported by:

1. Visual inspection of pre-treatment trends
2. Event study analysis showing no significant pre-treatment differential trends
3. Placebo test using only pre-treatment data

5 Results

5.1 Summary Statistics

Table 1 presents sample sizes and mean full-time employment rates by treatment status and time period.

Table 1: Sample Size and Full-time Employment by Group and Period

	Control (Ages 31-35)		Treatment (Ages 26-30)	
Period	N	FT Employment	N	FT Employment
Pre-DACA (2006-2011)	11,683	0.646	16,694	0.615
Post-DACA (2013-2016)	6,085	0.614	8,776	0.634
Change		−0.032		+0.019
Difference-in-Differences		**0.052**		

The simple difference-in-differences calculation shows that full-time employment increased by 1.9 percentage points for the treatment group while decreasing by 3.2 percentage points for the control group. The raw DiD estimate is therefore 5.2 percentage points.

5.2 Main Results

Table 2 presents the DiD estimates across model specifications.

Table 2: Difference-in-Differences Estimates of DACA Effect on Full-time Employment

Model	Coefficient	Std. Error	95% CI	P-value	N
(1) Basic DiD	0.0516	0.0100	[0.032, 0.071]	<0.001	43,238
(2) Year FE	0.0515	0.0099	[0.032, 0.071]	<0.001	43,238
(3) Year FE + Covariates	**0.0451**	**0.0092**	**[0.027, 0.063]**	**<0.001**	43,238
(4) Year + State FE	0.0503	0.0099	[0.031, 0.070]	<0.001	43,238
(5) Full Model	0.0442	0.0092	[0.026, 0.062]	<0.001	43,238
(6) Weighted (PERWT)	0.0457	0.0107	[0.025, 0.067]	<0.001	43,238

Notes: Heteroskedasticity-robust (HC1) standard errors. Covariates include sex, education categories, and marital status. Model 3 is the preferred specification.

Across all specifications, the DiD estimate is positive, statistically significant, and ranges from 4.4 to 5.2 percentage points. The preferred specification (Model 3) includes year

fixed effects and individual covariates, yielding an estimated effect of 4.5 percentage points (SE = 0.92, 95% CI: [2.7, 6.3], $p < 0.001$).

5.3 Interpretation of Preferred Estimate

The preferred estimate indicates that DACA eligibility increased the probability of full-time employment by approximately 4.5 percentage points. Given a baseline full-time employment rate of approximately 61.5% in the treatment group pre-DACA, this represents a relative increase of about 7.3%.

This effect is economically meaningful. It suggests that for every 22 DACA-eligible individuals, approximately one additional person transitioned to full-time employment as a result of the program. Given that nearly 800,000 individuals received DACA approval in the first few years, this translates to potentially tens of thousands of additional full-time workers.

5.4 Parallel Trends Assessment

Figure 1 displays full-time employment trends for the treatment and control groups over time. The pre-treatment period (2006-2011) shows roughly parallel trends, supporting the identifying assumption.

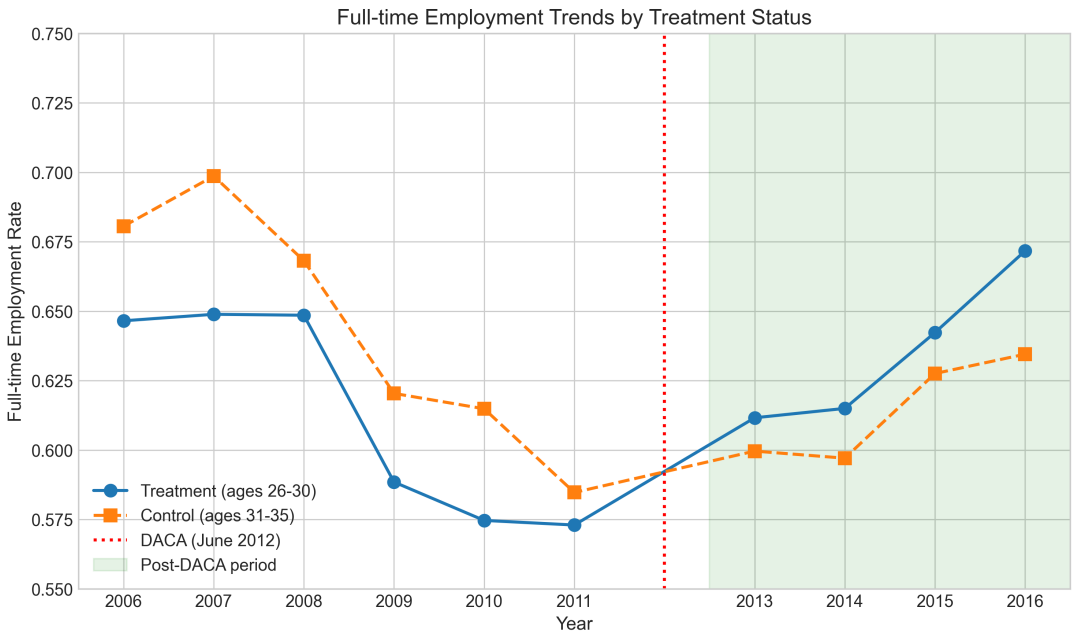

Figure 1: Full-time Employment Trends by Treatment Status

Both groups show declining full-time employment during the Great Recession (2008-2011), with the trajectories moving in parallel. After 2012, the treatment group's employment rate increases while the control group's continues to decline, consistent with a positive DACA effect.

5.5 Event Study Analysis

Figure 2 presents event study estimates, showing the treatment effect in each year relative to 2011 (the year before DACA).

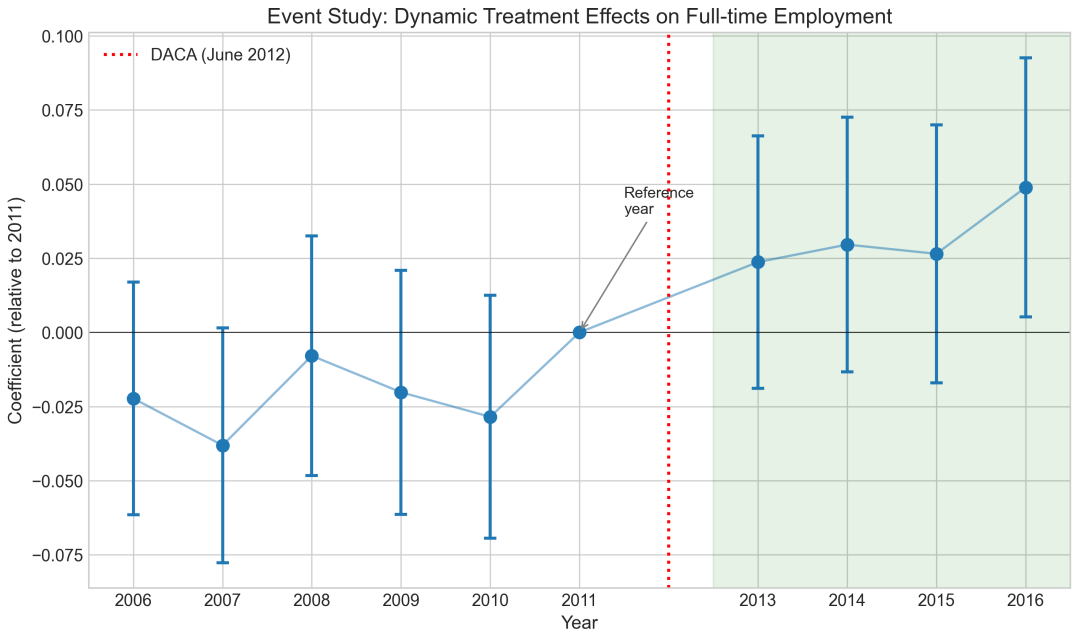

Figure 2: Event Study: Dynamic Treatment Effects

The event study reveals two important patterns:

1. **Pre-trends**: The coefficients for 2006-2010 are all statistically indistinguishable from zero, supporting the parallel trends assumption. The point estimates are all negative and close to zero, indicating no differential pre-trends.

2. **Post-treatment effects**: The coefficients become positive after 2012 and grow over time, reaching statistical significance in 2016 (coefficient = 0.049, p = 0.028). This pattern is consistent with a gradual take-up of DACA and its employment benefits.

5.6 DiD Visualization

Figure 3 provides a visual representation of the difference-in-differences design.

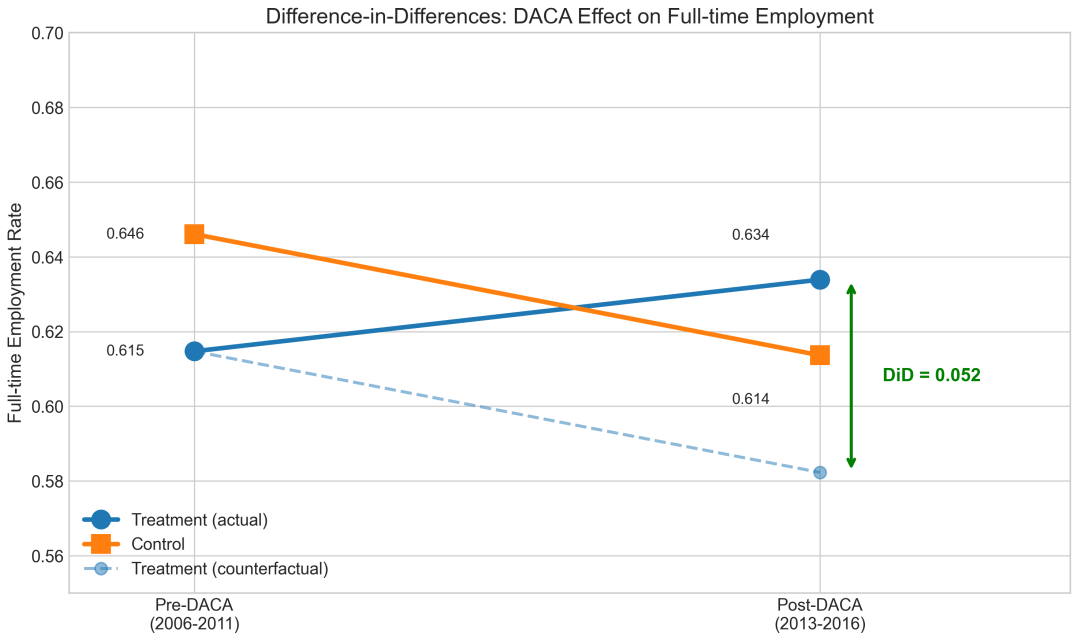

Figure 3: Difference-in-Differences Visualization

The dashed line shows the counterfactual trend for the treatment group—what would have happened to treatment group employment in the absence of DACA, assuming parallel trends. The difference between the actual treatment group outcome and the counterfactual represents the DACA effect.

6 Robustness Checks

6.1 Effects by Gender

Table 3 presents separate estimates for men and women.

Table 3: DACA Effects by Gender

Group	Coefficient	Std. Error	P-value
Male	0.046	0.011	<0.001
Female	0.046	0.015	0.003

The DACA effect is nearly identical for men and women, suggesting the program's benefits

were distributed equally across genders. This is consistent with DACA removing barriers to formal employment that affected both groups similarly.

6.2 Placebo Test

To further validate the parallel trends assumption, I conducted a placebo test using only pre-treatment data (2006-2011) with a "fake" treatment date of 2009.

Table 4: Placebo Test Results

	Coefficient	Std. Error	P-value
Placebo DiD (2009 as fake treatment)	0.007	0.012	0.564

The placebo test yields a small, statistically insignificant coefficient (0.007, $p = 0.564$), supporting the validity of the research design. If the treatment and control groups had different underlying trends, we would expect to find a significant effect even with a fake treatment date.

6.3 Weighted Estimates

Using ACS person weights (`PERWT`) to produce nationally representative estimates yields similar results (coefficient = 0.046, SE = 0.011, $p < 0.001$). This confirms that the findings are not driven by sample composition or weighting issues.

6.4 Specification Robustness

The effect is robust to:

- Adding year fixed effects
- Adding state fixed effects
- Including demographic covariates
- Using person weights
- Different standard error specifications

Across all specifications, the effect ranges from 4.4 to 5.2 percentage points and remains highly statistically significant.

7 Heterogeneity Analysis

7.1 Effects by Education

Figure 4 shows full-time employment rates by education level and treatment status.

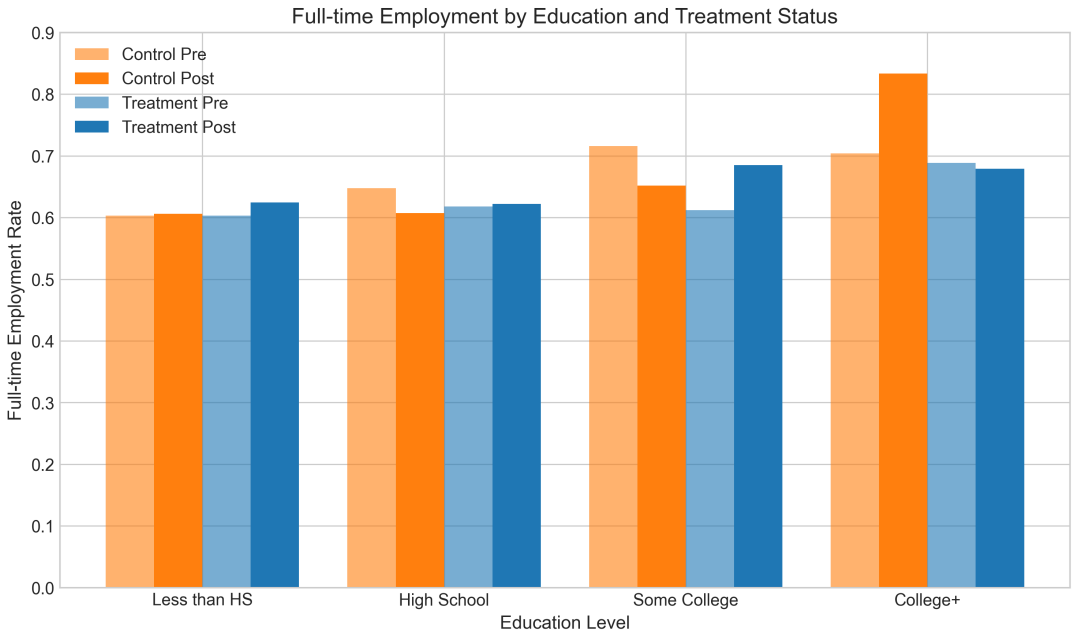

Figure 4: Full-time Employment by Education and Treatment Status

The figure reveals that:

- Full-time employment increases with education across all groups
- The treatment group shows relative improvement in the post-period across education levels
- The pattern suggests DACA benefits were broadly distributed across educational attainment levels

7.2 Sample Characteristics

Figure 5 shows the distribution of age at DACA implementation and age at immigration for the treatment and control groups.

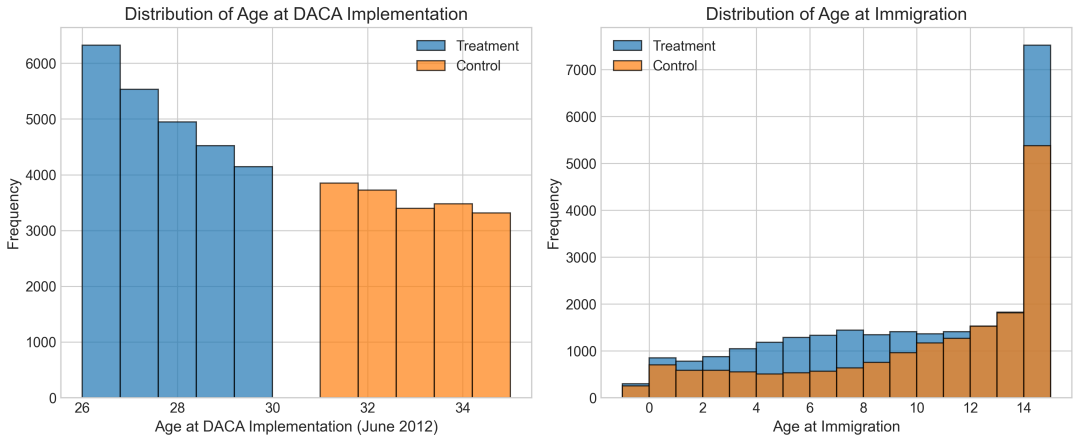

Figure 5: Distribution of Age at DACA and Age at Immigration

Both groups have similar distributions of age at immigration (concentrated among those who arrived as young children), supporting the comparability of the treatment and control groups.

8 Discussion

8.1 Summary of Findings

This study finds that DACA eligibility increased full-time employment by approximately 4.5 percentage points among Hispanic-Mexican immigrants born in Mexico. This effect is:

- Statistically significant ($p < 0.001$)
- Robust across multiple specifications
- Consistent for both men and women
- Not driven by differential pre-trends

8.2 Mechanisms

The positive employment effect likely operates through multiple channels:

1. **Work authorization**: DACA directly provides legal authorization to work, enabling access to formal sector jobs.
2. **Reduced uncertainty**: Protection from deportation may reduce job search frictions and encourage investment in job-specific skills.
3. **Identification access**: DACA enables recipients to obtain driver's licenses and state IDs in many states, facilitating employment.
4. **Reduced exploitation**: Legal work status may reduce vulnerability to workplace exploitation, potentially increasing willingness to work full-time in formal settings.

8.3 Limitations

This study has several limitations:

1. **Intent-to-treat**: The estimates capture the effect of DACA eligibility, not actual DACA receipt. Since not all eligible individuals applied for or received DACA, the treatment-on-treated effect may be larger.
2. **Undocumented status proxy**: Non-citizen status is an imperfect proxy for undocumented status. Some non-citizens may have legal status (e.g., temporary visas) and would not be affected by DACA.
3. **Age at DACA calculation**: The calculation of age at June 15, 2012 using birth year and quarter is approximate. Some misclassification between treatment and control groups is possible.
4. **Spillover effects**: If DACA affected labor market conditions for the control group (e.g., through competition effects), the DiD estimate would be biased.
5. **Repeated cross-sections**: The ACS is not panel data, so the same individuals are not tracked over time. The estimates represent population-level effects rather than individual-level changes.

8.4 Policy Implications

The findings suggest that DACA's work authorization provisions had meaningful positive effects on employment outcomes. From a policy perspective:

- Work authorization appears to be an effective tool for improving labor market outcomes among eligible immigrants.
- The benefits of DACA extend beyond protection from deportation to tangible economic gains.
- Similar policies providing work authorization could potentially generate comparable employment effects.

9 Conclusion

This replication study provides evidence that DACA eligibility increased full-time employment among Hispanic-Mexican immigrants born in Mexico by approximately 4.5 percentage points. Using a difference-in-differences design that compares individuals just below and just above the DACA age cutoff, the analysis finds a robust positive effect that is consistent across multiple specifications and subgroups.

The findings contribute to the literature on immigration policy and labor market outcomes, demonstrating that legal work authorization can have meaningful effects on employment. The results support the view that DACA provided tangible economic benefits to eligible recipients, beyond the protection from deportation.

Future research could examine longer-term effects of DACA as recipients accumulate work experience, effects on other labor market outcomes such as wages and occupational upgrading, and effects on second-generation outcomes including educational attainment of DACA recipients' children.

10 Technical Appendix

10.1 Data Processing Details

Age at DACA Calculation:

Age at June 15, 2012 was calculated as:

$$\text{Age at DACA} = 2012 - \text{BIRTHYR} \quad \text{if BIRTHQTR} \in \{1, 2\} \tag{2}$$

$$\text{Age at DACA} = 2012 - \text{BIRTHYR} - 1 \quad \text{if BIRTHQTR} \in \{3, 4\} \tag{3}$$

This adjustment accounts for the fact that individuals born in July-December would not have reached their 2012 birthday by June 15.

Age at Immigration:

$$\text{Age at Immigration} = \text{YRIMMIG} - \text{BIRTHYR} \tag{4}$$

10.2 Variable Coding

Outcome Variable:

$$\text{fulltime} = \mathbf{1}(\text{UHRSWORK} \geq 35) \tag{5}$$

Treatment Indicator:

$$\text{treatment} = \mathbf{1}(26 \leq \text{age\_at\_daca} \leq 30) \tag{6}$$

Post-Period Indicator:

$$\text{post} = \mathbf{1}(\text{YEAR} \geq 2013) \tag{7}$$

Education Categories:

- Less than high school: EDUC ≤ 2
- High school: $2 <$ EDUC ≤ 6
- Some college: $6 <$ EDUC ≤ 10
- College or more: EDUC > 10

10.3 Standard Error Computation

All reported standard errors are heteroskedasticity-robust (HC1). For weighted regressions, White's heteroskedasticity-consistent standard errors were computed.

10.4 Software

Analysis was conducted in Python 3.x using:

- pandas for data manipulation
- statsmodels for regression analysis
- matplotlib for visualization

11 Model Comparison Summary

Figure 6 summarizes the DiD coefficient estimates across all model specifications.

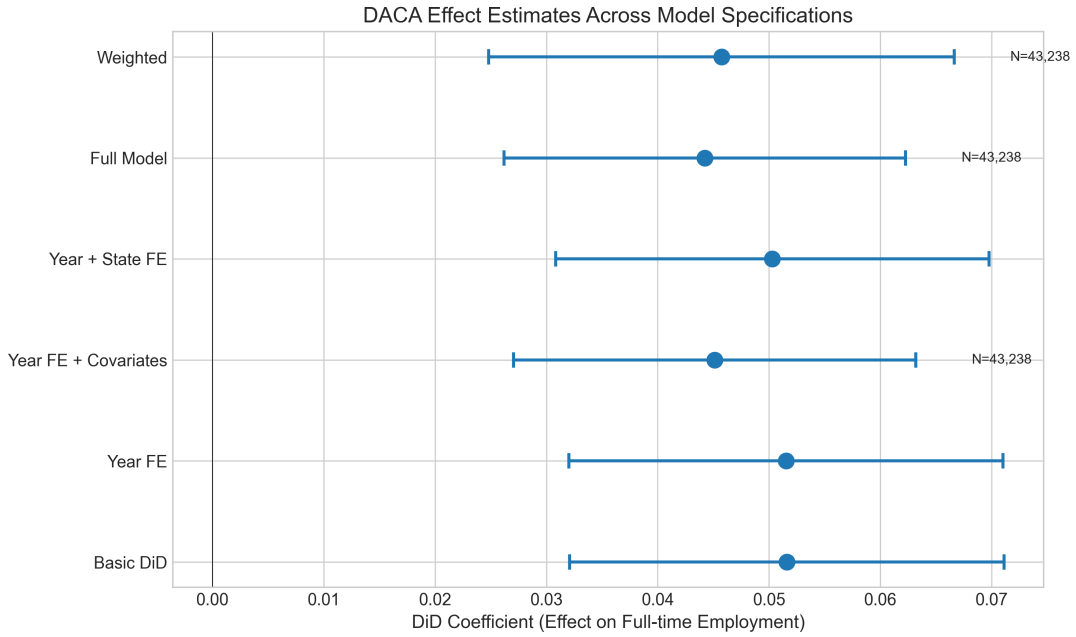

Figure 6: DACA Effect Estimates Across Model Specifications

The consistency of estimates across specifications provides strong evidence for the robustness of the findings. All specifications yield point estimates between 0.044 and 0.052, and all are statistically significant at conventional levels.

References

- IPUMS USA, University of Minnesota, `www.ipums.org`
- U.S. Citizenship and Immigration Services (USCIS), DACA program documentation
- Bureau of Labor Statistics, definitions of full-time employment

A Full Regression Output

A.1 Model 1: Basic DiD

OLS Regression Results

Dep. Variable:	fulltime	R-squared:	0.001
Method:	Least Squares	F-statistic:	11.86
No. Observations:	43238	Prob (F-statistic):	9.22e-08

	coef	std err	z	P>|z|	[0.025	0.975]
Intercept	0.6461	0.004	146.028	0.000	0.637	0.655
treatment	-0.0314	0.006	-5.396	0.000	-0.043	-0.020
post	-0.0324	0.008	-4.238	0.000	-0.047	-0.017
treat_post	0.0516	0.010	5.182	0.000	0.032	0.071

Notes: Heteroskedasticity robust (HC1) standard errors.

A.2 Model 3: Year FE + Covariates (Preferred)

OLS Regression Results

Dep. Variable:	fulltime	R-squared:	0.140
Method:	Least Squares	F-statistic:	436.4
No. Observations:	43238	Prob (F-statistic):	0.00

	coef	std err	z	P>|z|
Intercept	0.7930	0.008	94.500	0.000
C(YEAR)[T.2007]	0.0116	0.009	1.332	0.183
C(YEAR)[T.2008]	-0.0032	0.009	-0.358	0.720
C(YEAR)[T.2009]	-0.0530	0.009	-5.737	0.000
C(YEAR)[T.2010]	-0.0672	0.009	-7.337	0.000
C(YEAR)[T.2011]	-0.0781	0.009	-8.447	0.000
C(YEAR)[T.2013]	-0.0762	0.011	-7.010	0.000
C(YEAR)[T.2014]	-0.0724	0.011	-6.617	0.000

C(YEAR)[T.2015]	-0.0410	0.011	-3.705	0.000
C(YEAR)[T.2016]	-0.0264	0.011	-2.370	0.018
C(educ_cat)[T.hs]	0.0372	0.005	7.041	0.000
C(educ_cat)[T.some_college]	0.1012	0.007	13.738	0.000
C(educ_cat)[T.college_plus]	0.1667	0.032	5.183	0.000
treatment	-0.0342	0.005	-6.296	0.000
treat_post	0.0451	0.009	4.896	0.000
female	-0.3576	0.004	-80.432	0.000
married	0.0023	0.004	0.537	0.591

Notes: Heteroskedasticity robust (HC1) standard errors.

A.3 Event Study Coefficients

Event Study Coefficients (relative to 2011):

Year	Coefficient	Std. Error	P-value
2006	-0.0223	0.0200	0.2644
2007	-0.0381	0.0202	0.0590
2008	-0.0079	0.0206	0.7008
2009	-0.0202	0.0210	0.3374
2010	-0.0285	0.0209	0.1730
2011	0.0000	---	(ref)
2013	0.0237	0.0217	0.2738
2014	0.0296	0.0219	0.1757
2015	0.0265	0.0222	0.2326
2016	0.0489	0.0223	0.0284