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

Replication Study 10

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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 individuals living in the United States. Using American Community Survey data from 2006–2016 and a difference-in-differences research design, I compare individuals who were ages 26–30 at DACA implementation (treatment group) to those who were ages 31–35 (control group, ineligible due to age). The analysis reveals that DACA eligibility increased the probability of full-time employment by approximately 4.5 percentage points (95% CI: 2.5 to 6.4 pp), a statistically significant effect that is robust to various specification choices. Event study analysis supports the parallel trends assumption, and placebo tests find no differential pre-trends. The effect appears larger for women and for those with at least a high school education.

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. DACA provides temporary relief from deportation and work authorization to undocumented immigrants who arrived in the United States as children. Since its inception, the program has granted work authorization to nearly 800,000 individuals, fundamentally changing their ability to participate in the formal labor market.

Understanding the labor market effects of DACA is important for several reasons. First, the program directly addresses barriers to formal employment by providing legal work authorization. Second, DACA recipients gain access to driver's licenses in many states, potentially improving job search and commuting options. Third, the reduction in deportation risk may encourage investments in human capital and longer-term career planning.

This study examines the effect of DACA eligibility on full-time employment, defined as usually working 35 or more hours per week. Following the research design specified in the replication instructions, I focus on ethnically Hispanic-Mexican individuals born in Mexico who are not U.S. citizens. The treatment group consists of individuals who were ages 26–30 as of June 15, 2012, while the control group includes individuals who were ages 31–35 at that time—too old to qualify for DACA but otherwise similar in characteristics.

The difference-in-differences methodology exploits the age-based eligibility cutoff to identify the causal effect of DACA. By comparing changes in full-time employment for the treatment group relative to the control group before and after DACA implementation, I can isolate the effect of the policy while controlling for common time trends and group-specific fixed characteristics.

The main finding is that DACA eligibility increased full-time employment by approximately 4.5 percentage points. This effect is statistically significant at conventional levels and robust to alternative specifications including different sets of control variables, fixed effects, and methods of standard error calculation.

2 Background

2.1 The DACA Program

DACA was announced by the Obama administration on June 15, 2012, in response to Congressional inaction on comprehensive immigration reform. The program allows qualifying undocumented immigrants to apply for two-year renewable periods of deferred action, protecting them from deportation and granting work authorization.

To be eligible for DACA, individuals must meet several criteria:

- Arrived in the United States before age 16
- Continuously resided in the United States since June 15, 2007
- Were physically present in the United States on June 15, 2012
- Had no lawful immigration status on June 15, 2012
- Were under 31 years of age on June 15, 2012
- Were currently in school, had graduated high school, obtained a GED, or were honorably discharged veterans
- Had not been convicted of a felony, significant misdemeanor, or three or more misdemeanors

Applications began being accepted on August 15, 2012, and within the first four years, nearly 900,000 initial applications were received, with approximately 90% approved. The majority of DACA recipients are from Mexico, reflecting the composition of the unauthorized immigrant population in the United States.

2.2 Expected Labor Market Effects

DACA could affect employment through several channels. The most direct mechanism is through legal work authorization. Before DACA, undocumented immigrants could only work in the informal sector or with fraudulent documents. DACA provides legal employment eligibility documentation (EAD), allowing recipients to work in the formal labor market.

Additionally, in many states, DACA recipients gained the ability to obtain driver's licenses, expanding their geographic job search radius and enabling employment in occupations requiring driving. The reduced fear of deportation may also encourage DACA-eligible individuals to invest in job-specific human capital and pursue careers with longer time horizons.

2.3 Research Design Motivation

The research design exploits the age cutoff for DACA eligibility. Individuals who had reached their 31st birthday by June 15, 2012, were ineligible regardless of meeting all other criteria. This creates a natural control group of individuals who are slightly older than the treatment group but otherwise face similar labor market conditions.

I focus on individuals ages 26–30 (treatment) and 31–35 (control) as of June 15, 2012. This window is chosen to balance two concerns: having a control group that is similar to the treatment group while ensuring sufficient separation from the eligibility cutoff.

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 from approximately 3.5

million households per year.

I use the 1-year ACS files from 2006 through 2016, excluding 2012. The year 2012 is excluded because DACA was implemented mid-year (June 15), and the ACS does not report the month of interview, making it impossible to classify 2012 observations as pre- or post-treatment.

3.2 Sample Construction

The analysis sample is constructed through the following filtering process:

1. **Hispanic-Mexican ethnicity**: Using the HISPAN variable, I retain only individuals coded as Mexican (HISPAN = 1).

2. **Born in Mexico**: Using the BPL (birthplace) variable, I retain only individuals born in Mexico (BPL = 200).

3. **Not a U.S. citizen**: Using the CITIZEN variable, I retain only non-citizens (CITIZEN = 3). Since the ACS does not distinguish between documented and undocumented non-citizens, this serves as a proxy for potential DACA eligibility.

4. **Age as of June 15, 2012**: Using BIRTHYR and BIRTHQTR, I calculate each individual's age as of June 15, 2012. For those born in quarters 1–2 (January–June), the birthday would have occurred by June 15, so age = 2012 − BIRTHYR. For those born in quarters 3–4 (July–December), age = 2012 − BIRTHYR − 1.

5. **Treatment and control groups**: I retain individuals who were ages 26–30 (treatment) or 31–35 (control) as of June 15, 2012.

6. **Arrived before age 16**: Using YRIMMIG (year of immigration) and BIRTHYR, I compute arrival age as YRIMMIG − BIRTHYR and retain only those with arrival age < 16.

7. **Continuous residence since 2007**: I retain only individuals with YRIMMIG $\leq$ 2007, indicating they were in the U.S. by June 2007.

Table 1 shows how the sample size changes at each filtering step.

Table 1: Sample Construction

Filter Step	Observations	% of Previous
Initial ACS sample (2006–2016)	33,851,424	—
Hispanic-Mexican ethnicity	2,945,521	8.7%
Born in Mexico	991,261	33.7%
Non-citizen	701,347	70.8%
Excluding 2012	636,722	90.8%
Age 26–35 as of June 2012	164,874	25.9%
Arrived before age 16	43,238	26.2%
Continuous residence since 2007	43,238	100.0%
Final analysis sample	**43,238**	

Notes: Table shows the number of observations remaining after each sequential filter is applied to the ACS data.

3.3 Variables

3.3.1 Outcome Variable

The outcome variable is an indicator for full-time employment, defined as:

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

where UHRSWORK is the usual number of hours worked per week. This follows the standard definition of full-time employment.

3.3.2 Treatment Variables

The key explanatory variables are:

- Treated_i: Indicator equal to 1 if individual i was ages 26–30 as of June 15, 2012 (DACA-eligible age range)

- Post_t: Indicator equal to 1 if the observation is from 2013–2016 (post-DACA period)
- $\text{Treated}_i \times \text{Post}_t$: The interaction term, which identifies the difference-in-differences estimate

3.3.3 Control Variables

I include the following control variables in some specifications:

- Female: Indicator for female (SEX = 2)
- Married: Indicator for married (MARST = 1 or 2)
- Education categories: Less than high school, high school, some college, college or more (derived from EDUC)
- Year fixed effects
- State fixed effects (STATEFIP)

3.4 Descriptive Statistics

Table 2 presents descriptive statistics for the treatment and control groups in the pre-treatment period (2006–2011).

Table 2: Descriptive Statistics by Treatment Status (Pre-Period)

Variable	Treatment (26–30)	Control (31–35)
Female	0.434	0.414
Married	0.377	0.518
Mean age (in survey year)	24.77	29.79
Education distribution:		
Less than high school	38.7%	47.1%
High school	44.3%	40.0%
Some college	16.8%	12.3%
College or more	0.2%	0.6%
Full-time employment rate	63.1%	67.3%
Sample size	16,694	11,683
Weighted N	2,280,009	1,631,151

Notes: Statistics are weighted using ACS person weights (PERWT). Treatment group consists of individuals ages 26–30 as of June 15, 2012. Control group consists of individuals ages 31–35 as of June 15, 2012.

The treatment and control groups are broadly similar, though some differences exist. The control group is older by construction, which is reflected in higher marriage rates. The treatment group has somewhat higher educational attainment, consistent with generational improvements in schooling. Importantly, the full-time employment rate is higher in the control group (67.3%) compared to the treatment group (63.1%) in the pre-period.

Table 3 shows the distribution of observations across treatment status and time period.

Table 3: Sample Size by Treatment Status and Period

	Pre (2006–2011)	Post (2013–2016)	Total
Control (31–35)	11,683	6,085	17,768
Treatment (26–30)	16,694	8,776	25,470
Total	28,377	14,861	43,238

Notes: Unweighted sample counts.

4 Empirical Strategy

4.1 Difference-in-Differences Framework

The identification strategy relies on a difference-in-differences (DiD) design that compares changes in full-time employment for DACA-eligible individuals (treatment group) relative to slightly older, DACA-ineligible individuals (control group) before and after DACA implementation.

The basic DiD estimator can be expressed as:

$$\hat{\delta}^{DiD} = (\bar{Y}_{T,post} - \bar{Y}_{T,pre}) - (\bar{Y}_{C,post} - \bar{Y}_{C,pre}) \tag{1}$$

where T denotes treatment, C denotes control, and the bars represent mean outcomes.

4.2 Regression Specification

The main regression specification is:

$$Y_{ist} = \alpha + \beta \cdot \text{Treated}_i + \gamma \cdot \text{Post}_t + \delta \cdot (\text{Treated}_i \times \text{Post}_t) + X'_{ist}\theta + \mu_s + \lambda_t + \varepsilon_{ist} \tag{2}$$

where:

- Y_{ist} is the full-time employment indicator for individual i in state s and year t
- Treated_i indicates DACA-eligible ages (26–30 as of June 2012)
- Post_t indicates the post-DACA period (2013–2016)
- X_{ist} is a vector of individual controls (gender, marital status, education)
- μ_s are state fixed effects
- λ_t are year fixed effects

- ε_{ist} is the error term

The coefficient of interest is δ, which represents the causal effect of DACA eligibility on full-time employment under the identifying assumptions.

4.3 Identifying Assumptions

The key identifying assumption is **parallel trends**: in the absence of DACA, the treatment and control groups would have experienced the same changes in full-time employment over time. While this assumption cannot be directly tested, I provide supporting evidence through:

1. **Event study analysis**: I estimate year-specific treatment effects to verify that there are no differential pre-trends before DACA implementation.
2. **Placebo tests**: I conduct placebo tests using only pre-period data to check whether the treatment group exhibited different trends before DACA.

4.4 Standard Errors

I report several approaches to standard error calculation:

- Classical (homoskedastic) standard errors
- Heteroskedasticity-robust (HC1) standard errors
- State-clustered standard errors

The preferred specification uses state-clustered standard errors to account for potential correlation of errors within states over time.

4.5 Sample Weights

All analyses use ACS person weights (PERWT) to account for the complex survey design and produce population-representative estimates.

5 Results

5.1 Raw Differences-in-Differences

Table 4 presents the raw (non-regression-adjusted) full-time employment rates by treatment status and period.

Table 4: Full-Time Employment Rates by Group and Period

	Pre (2006–2011)	Post (2013–2016)	Change
Control (31–35)	67.31%	64.33%	−2.99 pp
Treatment (26–30)	63.05%	65.97%	+2.92 pp
Difference-in-Differences			**+5.90 pp**

Notes: Weighted mean full-time employment rates using ACS person weights. Full-time employment is defined as usually working 35+ hours per week.

The raw DiD estimate suggests that DACA eligibility increased full-time employment by approximately 5.9 percentage points. Notably, the treatment group experienced an increase in full-time employment after DACA (+2.92 pp), while the control group experienced a decrease (−2.99 pp). The decline in the control group likely reflects general labor market trends and aging effects that are differenced out by the DiD estimator.

5.2 Main Regression Results

Table 5 presents the main regression results across different specifications.

Table 5: Main Regression Results: Effect of DACA on Full-Time Employment

	(1)	(2)	(3)	(4)	(5)	(6)
Treated × Post	0.0516***	0.0590***	0.0473***	0.0456***	0.0448***	0.0448***
	(0.0100)	(0.0098)	(0.0090)	(0.0090)	(0.0090)	(0.0099)
Weights	No	Yes	Yes	Yes	Yes	Yes
Demographics	No	No	Yes	Yes	Yes	Yes
Year FE	No	No	No	Yes	Yes	Yes
State FE	No	No	No	No	Yes	Yes
Clustered SE	No	No	No	No	No	Yes
N	43,238	43,238	43,238	43,238	43,238	43,238

Notes: Dependent variable is an indicator for full-time employment (35+ hours/week). Standard errors in parentheses. Column (6) clusters standard errors at the state level. Demographics include female, married, and education category indicators. *** p<0.01, ** p<0.05, * p<0.1

Across all specifications, the DiD coefficient is positive and statistically significant at the 1% level. The estimates range from 0.045 to 0.059 (4.5 to 5.9 percentage points). The preferred specification (Column 6), which includes all controls and uses state-clustered standard errors, yields an estimate of 4.48 percentage points with a 95% confidence interval of [2.54, 6.42].

The coefficient is somewhat attenuated when demographic controls are added (Column 3), suggesting that observable differences between treatment and control groups explain part of the raw difference. However, the effect remains substantial and statistically significant.

5.3 Event Study Analysis

Figure **??** and Table 6 present the event study results, showing the treatment effect for each year relative to 2011 (the omitted reference year).

Table 6: Event Study Coefficients (Relative to 2011)

Year	Coefficient	SE
2006	0.0062	(0.0227)
2007	−0.0305	(0.0222)
2008	0.0087	(0.0227)
2009	−0.0065	(0.0234)
2010	−0.0151	(0.0232)
2011	*(reference)*	
2013	0.0335	(0.0241)
2014	0.0348	(0.0245)
2015	0.0213	(0.0248)
2016	0.0673***	(0.0246)

Notes: Coefficients from event study specification with year and state fixed effects, demographic controls, and heteroskedasticity-robust standard errors. *** p<0.01, ** p<0.05, * p<0.1

The pre-treatment coefficients (2006–2010) are small in magnitude, fluctuate around zero, and are not statistically significant. This provides support for the parallel trends assumption—the treatment and control groups were not on diverging trajectories before DACA implementation.

In contrast, the post-treatment coefficients (2013–2016) are generally positive and increasing over time. The largest effect is observed in 2016 (6.73 percentage points), suggesting that the benefits of DACA accumulated over time as recipients gained work experience and possibly as more eligible individuals applied for the program.

5.4 Robustness: Placebo Test

Table 7 presents results from a placebo test using only pre-treatment data (2006–2011). I artificially split the pre-period, treating 2006–2008 as "pre" and 2009–2011 as "post."

Table 7: Placebo Test: Pre-Period Only (2006–2011)

	Placebo DiD
Treated × Placebo Post	−0.0011
	(0.0125)
p-value	0.9323
N	28,377

Notes: Placebo test using only 2006–2011 data. "Placebo Post" equals 1 for years 2009–2011. Specification includes year fixed effects, demographic controls, and robust standard errors.

The placebo DiD coefficient is essentially zero (−0.0011) and highly insignificant (p = 0.93). This provides strong evidence against the possibility that the main results are driven by pre-existing differential trends between treatment and control groups.

5.5 Heterogeneity Analysis

Table 8 examines whether the treatment effect varies by gender and education level.

Table 8: Heterogeneous Treatment Effects

Subgroup	DiD Estimate	SE	N
By Gender:			
Male	0.0352***	(0.0124)	24,243
Female	0.0488***	(0.0181)	18,995
By Education:			
Less than high school	0.0204	(0.0159)	18,057
High school or more	0.0685***	(0.0145)	25,181

Notes: Each row presents results from a separate regression on the indicated subgroup. Specifications include year fixed effects, and robust standard errors. *** p<0.01, ** p<0.05, * p<0.1

The effect of DACA appears larger for women (4.88 pp) than for men (3.52 pp), though both effects are statistically significant. This may reflect that DACA particularly

benefited women who faced greater barriers to formal employment prior to receiving work authorization.

More strikingly, the effect is concentrated among those with at least a high school education (6.85 pp), while the effect for those without a high school diploma is smaller and not statistically significant (2.04 pp). This heterogeneity suggests that DACA's benefits were largest for those best positioned to take advantage of formal employment opportunities.

6 Discussion

6.1 Interpretation of Results

The main finding is that DACA eligibility increased full-time employment by approximately 4.5 percentage points among Hispanic-Mexican individuals born in Mexico who were ages 26–30 at the time of implementation. This effect is economically meaningful—representing a roughly 7% increase relative to the pre-treatment mean of 63%—and statistically robust across specifications.

The pattern of results is consistent with DACA removing barriers to formal, full-time employment. Before DACA, undocumented immigrants could only work in the informal sector or with fraudulent documents, which may have limited their access to full-time positions with benefits. DACA's work authorization allowed recipients to pursue formal employment opportunities.

The finding that effects are larger for more educated individuals suggests complementarities between legal status and human capital. With work authorization, educated DACA-eligible individuals could access jobs that previously required documentation, while less educated individuals may have faced continued barriers related to skills and job availability.

6.2 Comparison to Literature

These findings are broadly consistent with prior research on DACA's labor market effects. Studies using various methodologies have generally found positive effects of DACA on employment and wages, though the specific magnitudes vary depending on the comparison group, outcome measure, and time period studied.

The 4–6 percentage point effect size found here falls within the range of estimates in the existing literature. Some studies have found larger effects on outcomes like labor force participation, while others have found more modest effects on specific employment measures.

6.3 Limitations

Several limitations should be acknowledged:

1. **Cannot verify all DACA eligibility criteria**: The ACS does not allow verification of all DACA requirements. In particular, I cannot confirm physical presence on June 15, 2012, educational enrollment or completion, or criminal history. The sample likely includes some individuals who would not have qualified for DACA and excludes some who would have.

2. **Non-citizen proxy for undocumented status**: Since the ACS does not distinguish documented from undocumented non-citizens, the sample likely includes some documented non-citizens (e.g., green card holders) who were not affected by DACA.

3. **Age approximation**: Without exact birth dates, I approximate age as of June 15, 2012, using birth quarter. Some individuals near the age cutoff may be misclassified.

4. **Cross-sectional data**: The ACS is a repeated cross-section, not a panel. I observe different individuals in each survey year, which prevents tracking individual-level changes and may introduce compositional changes over time.

5. **General equilibrium effects**: The analysis identifies the partial equilibrium effect on DACA-eligible individuals but does not capture potential spillover effects on non-eligible workers or employers.

6.4 Policy Implications

The finding that DACA increased full-time employment has several policy implications. First, it provides evidence that legal work authorization can meaningfully improve labor market outcomes for undocumented immigrants. Second, the heterogeneous effects by education suggest that policies facilitating human capital acquisition could complement work authorization programs.

However, DACA's temporary and uncertain nature—subject to potential rescission by subsequent administrations—may limit its long-term benefits. A more permanent solution to the status of DACA-eligible individuals could potentially yield even larger employment gains by reducing policy uncertainty and encouraging longer-term investments.

7 Conclusion

This study examines the effect of DACA eligibility on full-time employment using a difference-in-differences research design. Comparing individuals who were ages 26–30 at DACA implementation (eligible) to those who were ages 31–35 (ineligible due to age), I find that DACA increased the probability of full-time employment by approximately 4.5 percentage points.

This effect is statistically significant, robust to various specification choices, and supported by validity checks including an event study showing no pre-treatment differential trends and a placebo test finding no spurious effects in the pre-period. The effect appears larger for women and for those with at least a high school education, suggesting that DACA particularly benefited those positioned to take advantage of formal employment opportunities.

These findings contribute to our understanding of how immigration policy affects labor market outcomes. Work authorization appears to meaningfully increase formal employment, with effects concentrated among those with greater human capital. As debates over immigration policy continue, evidence on the effects of programs like DACA can help inform policy decisions.

A Additional Tables and Details

A.1 Full Regression Output

Table 9 presents the full regression output for the preferred specification.

Table 9: Full Regression Output: Preferred Specification

Variable	Coefficient (SE)
Treated	−0.0305***
	(0.0050)
Treated × Post	0.0448***
	(0.0099)
Female	−0.3127***
	(0.0044)
Married	0.0633***
	(0.0050)
Education: High school	0.0665***
	(0.0052)
Education: Some college	0.0808***
	(0.0074)
Education: College+	0.0731***
	(0.0326)
Year FE	Yes
State FE	Yes
N	43,238
R-squared	0.1437

Notes: State-clustered standard errors in parentheses. Reference categories: Control group, Male, Less than high school education. *** p<0.01, ** p<0.05, * p<0.1

A.2 Variable Definitions

Table 10: Variable Definitions and IPUMS Variable Names

Variable	Definition
YEAR	Survey year
HISPAN	Hispanic origin (1 = Mexican)
BPL	Birthplace (200 = Mexico)
CITIZEN	Citizenship status (3 = Not a citizen)
BIRTHYR	Year of birth
BIRTHQTR	Quarter of birth (1 = Jan–Mar, 2 = Apr–Jun, 3 = Jul–Sep, 4 = Oct–Dec)
YRIMMIG	Year of immigration to the U.S.
UHRSWORK	Usual hours worked per week
SEX	Sex (1 = Male, 2 = Female)
MARST	Marital status (1–2 = Married)
EDUC	Educational attainment
STATEFIP	State FIPS code
PERWT	Person weight

A.3 Eligibility Criteria Implementation

To operationalize DACA eligibility, I implement the following criteria:

1. **Ethnicity and birthplace**: HISPAN = 1 (Mexican) AND BPL = 200 (Mexico)

2. **Immigration status**: CITIZEN = 3 (Not a citizen)

3. **Age as of June 15, 2012**:

   - If BIRTHQTR $\in \{1, 2\}$: Age = 2012 − BIRTHYR
   - If BIRTHQTR $\in \{3, 4\}$: Age = 2012 − BIRTHYR − 1

4. **Treatment group**: Age $\in [26, 30]$

5. **Control group**: Age $\in [31, 35]$

6. **Arrived before age 16**: (YRIMMIG − BIRTHYR) < 16

7. **Continuous residence since 2007**: YRIMMIG ≤ 2007

References

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- IPUMS USA. Steven Ruggles, Sarah Flood, Ronald Goeken, et al. IPUMS USA: Version 12.0 [dataset]. Minneapolis, MN: IPUMS, 2022. https://doi.org/10.18128/D010.V12.0