The Effect of DACA Eligibility on Full-Time Employment:

An Independent Replication Study

Independent Replication Analysis

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Abstract

This study examines the causal effect of eligibility for the Deferred Action for Child-hood Arrivals (DACA) program on full-time employment among Hispanic-Mexican, Mexican-born non-citizens in the United States. Using American Community Survey data from 2006–2016 and a difference-in-differences research design, I estimate that DACA eligibility increased the probability of full-time employment by approximately 3.1 percentage points (95% CI: 2.3–3.9 pp, $p < 0.001$). This effect represents about a 7% increase relative to the pre-DACA baseline employment rate among eligible individuals. The results are robust to alternative sample restrictions, eligibility definitions, and model specifications. Event study analysis provides suggestive evidence that the employment gains materialized gradually following DACA implementation, though pre-period parallel trends are partially violated.

Contents

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, enacted on June 15, 2012, represents one of the most significant immigration policy changes in recent U.S. history. The program provided temporary protection from deportation and work authorization to undocumented immigrants who arrived in the United States as children. By offering legal work authorization, DACA potentially eliminated one of the most significant barriers to formal employment faced by this population.

This study investigates a fundamental question: Did DACA eligibility cause an increase in full-time employment among the eligible population? Understanding this effect is crucial for evaluating the program's economic impact and informing ongoing policy debates about immigration reform.

I focus specifically on Hispanic-Mexican individuals born in Mexico who are non-citizens—a population that constitutes the vast majority of DACA-eligible individuals given historical patterns of undocumented immigration to the United States. Using data from the American Community Survey (ACS) covering 2006–2016, I employ a difference-in-differences (DiD) research design that compares changes in employment outcomes between DACA-eligible and non-eligible individuals before and after program implementation.

The main finding is that DACA eligibility increased the probability of full-time employment by approximately 3.1 percentage points. This effect is statistically significant and robust to various specification checks. The magnitude suggests a meaningful economic impact, representing about a 7% increase relative to baseline employment rates among the eligible population.

2 Background

2.1 The DACA Program

DACA was announced by the Obama administration on June 15, 2012, and applications began to be accepted on August 15, 2012. The program was created through executive action after legislative efforts at comprehensive immigration reform had stalled in Congress.

To be eligible for DACA, individuals must meet the following criteria:

1. Arrived in the United States before their 16th birthday

2. Had not yet reached their 31st birthday as of June 15, 2012 (i.e., born after June 15, 1981)

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 (citizenship or legal permanent residence) as of that date

6. Were currently in school, had graduated from high school, obtained a GED, or were honorably discharged veterans

7. Had not been convicted of a felony, significant misdemeanor, or three or more misdemeanors

DACA recipients receive a two-year grant of deferred action (protection from deportation) and work authorization. They may also apply for driver's licenses in most states. Recipients can apply for renewal, and many have done so multiple times. In the first four years of the program, nearly 900,000 initial applications were received, with approximately 90% approved.

2.2 Theoretical Mechanisms

DACA could affect employment through several channels:

Legal Work Authorization: Prior to DACA, undocumented immigrants faced significant barriers to formal employment. Many worked in the informal sector or used fraudulent documents. DACA's work authorization eliminates this barrier, potentially enabling recipients to access higher-quality jobs in the formal sector.

Reduced Deportation Risk: The protection from deportation provided by DACA may increase recipients' willingness to seek formal employment and to invest in job search, training, or education. The reduced uncertainty about future residence in the U.S. could lead to longer-term planning.

Geographic and Occupational Mobility: With valid identification documents (including driver's licenses in many states), DACA recipients may have greater ability to commute to work, access a wider range of job opportunities, and change employers.

Human Capital Accumulation: By reducing barriers to formal employment and education, DACA may encourage investments in human capital that enhance long-term employment prospects.

2.3 Prior Research

Several studies have examined the effects of DACA on various outcomes. The literature generally finds positive effects on educational enrollment, earnings, and employment, though estimates vary across studies and methodological approaches. This study contributes to this literature by providing an independent replication using a transparent difference-in-differences framework.

3 Data

3.1 Data Source

The analysis uses data from the American Community Survey (ACS) provided by IPUMS USA. The ACS is the largest household survey in the United States outside of the decennial census, collecting detailed information on demographics, employment, education, and other characteristics from approximately 3 million households annually.

I use the one-year ACS files from 2006–2016. The starting year of 2006 was chosen to ensure data definition consistency and to provide an adequate pre-treatment period. The ending year of 2016 captures the first four years of DACA implementation while avoiding any contamination from subsequent policy changes.

3.2 Sample Construction

The sample construction proceeds as follows:

1. **Starting sample:** The raw ACS data contains 33,851,424 person-year observations across the 2006–2016 survey years.

2. **Hispanic-Mexican ethnicity:** I restrict to individuals identified as Hispanic-Mexican using the HISPAN variable (HISPAN = 1). This reduces the sample to 2,945,521 observations.

3. **Born in Mexico:** I further restrict to individuals born in Mexico using the BPL variable (BPL = 200). This yields 991,261 observations.

4. **Non-citizens:** I restrict to non-citizens using the CITIZEN variable (CITIZEN = 3). Following the research task instructions, I assume that non-citizens who have not received immigration papers are undocumented for DACA purposes. This is a

necessary assumption since the ACS does not directly identify undocumented status. This yields 701,347 observations.

5. **Working age:** I restrict to individuals aged 16–64, the standard working-age population. This yields 618,640 observations.

6. **Exclude 2012:** Because DACA was implemented mid-year in 2012 and the ACS does not identify the month of interview, the treatment status in 2012 is ambiguous. I exclude 2012 from the main analysis. This yields the final analysis sample of 561,470 observations.

3.3 Key Variables

3.3.1 Outcome Variable

The outcome variable is **full-time employment**, defined as usually working 35 or more hours per week. This is constructed from the UHRSWORK variable (usual hours worked per week). The variable takes value 1 if UHRSWORK $\geq$ 35 and 0 otherwise.

3.3.2 DACA Eligibility

I construct a DACA eligibility indicator based on the criteria observable in the ACS data:

1. **Arrived before age 16:** Calculated as YRIMMIG − BIRTHYR < 16, where YRIMMIG is the year of immigration and BIRTHYR is the birth year.

2. **Under 31 as of June 15, 2012:** Implemented as BIRTHYR $\geq$ 1981. An individual born in 1981 would turn 31 sometime during 2012; using $\geq$ 1981 is a conservative approximation given the lack of exact birth dates.

3. **Continuously present since June 15, 2007:** Implemented as YRIMMIG $\leq$ 2007.

Note that I cannot directly observe the education/military requirement or criminal history exclusions in the ACS data. The eligibility variable therefore captures potential eligibility based on demographic criteria.

3.3.3 Treatment Period

The post-DACA period is defined as survey years 2013–2016. The pre-DACA period is defined as survey years 2006–2011. Year 2012 is excluded due to within-year treatment timing ambiguity.

3.3.4 Control Variables

The analysis includes the following control variables:

- Age (AGE) and age squared

- Female indicator (SEX = 2)

- Married indicator (MARST = 1)

- State of residence fixed effects (STATEFIP)

- Year fixed effects (YEAR)

All analyses use the ACS person weights (PERWT) and cluster standard errors at the state level to account for within-state correlation.

4 Empirical Strategy

4.1 Difference-in-Differences Design

The core identification strategy is a difference-in-differences approach that compares employment changes for DACA-eligible individuals (treatment group) versus non-eligible individuals (control group) before and after DACA implementation.

The basic DiD specification is:

$$Y_{ist} = \alpha + \beta \cdot \text{Eligible}_i + \gamma \cdot \text{Post}_t + \delta \cdot (\text{Eligible}_i \times \text{Post}_t) + \epsilon_{ist} \tag{1}$$

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

The preferred specification adds demographic controls and fixed effects:

$$Y_{ist} = \alpha + \delta \cdot (\text{Eligible}_i \times \text{Post}_t) + \mathbf{X}'_{ist}\boldsymbol{\beta} + \mu_s + \lambda_t + \epsilon_{ist} \tag{2}$$

where $\mathbf{X}_{ist}$ includes age, age squared, female, and married indicators; μ_s represents state fixed effects; and λ_t represents year fixed effects. Note that with year fixed effects, the main effect of Post_t is absorbed, and with the combination of eligibility determinants varying over time, the main effect of Eligible_i is identified separately from the fixed effects.

4.2 Identification Assumptions

The key identifying assumption is the **parallel trends assumption**: in the absence of DACA, employment trends would have been the same for eligible and non-eligible individuals. This assumption cannot be directly tested, but I provide several pieces of supporting evidence:

1. **Pre-treatment trends:** I examine whether employment trends were parallel prior to DACA implementation through an event study analysis.

2. **Placebo tests:** I estimate placebo DiD effects using fake treatment dates in the pre-period.

3. **Robustness checks:** I verify that results are robust to alternative sample definitions and model specifications.

4.3 Standard Errors

All standard errors are clustered at the state level to account for within-state serial correlation and heteroskedasticity. This is conservative given that DACA is a federal policy, but state-level clustering accounts for potential state-specific factors affecting both eligibility determination and employment outcomes.

5 Results

5.1 Descriptive Statistics

Table 1 presents descriptive statistics for the analysis sample by treatment group (DACA eligible vs. non-eligible) and time period (pre- vs. post-DACA).

Table 1: Descriptive Statistics by Treatment Group and Period

	Non-Eligible		DACA Eligible	
	Pre	Post	Pre	Post
Full-time employed	0.604	0.579	0.436	0.498
Age (mean)	38.2	41.8	21.3	24.5
Female	0.455	0.471	0.443	0.456
Married	0.597	0.601	0.195	0.268
Observations	297,737	178,267	48,055	37,411

Notes: Sample includes Hispanic-Mexican, Mexico-born non-citizens aged 16–64. Pre-period is 2006–2011; post-period is 2013–2016. Year 2012 is excluded.

Several patterns emerge from the descriptive statistics. First, DACA-eligible individuals have substantially lower full-time employment rates than non-eligible individuals in the pre-period (43.6% vs. 60.4%). This primarily reflects the age difference: eligible individuals are much younger on average (21.3 vs. 38.2 years), which affects labor force participation and employment.

Second, the "raw" DiD can be computed from these means: the change in employment for eligible individuals is $0.498 - 0.436 = 0.062$, while the change for non-eligible individuals is $0.579 - 0.604 = -0.025$. The simple DiD is therefore $0.062 - (-0.025) = 0.087$, or about 8.7 percentage points. This preliminary calculation suggests a substantial positive effect, though it does not account for compositional changes or other confounders.

5.2 Main Results

Table 2 presents the main difference-in-differences estimates across specifications of increasing complexity.

Table 2: Main Difference-in-Differences Results

	(1) Basic DiD	(2) + Demographics	(3) + Year FE	(4) + State FE
DACA Eligible × Post	0.0919***	0.0379***	0.0311***	0.0305***
	(0.0039)	(0.0044)	(0.0040)	(0.0041)
DACA Eligible	−0.1697***	−0.0350***	−0.0225***	−0.0180***
	(0.0050)	(0.0054)	(0.0048)	(0.0041)
Post-DACA	−0.0264***	−0.0181***	–	–
	(0.0026)	(0.0022)		
Age, Age^2	No	Yes	Yes	Yes
Female, Married	No	Yes	Yes	Yes
Year Fixed Effects	No	No	Yes	Yes
State Fixed Effects	No	No	No	Yes
Observations	561,470	561,470	561,470	561,470

Notes: Dependent variable is full-time employment (working 35+ hours/week). All regressions use ACS person weights (PERWT) and cluster standard errors at the state level (shown in parentheses). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

The results show that adding controls substantially reduces the estimated effect. The basic DiD estimate in column (1) is 0.092, but this falls to 0.038 when demographic controls are added (column 2), and further to 0.031 when year fixed effects are included (column 3). The preferred specification in column (4), which includes both year and state fixed effects, yields an estimate of 0.0305.

5.2.1 Preferred Estimate

The preferred estimate (column 4) indicates that DACA eligibility increased the probability of full-time employment by **3.05 percentage points** (standard error = 0.0041). The 95% confidence interval is [2.25, 3.85] percentage points. The effect is statistically significant at all conventional levels ($p < 0.001$).

To interpret the magnitude, note that the baseline full-time employment rate among DACA-eligible individuals in the pre-period was approximately 43.6%. A 3.05 percentage point increase represents about a 7% relative increase from baseline ($0.0305/0.436 \approx 0.070$).

The coefficient on the DACA eligibility indicator (without the interaction) shows that, even after controlling for demographics and fixed effects, eligible individuals have about 1.8 percentage points lower full-time employment rates than non-eligible individuals within the same state and year. This likely reflects residual age-related differences in employment

patterns not fully captured by the age polynomials.

5.3   Event Study Analysis

To examine the dynamics of the DACA effect and assess the parallel trends assumption, I estimate an event study specification that interacts the eligibility indicator with year indicators (omitting 2011 as the reference year):

$$Y_{ist} = \alpha + \sum_{t \neq 2011} \delta_t \cdot (\text{Eligible}_i \times \mathbf{1}[Year = t]) + \mathbf{X}'_{ist}\boldsymbol{\beta} + \mu_s + \lambda_t + \epsilon_{ist} \qquad (3)$$

Table 3 presents the event study coefficients.

Table 3: Event Study Estimates

Year	Coefficient	Std. Error
Pre-DACA Period		
2006	−0.0159	(0.0135)
2007	−0.0106	(0.0077)
2008	0.0008	(0.0120)
2009	0.0050	(0.0111)
2010	0.0095	(0.0160)
2011	[Reference]	–
Post-DACA Period		
2013	0.0129	(0.0105)
2014	0.0231	(0.0150)
2015	0.0405***	(0.0137)
2016	0.0419***	(0.0122)

Notes: Coefficients from regression of full-time employment on year-by-eligibility interactions, demographic controls, and state and year fixed effects. 2011 is the omitted reference year. Standard errors clustered at state level.

The event study results provide mixed evidence on parallel trends. On one hand, the pre-period coefficients are relatively small and mostly statistically insignificant. On the other hand, there is a slight upward drift in the eligible-vs-ineligible employment gap during the pre-period (from −0.016 in 2006 to +0.010 in 2010), which could suggest differential pre-trends.

In the post-period, the effect appears to grow over time: the coefficients increase from 0.013 in 2013 to 0.042 in 2016, with the 2015 and 2016 coefficients being statistically significant. This gradual increase is consistent with the program taking time to affect employment

outcomes as recipients obtained work authorization and found new employment opportunities.

5.4 Robustness Checks

Table 4 presents results from several robustness checks.

Table 4: Robustness Checks

Specification	Estimate	Std. Error	N
Main specification	0.0305	(0.0041)	561,470
Alternative age restrictions:			
Ages 18–45	0.0197	(0.0035)	413,906
By gender:			
Males only	0.0254	(0.0055)	303,717
Females only	0.0284	(0.0064)	257,753
Alternative eligibility:			
Strict (arrived by 2006)	0.0310	(0.0043)	561,470
Include 2012:			
With 2012 included	0.0310	(0.0047)	618,640

Notes: All specifications include demographic controls, year fixed effects, and state fixed effects. Standard errors clustered at state level.

Alternative age range: Restricting to ages 18–45 yields a smaller estimate of 2.0 percentage points. This tighter age range may provide a better comparison group but also excludes some potentially affected individuals.

Gender heterogeneity: The effects are similar for males (2.5 pp) and females (2.8 pp), suggesting DACA affected both genders' employment similarly.

Stricter eligibility definition: Using a stricter requirement that individuals arrived by 2006 (rather than 2007) yields essentially the same estimate (3.1 pp), indicating the results are not sensitive to the exact eligibility cutoff.

Including 2012: Including the ambiguous year 2012 in the analysis does not change the results materially (3.1 pp vs. 3.05 pp).

5.5 Placebo Test

As an additional check on the parallel trends assumption, I conduct a placebo test using only pre-DACA data (2006–2011) and a "fake" treatment date of 2009. If the parallel trends assumption holds, we should find no effect at this placebo treatment date.

The placebo DiD estimate is 0.0141 (standard error = 0.0040, $p = 0.0004$). This statistically significant placebo estimate is concerning and suggests that there may be differential trends between eligible and non-eligible individuals that predate DACA. The positive placebo coefficient indicates that the employment gap was already narrowing before DACA, which could upward-bias the main estimates.

This finding warrants caution in interpreting the main results as purely causal. The differential pre-trends could reflect cohort effects, labor market conditions that differentially affected younger immigrants, or other factors correlated with eligibility.

6   Discussion

6.1   Summary of Findings

The main finding is that DACA eligibility is associated with a 3.05 percentage point increase in the probability of full-time employment among Hispanic-Mexican, Mexico-born non-citizens. This effect is statistically significant and robust to various specification changes.

However, the evidence also reveals potential violations of the parallel trends assumption. The event study shows pre-existing trend differences, and the placebo test yields a significant (though smaller) estimate. These findings suggest that some portion of the estimated effect may reflect differential trends rather than the causal impact of DACA.

6.2   Limitations

Several limitations should be noted:

Eligibility measurement: The ACS does not directly identify DACA eligibility or receipt. I construct a proxy based on observable characteristics (arrival age, birth year, immigration year) but cannot observe the education/military requirements or criminal history exclusions. Additionally, I cannot distinguish between documented and undocumented non-citizens, so the sample may include some legal non-citizens who would not benefit from DACA.

Parallel trends: The evidence suggests potential violations of the parallel trends assumption. The differential pre-trends could bias the estimates either upward or downward depending on whether they continued, accelerated, or reversed after 2012.

Treatment timing: DACA was announced in June 2012 and applications began in August 2012. The ACS does not report interview month, so 2012 observations could reflect either pre- or post-DACA conditions. I exclude 2012 in the main analysis, but this reduces the effective sample.

Comparison group: The comparison group consists of older Mexican-born non-citizens who do not meet the eligibility criteria. These individuals may differ from the treated population in ways that affect employment trends, even after controlling for observable characteristics.

6.3   Interpretation

Taking the results at face value, a 3 percentage point increase in full-time employment is economically meaningful. If we apply this estimate to the approximately 700,000–800,000 DACA recipients, this implies roughly 21,000–24,000 additional individuals working full-time as a result of the program.

The gradual increase in effects over time (as shown in the event study) is consistent with the program's mechanics: recipients needed time to apply for and receive DACA status, obtain work authorization, and search for formal employment. The larger effects in 2015–2016 may reflect the cumulative impact as more recipients obtained status and had time to find stable employment.

The finding that effects are similar for males and females suggests that DACA's work authorization benefit was valuable to both genders, despite different baseline employment patterns. This is consistent with the program removing a common barrier (lack of work authorization) that affected all eligible individuals regardless of gender.

7   Conclusion

This independent replication study examined the effect of DACA eligibility on full-time employment among Hispanic-Mexican, Mexico-born non-citizens in the United States. Using a difference-in-differences research design with ACS data from 2006–2016, I estimate that DACA eligibility increased full-time employment by approximately 3.1 percentage points.

The preferred estimate is:

- **Effect size:** 3.05 percentage points

- **Standard error:** 0.41 percentage points

- **95% Confidence Interval:** [2.25, 3.85] percentage points

- **P-value:** < 0.001

- **Sample size:** 561,470 person-year observations

While the estimate is statistically significant and robust to various specification checks, evidence of differential pre-trends suggests caution in attributing the entire effect to DACA. The true causal effect may be somewhat smaller than the point estimate if pre-existing trend differences account for part of the estimated effect.

Despite these caveats, the analysis provides evidence that DACA was associated with meaningful improvements in employment outcomes for eligible individuals. The program's provision of work authorization appears to have facilitated access to formal, full-time employment for a substantial number of young immigrants.

Appendix A: Variable Definitions

Table 5: IPUMS Variable Definitions

Variable	Type	Definition
YEAR	Survey	Census/survey year
PERWT	Weight	Person-level weight for population estimation
AGE	Person	Age in years
SEX	Person	Sex (1=Male, 2=Female)
BIRTHYR	Person	Year of birth
BIRTHQTR	Person	Quarter of birth
MARST	Person	Marital status (1=Married, spouse present)
HISPAN	Person	Hispanic origin (1=Mexican)
BPL	Person	Birthplace (200=Mexico)
CITIZEN	Person	Citizenship status (3=Not a citizen)
YRIMMIG	Person	Year of immigration
STATEFIP	Geographic	State FIPS code
UHRSWORK	Labor	Usual hours worked per week
EMPSTAT	Labor	Employment status

Appendix B: Sample Construction Details

Table 6: Sample Construction

Step	Observations	Notes
Raw ACS data (2006–2016)	33,851,424	All person-year observations
Hispanic-Mexican (HISPAN=1)	2,945,521	Mexican ethnic origin
Born in Mexico (BPL=200)	991,261	Mexico as birthplace
Non-citizen (CITIZEN=3)	701,347	Not a U.S. citizen
Working age (16–64)	618,640	Standard labor force ages
Exclude 2012	561,470	Final analysis sample
By treatment status:		
DACA eligible	85,466	
Non-eligible (control)	476,004	

Appendix C: DACA Eligibility Construction

DACA eligibility is constructed based on the following criteria observable in ACS data:

1. **Arrived before 16th birthday:**

   ```
   arrived_before_16 = (YRIMMIG - BIRTHYR) < 16
   ```

2. **Not yet 31 on June 15, 2012:**

   ```
   under_31_in_2012 = BIRTHYR >= 1981
   ```

3. **Continuously present since June 15, 2007:**

   ```
   present_since_2007 = YRIMMIG <= 2007
   ```

4. **DACA eligible:**

   ```
   daca_eligible = arrived_before_16 AND
                   under_31_in_2012 AND
                   present_since_2007
   ```

Additional DACA requirements not observable in ACS:

- Currently in school, high school graduate, GED recipient, or honorably discharged veteran

- No felony conviction, significant misdemeanor, or three or more misdemeanors

Appendix D: Pre-Trends by Year

Table 7: Full-Time Employment Rates by Year and Treatment Status

Year	Non-Eligible	DACA Eligible	Difference
Pre-DACA Period			
2006	0.651	0.456	−0.195
2007	0.651	0.466	−0.185
2008	0.628	0.460	−0.168
2009	0.582	0.422	−0.160
2010	0.560	0.415	−0.145
2011	0.551	0.410	−0.141
Post-DACA Period			
2013	0.560	0.468	−0.092
2014	0.576	0.490	−0.086
2015	0.590	0.511	−0.079
2016	0.595	0.525	−0.070

Notes: Unweighted mean full-time employment rates by year and DACA eligibility status. The difference column shows Eligible minus Non-Eligible.

The pre-trends table reveals that the employment gap between eligible and non-eligible individuals was already narrowing before DACA. The difference went from −0.195 in 2006 to −0.141 in 2011—a 5.4 percentage point closing of the gap over six years. This suggests that some portion of the post-DACA convergence may reflect a continuation of pre-existing trends rather than a causal effect of the program.

Appendix E: Technical Notes

Software

The analysis was conducted using Python with the following packages:

- pandas (data manipulation)

- numpy (numerical operations)

- statsmodels (regression analysis)

Standard Errors

All standard errors are clustered at the state level (STATEFIP). This clustering accounts for:

- Within-state correlation in unobservables

- State-specific labor market conditions

- Potential serial correlation over time within states

State-level clustering is conservative given that DACA is a federal policy with uniform rules across states.

Weights

All regression analyses use ACS person weights (PERWT) via weighted least squares (WLS). The weights ensure that estimates are representative of the target population and account for the ACS sampling design.

Missing Data

Observations with missing values on key analysis variables (UHRSWORK, YRIMMIG, BIRTHYR, CITIZEN, HISPAN, BPL, AGE, SEX, MARST) are implicitly excluded through the sample restrictions. The YRIMMIG variable is coded as 0 for individuals not born abroad; these are excluded by the requirement that BPL = 200 (Mexico).