The Effect of DACA Eligibility on Full-Time Employment:

A Difference-in-Differences Analysis

Replication Study 88

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Abstract

This study examines the causal impact of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on full-time employment among ethnically Hispanic-Mexican, Mexican-born non-citizens in the United States. Using American Community Survey (ACS) data from 2006–2016 and a difference-in-differences research design, I compare employment outcomes between DACA-eligible and DACA-ineligible individuals before and after the program's implementation in June 2012. The preferred specification, which includes year and state fixed effects along with demographic controls, estimates that DACA eligibility increased the probability of full-time employment by 2.7 percentage points (SE = 0.0034, $p < 0.001$). This effect is robust across multiple specifications and subgroup analyses. Event study analysis provides evidence supporting the parallel trends assumption in the pre-treatment period. The results suggest that DACA's provision of work authorization and deportation relief had meaningful positive effects on labor market outcomes for eligible immigrants.

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1   Introduction

The Deferred Action for Childhood Arrivals (DACA) program was announced by the Obama administration on June 15, 2012, representing one of the most significant immigration policy changes in recent U.S. history. The program offered eligible undocumented immigrants who arrived as children the opportunity to apply for temporary relief from deportation and authorization to work legally in the United States. Given that lack of legal work authorization is a major barrier to formal employment for undocumented immigrants, DACA has the potential to substantially affect labor market outcomes for eligible individuals.

This replication study examines the causal impact of DACA eligibility on full-time employment among ethnically Hispanic-Mexican, Mexican-born individuals living in the United States. The research question is: *What was the causal impact of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on the probability that the eligible person is employed full-time, defined as usually working 35 hours per week or more?*

To identify the causal effect of DACA eligibility, I employ a difference-in-differences (DiD) research design that compares changes in full-time employment between DACA-eligible and DACA-ineligible Mexican-born Hispanic non-citizens before and after the program's implementation. The identifying assumption is that, absent DACA, full-time employment trends would have evolved similarly for both groups.

The analysis uses data from the American Community Survey (ACS) provided by IPUMS USA, covering the years 2006–2016. The sample is restricted to working-age (16–64) Mexican-born individuals who report Hispanic-Mexican ethnicity and are not U.S. citizens. DACA eligibility is determined based on age at arrival in the United States (before age 16), age as of June 2012 (under 31), and continuous residence in the U.S. since June 2007.

2   Background

2.1   The DACA Program

DACA was established through an executive action by President Obama on June 15, 2012. The program allows certain undocumented immigrants who entered the United States as children to receive a renewable two-year period of deferred action from deportation and to become eligible for a work permit.

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

1. Were under 31 years old as of June 15, 2012 (born on or after June 16, 1981)

2. Came to the United States before their 16th birthday

3. Have continuously resided in the United States since June 15, 2007

4. Were physically present in the United States on June 15, 2012

5. Had no lawful status on June 15, 2012

6. Are currently in school, have graduated or obtained a GED, or are an honorably discharged veteran

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

Applications for DACA began to be received on August 15, 2012. In the first four years of the program, nearly 900,000 initial applications were received, with approximately 90% being approved. While the program was not specific to any country of origin, the majority of eligible individuals were from Mexico, reflecting patterns of undocumented immigration to the United States.

2.2 Theoretical Mechanisms

There are several mechanisms through which DACA could affect employment outcomes:

Work Authorization: The most direct mechanism is that DACA provides recipients with legal authorization to work. Prior to DACA, undocumented immigrants could only work in the informal economy or with fraudulent documents, limiting their job opportunities and wages.

Reduced Deportation Fear: DACA's deferred action from deportation may reduce anxiety and allow recipients to engage more fully in the labor market without fear of workplace immigration enforcement.

Access to Identification: DACA recipients can obtain Social Security numbers and, in many states, driver's licenses. These documents facilitate employment and transportation to work.

Human Capital Investment: By providing a more stable legal status, DACA may encourage recipients to invest in education and job training, potentially improving employment outcomes over time.

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 demographic, social, economic, and housing information from a sample of households in the United States.

I use the one-year ACS files from 2006 through 2016. The years 2006–2011 serve as the pre-treatment period, and 2013–2016 serve as the post-treatment period. The year 2012 is excluded from the main analysis because DACA was implemented midway through the

year (June 15, 2012), and the ACS does not identify the month of data collection. However, robustness checks include 2012 in the post-treatment period.

3.2   Sample Selection

The analytic sample is constructed through the following selection criteria:

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

2. **Mexico-born:** Using the BPL (birthplace) variable, I select individuals born in Mexico (BPL = 200).

3. **Non-citizen:** Using the CITIZEN variable, I select individuals who are not citizens (CITIZEN = 3). Following the research task instructions, I assume that non-citizens who have not received immigration papers are undocumented for DACA purposes.

4. **Working age:** I restrict the sample to individuals aged 16–64 to focus on the working-age population.

5. **Valid immigration year:** I exclude observations with missing or zero values for the year of immigration (YRIMMIG), as this variable is necessary to determine DACA eligibility.

The raw ACS data contains approximately 33.9 million observations across all years. After applying these restrictions, the analytic sample includes 618,640 observations with determinable DACA eligibility status. When excluding 2012, the main analysis sample contains 561,470 observations.

3.3 Variable Definitions

3.3.1 Outcome Variable

The outcome variable is an indicator for full-time employment. Following the research task instructions, full-time employment is defined as usually working 35 hours per week or more. This is constructed using two ACS variables:

- EMPSTAT: Employment status (1 = employed)

- UHRSWORK: Usual hours worked per week

An individual is coded as full-time employed if EMPSTAT = 1 and UHRSWORK $\geq$ 35.

3.3.2 Treatment Variable: DACA Eligibility

DACA eligibility is determined based on the program's requirements as of June 15, 2012:

1. **Arrived before age 16:** Calculated as YRIMMIG − BIRTHYR < 16

2. **Under 31 as of June 15, 2012:** Individuals born after June 15, 1981 would be under 31 on the implementation date. For precision, I code individuals as meeting this criterion if:

   - BIRTHYR > 1981, or

   - BIRTHYR = 1981 and BIRTHQTR $\in$ {3, 4} (July–December)

3. **Continuously in U.S. since June 2007:** YRIMMIG $\leq$ 2007

An individual is coded as DACA-eligible if all three criteria are met.

3.3.3 Control Variables

The analysis includes the following control variables:

- **Age:** Continuous variable (AGE) and its square

- **Female:** Indicator for female sex (SEX = 2)

- **Married:** Indicator for currently married (MARST $\in \{1, 2\}$)

- **High school or more:** Indicator for having completed high school or higher education (EDUC ≥ 6)

- **Year fixed effects:** Indicator variables for each survey year

- **State fixed effects:** Indicator variables for each state (STATEFIP)

4 Empirical Strategy

4.1 Difference-in-Differences Design

The primary empirical strategy is a difference-in-differences (DiD) design that compares changes in full-time employment between DACA-eligible and DACA-ineligible individuals before and after the program's implementation.

The basic DiD estimating equation is:

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

where:

- Y_{it} is an indicator for full-time employment for individual i in year t

- Eligible_i is an indicator for DACA eligibility

- Post_t is an indicator for the post-treatment period (2013–2016)

- β_3 is the DiD estimate of the effect of DACA eligibility on full-time employment

The identifying assumption is that, in the absence of DACA, full-time employment trends would have evolved similarly for eligible and ineligible individuals. Under this parallel trends assumption, β_3 represents the causal effect of DACA eligibility.

4.2   Model Specifications

I estimate five main specifications with progressively more controls:

Model 1 (Basic DiD): Includes only the eligibility indicator, post indicator, and their interaction.

Model 2 (Demographic Controls): Adds age, age squared, female, married, and high school education indicators.

Model 3 (Year Fixed Effects): Replaces the post indicator with year fixed effects, retaining demographic controls.

Model 4 (Year + State Fixed Effects): Adds state fixed effects to Model 3. This is the preferred specification.

Model 5 (Weighted): Applies person weights (PERWT) to Model 4 to produce population-representative estimates.

4.3   Event Study Analysis

To assess the validity of the parallel trends assumption, I estimate an event study specification that allows the treatment effect to vary by year:

$$Y_{it} = \alpha + \gamma_i \text{Eligible}_i + \sum_{t \neq 2011} \delta_t (\text{Eligible}_i \times \mathbf{1}[Year = t]) + \mathbf{X}_{it}\beta + \lambda_t + \mu_s + \epsilon_{it} \qquad (2)$$

where 2011 is the reference year. Pre-treatment coefficients (δ_t for $t < 2012$) that are close to zero and statistically insignificant would support the parallel trends assumption.

5 Results

5.1 Descriptive Statistics

Table 1 presents descriptive statistics for the main analysis sample, separately by DACA eligibility status.

Table 1: Descriptive Statistics by DACA Eligibility Status

	DACA Ineligible	DACA Eligible
Mean Age	39.5	22.5
Female (%)	46.1	44.9
Married (%)	65.5	25.9
High School+ (%)	40.1	57.6
Employment Rate (%)	65.6	55.1
Full-Time Employment Rate (%)	54.4	40.7
Unweighted N	477,859	83,611
Weighted N	64,917,439	11,374,876

Notes: Sample includes Mexican-born, Hispanic-Mexican, non-citizen individuals aged 16–64 from the 2006–2016 ACS (excluding 2012). DACA eligibility is based on age at immigration < 16, birth year ≥ 1982 (or 1981 Q3–Q4), and immigration year ≤ 2007.

The DACA-eligible group is substantially younger (mean age 22.5 vs. 39.5 years), reflecting the program's age requirements. DACA-eligible individuals are less likely to be married (25.9% vs. 65.5%) but more likely to have completed high school (57.6% vs. 40.1%), likely reflecting their younger age and more time in the U.S. education system. Both employment and full-time employment rates are lower among the eligible group in the pooled sample, but this comparison does not account for the age differences between groups.

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5.2 Simple Difference-in-Differences

Table 2 presents the simple difference-in-differences calculation without regression controls.

Table 2: Full-Time Employment Rates by Group and Period

	Pre-DACA (2006–2011)	Post-DACA (2013–2016)	Difference
DACA Eligible	0.371	0.452	0.080
DACA Ineligible	0.546	0.542	−0.004
Difference-in-Differences			**0.084**

Notes: Cell entries are mean full-time employment rates. The difference-in-differences estimate is $(0.452 - 0.371) - (0.542 - 0.546) = 0.084$.

The raw DiD estimate suggests that DACA eligibility increased full-time employment by 8.4 percentage points. Full-time employment among the eligible group increased from 37.1% to 45.2% after DACA implementation, while the ineligible group saw virtually no change (54.6% to 54.2%).

5.3 Regression Results

Table 3 presents the main regression results across five specifications.

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

	(1)	(2)	(3)	(4)	(5)
	Basic DiD	Demographics	Year FE	Year + State FE	Weighted
DACA Eligible × Post	0.0837***	0.0326***	0.0276***	0.0273***	0.0237***
	(0.0038)	(0.0034)	(0.0034)	(0.0034)	(0.0034)
Demographic Controls	No	Yes	Yes	Yes	Yes
Year Fixed Effects	No	No	Yes	Yes	Yes
State Fixed Effects	No	No	No	Yes	Yes
Person Weights	No	No	No	No	Yes
Observations	561,470	561,470	561,470	561,470	561,470
R-squared	0.011	0.195	0.199	0.202	0.216

Notes: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$. Standard errors in parentheses. The dependent variable is an indicator for full-time employment (usually working 35+ hours per week). Demographic controls include age, age squared, female indicator, married indicator, and high school education indicator. Column (4) is the preferred specification.

The basic DiD estimate in Column (1) suggests that DACA eligibility increased full-time employment by 8.4 percentage points. However, this large effect is substantially reduced when demographic controls are added in Column (2), falling to 3.3 percentage points. This reduction reflects the importance of controlling for age and other characteristics that differ systematically between eligible and ineligible groups.

The preferred specification in Column (4), which includes both year and state fixed effects along with demographic controls, estimates that DACA eligibility increased the probability of full-time employment by 2.7 percentage points (SE = 0.0034). This effect is statistically significant at the 0.1% level ($p < 0.001$) with a 95% confidence interval of [2.1, 3.4]

percentage points.

The weighted specification in Column (5) produces a slightly smaller estimate of 2.4 percentage points, suggesting that the unweighted estimates may slightly overstate the population-level effect.

5.4   Event Study Results

Figure **??** and Table 4 present the event study results, which allow assessment of the parallel trends assumption.

Table 4: Event Study Estimates

Year	Coefficient	Std. Error	Significant
2006	−0.021	(0.008)	*
2007	−0.013	(0.008)	
2008	−0.005	(0.008)	
2009	−0.001	(0.007)	
2010	0.005	(0.007)	
2011	0.000	—	(reference)
2013	0.009	(0.007)	
2014	0.016	(0.007)	*
2015	0.031	(0.007)	***
2016	0.033	(0.007)	***

Notes: *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$. Estimates from an event study regression with 2011 as the reference year. Controls include year fixed effects, state fixed effects, age, age squared, female, married, and high school education indicators.

The event study results provide partial support for the parallel trends assumption. The pre-treatment coefficients for 2007–2010 are small in magnitude and statistically insignificant, suggesting that trends in full-time employment were similar between eligible and ineligible groups in the years immediately preceding DACA. However, the coefficient for 2006 is negative and statistically significant, indicating some divergence in trends further from the treatment date.

The post-treatment coefficients show a clear pattern of increasing effects over time. The effect is small and insignificant in 2013 (the first full year after DACA implementation), but grows larger and becomes statistically significant in 2014–2016. This pattern is consistent with a gradual rollout of DACA benefits, as applications took time to process and recipients gradually entered the formal labor market.

5.5 Robustness Checks

Table 5 presents results from several robustness checks.

Table 5: Robustness Checks

Specification	Coefficient	Std. Error	p-value	N
Main Result (Model 4)	0.0273	0.0034	<0.001	561,470
Alternative Specifications:				
Including 2012 as Post	0.0210	0.0032	<0.001	618,640
Ages 18–40 Only	0.0139	0.0039	<0.001	341,332
Outcome: Any Employment	0.0435	0.0033	<0.001	561,470
By Gender:				
Males Only	0.0220	0.0045	<0.001	305,236
Females Only	0.0224	0.0051	<0.001	256,234

Notes: All specifications include year fixed effects, state fixed effects, and demographic controls (age, age squared, female [where applicable], married, high school education).

Including 2012: When 2012 is included in the post-treatment period, the estimated effect is slightly smaller (2.1 percentage points), which is expected since 2012 represents only a partial treatment year.

Restricted Age Range: Limiting the sample to ages 18–40 produces a smaller estimate of 1.4 percentage points. This specification focuses on a more comparable age range between groups but reduces sample size substantially.

Any Employment: When the outcome is any employment (not just full-time), the estimated effect is 4.4 percentage points, larger than the full-time employment effect. This suggests DACA increased both the extensive margin (entering employment) and potentially the intensive margin (hours worked).

By Gender: The effects are similar for males (2.2 pp) and females (2.2 pp), sug-

gesting that DACA's employment effects were not gender-specific.

6   Discussion

6.1   Interpretation of Results

The preferred estimate indicates that DACA eligibility increased the probability of full-time employment by approximately 2.7 percentage points. Given that the baseline full-time employment rate among DACA-eligible individuals in the pre-period was 37.1%, this represents a relative increase of approximately 7.3%.

Several factors likely contribute to this effect:

1. **Legal Work Authorization:** The most direct mechanism is that DACA provided recipients with Employment Authorization Documents (EADs), allowing them to work legally. This opens up formal sector employment opportunities that were previously unavailable.

2. **Employer Verification:** With legal work authorization, DACA recipients can pass E-Verify and other employment verification systems, making them more attractive to employers who comply with immigration law.

3. **Occupational Mobility:** Legal status may allow recipients to pursue better jobs that require background checks or professional licenses, potentially leading to more full-time opportunities.

4. **Reduced Fear:** Deferred action from deportation may reduce anxiety and allow recipients to engage more fully in the labor market.

The event study results showing gradually increasing effects over time are consistent with a policy that took time to implement fully. Applications were not accepted until August

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2012, and processing took several months. Additionally, recipients may have needed time to find formal employment after receiving work authorization.

6.2   Limitations

Several limitations should be noted:

Imperfect Eligibility Determination: The ACS does not directly identify undocumented status or DACA receipt. I infer eligibility based on observable characteristics (birthplace, citizenship, immigration year, age), but some individuals coded as eligible may not have been undocumented or may not have applied for DACA.

Selection into Non-Citizenship: The sample is restricted to non-citizens, but citizenship is endogenous. Some individuals who might have been eligible for DACA may have naturalized during the study period.

Parallel Trends: While the event study shows no significant pre-trends in 2007–2010, the significant coefficient in 2006 raises some concern about parallel trends further from the treatment date.

General Equilibrium Effects: The analysis captures partial equilibrium effects on DACA-eligible individuals but cannot capture broader labor market effects such as changes in competition for jobs.

Intent-to-Treat: The estimates represent the effect of eligibility for DACA, not the effect of actually receiving DACA. Since not all eligible individuals applied, the effect of actual DACA receipt is likely larger.

6.3   Comparison with Prior Literature

The estimated effect of 2.7 percentage points is consistent with previous research finding positive employment effects of DACA. While I do not attempt to directly replicate any specific prior study, the magnitude and direction of the effect align with the broader literature on the labor market effects of immigration status legalization.

7 Conclusion

This study provides evidence that DACA eligibility had a statistically significant positive effect on full-time employment among Mexican-born Hispanic 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 the probability of full-time employment by 2.7 percentage points.

The results are robust across multiple specifications, including models with demographic controls, year fixed effects, and state fixed effects. Event study analysis provides evidence consistent with the parallel trends assumption in the years immediately preceding DACA implementation. Robustness checks show similar effects for males and females, and larger effects when examining any employment rather than just full-time employment.

These findings suggest that policies providing work authorization to undocumented immigrants can have meaningful positive effects on their labor market outcomes. The results contribute to our understanding of how immigration policy affects economic integration and have implications for ongoing policy debates about the future of DACA and broader immigration reform.

Appendix A: Variable Definitions

Table 6: IPUMS Variable Definitions Used in Analysis

Variable	Definition and Coding
YEAR	Survey year (2006–2016)
HISPAN	Hispanic origin; coded 1 for Mexican
BPL	Birthplace; coded 200 for Mexico
CITIZEN	Citizenship status; coded 3 for non-citizen
YRIMMIG	Year of immigration to the United States
BIRTHYR	Year of birth
BIRTHQTR	Quarter of birth (1=Q1, 2=Q2, 3=Q3, 4=Q4)
AGE	Age in years
SEX	Sex; coded 1 for male, 2 for female
MARST	Marital status; coded 1 or 2 for married
EDUC	Educational attainment; coded ≥ 6 for HS+
EMPSTAT	Employment status; coded 1 for employed
UHRSWORK	Usual hours worked per week
STATEFIP	State FIPS code
PERWT	Person weight for population estimates

Appendix B: Sample Construction

Table 7: Sample Construction

Step	Observations
Raw ACS data (2006–2016)	33,851,424
After restricting to Hispanic-Mexican (HISPAN=1)	—
After restricting to Mexico-born (BPL=200)	—
After restricting to non-citizens (CITIZEN=3)	701,347
After restricting to ages 16–64	618,640
After excluding missing immigration year	618,640
After excluding 2012 (main analysis)	561,470
DACA Eligible	83,611
DACA Ineligible	477,859

Appendix C: DACA Eligibility Criteria

An individual is coded as DACA-eligible if all of the following conditions are met:

1. **Age at immigration less than 16:**

$$YRIMMIG - BIRTHYR < 16$$

2. **Under 31 as of June 15, 2012:**

$$BIRTHYR > 1981 \quad OR \quad (BIRTHYR = 1981 \text{ AND } BIRTHQTR \in \{3, 4\})$$

3. **Continuously in U.S. since June 2007:**

$$\text{YRIMMIG} \leq 2007$$

Note: The ACS does not allow verification of physical presence on June 15, 2012, or whether the individual lacks lawful status. The citizenship restriction (CITIZEN = 3) is used as a proxy for lack of lawful status.

Appendix D: Full Regression Output

The full regression output for Model 4 (the preferred specification) is available in the supplementary files (model4_full_output.txt). Key coefficients from this specification:

- DACA Eligible × Post: 0.0273 (SE: 0.0034)

- DACA Eligible: -0.0069 (SE: 0.0043)

- Age: 0.0289 (SE: 0.0004)

- Age Squared: -0.0004 (SE: 0.0000)

- Female: -0.2408 (SE: 0.0014)

- Married: 0.0611 (SE: 0.0015)

- High School+: 0.0325 (SE: 0.0014)

Appendix E: Additional Descriptive Statistics

Table 8: Descriptive Statistics by Eligibility and Period

	DACA Ineligible		DACA Eligible	
	Pre	Post	Pre	Post
Mean Age	38.2	41.8	21.1	24.3
Female (%)	45.5	47.1	44.4	45.5
Married (%)	66.5	63.8	23.5	29.0
High School+ (%)	39.2	41.6	54.3	62.0
Employment Rate (%)	65.4	65.9	50.6	60.9
Full-Time Employment (%)	54.6	54.2	37.1	45.2
Mean Hours Worked	25.4	25.7	18.6	24.0
Observations	298,978	178,881	46,814	36,797

Appendix F: Methodological Notes

Identification Strategy

The difference-in-differences design identifies the causal effect of DACA eligibility under the assumption that, absent the program, full-time employment trends would have evolved similarly for eligible and ineligible individuals. This is formalized as:

$$E[Y_{it}(0)|D_i = 1, t = \text{post}] - E[Y_{it}(0)|D_i = 1, t = \text{pre}] = E[Y_{it}(0)|D_i = 0, t = \text{post}] - E[Y_{it}(0)|D_i = 0, t = \text{pre}]$$

where $Y_{it}(0)$ is the potential outcome without treatment and D_i is the eligibility indicator.

Potential Threats to Identification

1. **Compositional changes:** The sample composition may change over time due to selective migration, naturalization, or aging. Year fixed effects partially address time trends, but compositional changes specific to eligible/ineligible groups could bias estimates.

2. **Concurrent policies:** Other policies affecting undocumented immigrants or young workers may have changed during the study period. State fixed effects control for time-invariant state characteristics but not time-varying state policies.

3. **Economic conditions:** The study period spans the Great Recession recovery. While year fixed effects control for national economic conditions, differential effects of the business cycle on eligible vs. ineligible groups could bias estimates.

4. **Measurement error:** Eligibility is imperfectly measured because we cannot observe undocumented status directly. If measurement error is correlated with outcomes, esti-

mates may be biased.

Standard Errors

Standard errors reported throughout are heteroskedasticity-robust. Given that the treatment varies at the individual-year level and the data represent repeated cross-sections rather than a panel, clustering is not straightforward. The reported standard errors may understate uncertainty if there is correlation in outcomes within states or over time.