Replication Report: The Effect of DACA Eligibility on Full-Time Employment Among Mexican-Born Immigrants

Replication Study 26

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Abstract

This report presents an independent replication analysis examining the causal effect of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on full-time employment among Mexican-born Hispanic immigrants in the United States. Using a difference-in-differences research design, I compare individuals aged 26–30 at DACA implementation (the treated group) to those aged 31–35 (the comparison group), examining changes in full-time employment from the pre-DACA period (2008–2011) to the post-DACA period (2013–2016). The preferred specification indicates that DACA eligibility increased the probability of full-time employment by approximately 7.5 percentage points (SE = 0.020, 95% CI: [0.035, 0.115]), a statistically significant and economically meaningful effect. Results are robust across multiple specifications including models with demographic controls, year fixed effects, and alternative estimation approaches.

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1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented on June 15, 2012, provided temporary relief from deportation and work authorization to eligible undocumented immigrants who arrived in the United States as children. By providing legal work authorization, DACA may have enabled recipients to pursue formal employment opportunities that were previously inaccessible, potentially increasing their probability of full-time employment.

This replication study estimates the causal effect of DACA eligibility on full-time employment using a difference-in-differences (DiD) research design. The analysis compares changes in full-time employment rates between DACA-eligible individuals (those aged 26–30 at the time of implementation) and a comparison group of slightly older individuals (aged 31–35) who would have been eligible except for exceeding the age cutoff. By comparing how these groups changed from the pre-DACA period (2008–2011) to the post-DACA period (2013–2016), I can identify the causal effect of DACA eligibility under the assumption that both groups would have experienced parallel trends in the absence of the policy.

The key identifying assumption of this design is that, absent DACA, the eligible and comparison groups would have experienced similar trends in full-time employment. While this assumption is inherently untestable, I examine pre-treatment trends to assess its plausibility.

2 Background

2.1 The DACA Program

DACA was enacted by executive action on June 15, 2012. The program allowed eligible undocumented immigrants to apply for two-year renewable work authorization and relief from deportation. To be eligible, individuals had to:

- Have arrived in the United States before their 16th birthday
- Have been under age 31 as of June 15, 2012
- Have lived continuously in the United States since June 15, 2007
- Have been present in the United States on June 15, 2012 without lawful status

Applications began being received on August 15, 2012, and in the first four years, nearly 900,000 initial applications were received, with approximately 90% approved. Although DACA was not specific to any nationality, the majority of eligible individuals were from Mexico due to the structure of undocumented immigration to the United States.

2.2 Expected Effects on Employment

DACA eligibility may affect full-time employment through several channels:

1. **Legal work authorization**: DACA provides recipients with Employment Authorization Documents (EADs), allowing them to work legally in the United States for the first time.

2. **Access to formal employment**: With legal work status, DACA recipients can pursue jobs in the formal sector that require documentation.

3. **Driver's licenses**: Many states allow DACA recipients to obtain driver's licenses, expanding employment opportunities.

4. **Reduced fear of deportation**: The protection from deportation may encourage recipients to seek more visible, stable full-time employment.

3 Data

3.1 Data Source

The analysis uses data from the American Community Survey (ACS) as provided by IPUMS USA. The dataset spans 2008–2016, excluding 2012 (since it cannot be determined whether observations in 2012 occurred before or after DACA implementation). The sample is restricted to ethnically Hispanic Mexican-born individuals who meet other DACA eligibility criteria (except for the age requirement, which defines treatment status).

3.2 Key Variables

Outcome Variable The primary outcome is full-time employment (FT), defined as usually working 35 or more hours per week. This is coded as a binary variable where FT = 1 indicates full-time employment and FT = 0 otherwise. Individuals not in the labor force are included and coded as FT = 0.

Treatment Variable The ELIGIBLE variable identifies individuals in the treatment group (ELIGIBLE = 1 for those aged 26–30 in June 2012) versus the comparison group (ELIGIBLE = 0 for those aged 31–35 in June 2012). This variable is pre-constructed in the dataset.

Time Period The AFTER variable indicates the post-DACA period (AFTER = 1 for years 2013–2016) versus the pre-DACA period (AFTER = 0 for years 2008–2011).

Covariates Additional variables available for analysis include:

- Demographics: SEX, AGE, MARST (marital status), NCHILD (number of children)
- Education: EDUC_RECODE (education level categorized as Less than High School, High School Degree, Some College, Two-Year Degree, or BA+)
- Geographic: STATEFIP (state FIPS code), CensusRegion
- Survey weights: PERWT (person weight)

3.3 Sample Description

Table 1 presents the sample composition.

Table 1: Sample Composition

	N	Percentage
Total Sample	17,382	100.0%
By Period		
Pre-DACA (2008–2011)	9,527	54.8%
Post-DACA (2013–2016)	7,855	45.2%
By Eligibility		
Eligible (ages 26–30)	11,382	65.5%
Comparison (ages 31–35)	6,000	34.5%
By Year		
2008	2,354	13.5%
2009	2,379	13.7%
2010	2,444	14.1%
2011	2,350	13.5%
2013	2,124	12.2%
2014	2,056	11.8%
2015	1,850	10.6%
2016	1,825	10.5%

3.4 Demographic Characteristics

Table 2 presents demographic characteristics of the sample.

Table 2: Demographic Characteristics

Characteristic	Value
Female (%)	47.8%
Married (%)	49.0%
Mean age	29.6 years
Mean number of children	1.36
Education Distribution	
Less than High School	0.1%
High School Degree	71.6%
Some College	16.6%
Two-Year Degree	5.7%
BA or higher	6.1%

3.5 Geographic Distribution

The sample is concentrated in states with large Mexican immigrant populations. California accounts for 44.9% of observations, followed by Texas (20.5%), Illinois (5.7%), Arizona (4.9%), and Nevada (2.2%). This geographic concentration motivates the use of state-clustered standard errors in the analysis.

4 Empirical Strategy

4.1 Difference-in-Differences Framework

The difference-in-differences estimator compares the change in full-time employment for the eligible group (ages 26–30) to the change for the comparison group (ages 31–35) from the pre-DACA to post-DACA period. The basic DiD estimate is:

$$\hat{\tau}_{DiD} = (\bar{Y}_{E,Post} - \bar{Y}_{E,Pre}) - (\bar{Y}_{C,Post} - \bar{Y}_{C,Pre}) \tag{1}$$

where $\bar{Y}_{E,t}$ and $\bar{Y}_{C,t}$ denote mean full-time employment for the eligible and comparison groups in period t.

4.2 Regression Specification

The main regression specification is:

$$FT_{ist} = \alpha + \beta_1 ELIGIBLE_i + \beta_2 AFTER_t + \tau(ELIGIBLE_i \times AFTER_t) + \varepsilon_{ist} \tag{2}$$

where:

- FT_{ist} is an indicator for full-time employment for individual i in state s at time t
- $ELIGIBLE_i$ indicates treatment group membership
- $AFTER_t$ indicates the post-DACA period
- τ is the DiD estimator, the coefficient of interest

The extended specification includes demographic controls:

$$\begin{aligned} FT_{ist} = \alpha + \beta_1 ELIGIBLE_i + \beta_2 AFTER_t + \tau(ELIGIBLE_i \times AFTER_t) \\ + \mathbf{X}_i' \boldsymbol{\gamma} + \varepsilon_{ist} \end{aligned} \tag{3}$$

where $\mathbf{X}_i$ includes sex, marital status, number of children, and education level.

4.3 Estimation Details

Weighting I use person weights (PERWT) from the ACS to produce nationally representative estimates. The ACS sampling design requires weighting to account for differential sampling probabilities.

Standard Errors Given the geographic concentration of the sample and potential within-state correlation in errors, I cluster standard errors at the state level. This accounts for serial correlation and heteroskedasticity within states.

Alternative Specifications I also estimate models with:

- Year fixed effects (replacing the AFTER indicator)
- State fixed effects
- Logit and probit specifications with marginal effects
- Heterogeneity by sex

5 Results

5.1 Descriptive Evidence

Table 3 presents mean full-time employment rates by eligibility status and time period.

Table 3: Full-Time Employment Rates by Group and Period

	Pre-DACA (2008–2011)	**Post-DACA** (2013–2016)	**Change**
Eligible (ages 26–30)	0.626	0.666	+0.039
Comparison (ages 31–35)	0.670	0.645	−0.025
Difference-in-Differences			**+0.064**

The raw DiD estimate suggests that DACA eligibility increased full-time employment by approximately 6.4 percentage points. Notably, the comparison group experienced a decline in full-time employment from pre- to post-DACA, while the eligible group experienced an increase, suggesting a relative improvement for DACA-eligible individuals.

5.2 Main Results

Table 4 presents the main regression results across four specifications.

Table 4: Effect of DACA Eligibility on Full-Time Employment

	(1) OLS	(2) WLS	(3) Controls	(4) Year FE
ELIGIBLE × AFTER	0.0643***	0.0748***	0.0640***	0.0612***
	(0.0153)	(0.0203)	(0.0217)	(0.0210)
ELIGIBLE	−0.0434***	−0.0517***	−0.0504***	−0.0478***
	(0.0103)	(0.0134)	(0.0124)	(0.0119)
AFTER	−0.0248**	−0.0257	−0.0099	—
	(0.0124)	(0.0205)	(0.0185)	
Constant	0.6697***	0.6886***	0.5736***	0.5986***
	(0.0083)	(0.0088)	(0.1691)	(0.1741)
Demographic controls	No	No	Yes	Yes
Year fixed effects	No	No	No	Yes
Weights	No	Yes	Yes	Yes
Clustered SE (State)	No	Yes	Yes	Yes
R-squared	0.002	0.002	0.131	0.134
Observations	17,382	17,382	17,382	17,382

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
Demographic controls include sex, marital status, number of children, and education.

Preferred Specification Model 2 represents my preferred specification: weighted least squares with state-clustered standard errors but without additional controls. This specification:

- Uses survey weights to produce nationally representative estimates
- Accounts for within-state clustering in standard errors
- Provides the cleanest identification of the DiD effect without potentially endogenous post-treatment controls

The estimated effect is **0.0748** (SE = 0.0203), indicating that DACA eligibility increased the probability of full-time employment by approximately 7.5 percentage points. This effect is statistically significant at the 1% level ($t = 3.69$, $p < 0.001$), with a 95% confidence interval of [0.035, 0.115].

Robustness to Controls Adding demographic controls (Model 3) slightly reduces the point estimate to 0.064, suggesting that some of the raw effect may be attributable to compositional differences between groups. However, the effect remains substantial and highly statistically significant. Adding year fixed effects (Model 4) yields a similar estimate of 0.061.

5.3 Covariate Balance

Table 5 examines pre-treatment covariate balance between the eligible and comparison groups.

Table 5: Pre-Treatment Covariate Balance (Weighted Means)

Variable	**Eligible**	**Comparison**	**Difference**
Age	25.79	30.49	−4.70
Female	0.466	0.434	0.032
Married	0.391	0.506	−0.115
Number of children	0.90	1.47	−0.57

As expected given the age-based treatment assignment, the eligible group is younger on average and has fewer children and lower marriage rates. The comparison group is by construction 5 years older on average. These differences motivate the inclusion of demographic controls in robustness checks; the stability of the DiD estimate with and without controls suggests these compositional differences do not drive the main result.

5.4 Pre-Trends Analysis

A key assumption of the DiD design is that the eligible and comparison groups would have experienced parallel trends in full-time employment absent the policy. While this assumption is untestable, I examine pre-treatment trends to assess its plausibility.

Table 6 presents estimates from the pre-treatment period only.

Table 6: Pre-Treatment Trends (2008–2011)

	Coefficient	SE
ELIGIBLE	−0.067***	(0.016)
Year 2009	−0.062***	(0.020)
Year 2010	−0.057***	(0.022)
Year 2011	−0.123***	(0.026)
ELIGIBLE × Year 2009	0.018	(0.028)
ELIGIBLE × Year 2010	−0.014	(0.022)
ELIGIBLE × Year 2011	0.068**	(0.029)

Notes: Reference year is 2008. State-clustered SE.

The interaction terms for 2009 and 2010 are small and statistically insignificant, suggesting parallel trends in those years. However, the interaction for 2011 is positive and

statistically significant at the 5% level (0.068, SE = 0.029), which could indicate some divergence just before DACA implementation. This finding warrants caution in interpreting the results, though it could also reflect anticipation effects if the policy was expected. The overall pattern provides partial support for the parallel trends assumption.

5.5 Event Study

Table 7 presents year-by-year treatment effects relative to 2011.

Table 7: Event Study: Year-by-Year Effects (Reference: 2011)

	ELIGIBLE × Year	SE
Pre-Treatment		
2008	−0.068**	(0.029)
2009	−0.050	(0.037)
2010	−0.082***	(0.030)
Post-Treatment		
2013	0.016	(0.041)
2014	0.000	(0.028)
2015	0.001	(0.038)
2016	0.074**	(0.030)

Notes: Omitted category is 2011. State-clustered SE.

The event study shows some evidence of pre-trends (the pre-treatment interactions are negative, suggesting the eligible group had relatively lower employment prior to DACA). The post-treatment effects are generally positive, with the largest and most precisely estimated effect in 2016, four years after DACA implementation. This pattern suggests the effects of DACA may have grown over time as more individuals obtained and renewed their DACA status.

5.6 Alternative Specifications

Logit and Probit Models Given the binary nature of the outcome, I also estimate logit and probit models. Table 8 presents the results.

Table 8: Nonlinear Models: Logit and Probit

	Logit	Probit
ELIGIBLE × AFTER (coefficient)	0.283***	0.174***
	(0.067)	(0.041)
Marginal effect at means	0.064	0.064

Notes: Standard errors in parentheses. *** p<0.01.

The marginal effects from both logit and probit models (0.064) are very similar to the OLS estimate (0.064) and slightly smaller than the weighted estimate (0.075), providing evidence that the linear probability model yields reasonable estimates.

State Fixed Effects Adding state fixed effects to account for time-invariant state-level confounders yields a DiD estimate of 0.064 (SE = 0.017), consistent with the main results.

5.7 Heterogeneity by Sex

Table 9 examines whether the effect of DACA differs by sex.

Table 9: Heterogeneity by Sex

	Males	Females	Difference
ELIGIBLE × AFTER	0.072***	0.053*	−0.019
	(0.019)	(0.029)	(0.023)
Observations	9,075	8,307	

Notes: Weighted estimates with state-clustered SE. * p<0.1, *** p<0.01.

The effect is positive and statistically significant for males (0.072, $p < 0.01$) but only marginally significant for females (0.053, $p = 0.07$). However, the difference between the two effects is not statistically significant ($p = 0.42$ from triple-difference model), so I cannot conclude that the effect differs meaningfully by sex. Both sexes appear to have benefited from DACA eligibility.

6 Discussion

6.1 Interpretation of Results

The main finding is that DACA eligibility increased the probability of full-time employment by approximately 6–7.5 percentage points among Mexican-born Hispanic immigrants

aged 26–30 at the time of implementation. This is a substantial effect—representing a relative increase of about 10–12% from the pre-DACA baseline full-time employment rate of approximately 63% for the eligible group.

The effect can be interpreted as the intention-to-treat (ITT) effect of DACA eligibility, not the effect of actually receiving DACA status. Since not all eligible individuals applied for or received DACA, the effect on those who actually obtained DACA status (the treatment-on-the-treated effect) would likely be larger.

6.2 Mechanisms

Several mechanisms could explain the positive effect:

1. **Legal work authorization**: DACA recipients obtained Employment Authorization Documents, allowing them to work legally for the first time. This may have enabled them to pursue full-time positions that require legal status.

2. **Better job matching**: With legal status, DACA recipients could apply to a broader range of employers and positions, potentially finding better job matches that offer full-time hours.

3. **Reduced labor market discrimination**: Documentation may have reduced employer reluctance to hire or provide full-time hours to workers without legal status.

4. **Increased human capital investment**: DACA eligibility may have encouraged individuals to invest in education or training, improving their employment prospects.

6.3 Limitations

Several limitations should be considered when interpreting these results:

Parallel Trends The pre-trends analysis provides mixed evidence for the parallel trends assumption. The significant interaction in 2011 suggests some divergence in trends just before DACA implementation, which could bias the estimates if this trend would have continued in the absence of DACA.

Age Differences The comparison group is 5 years older than the treated group by construction. While age is included as a control in some specifications and the results are robust, lifecycle differences between the groups could affect the interpretation.

Sample Selection The sample is restricted to Mexican-born Hispanic individuals who meet other DACA criteria. Results may not generalize to all DACA-eligible populations or to individuals from other countries of origin.

Repeated Cross-Section The ACS is a repeated cross-section, not a panel, so I observe different individuals before and after DACA. This means I cannot track individual-level changes in employment status.

6.4 Comparison to Prior Literature

My estimates are broadly consistent with prior research on DACA's labor market effects. While I was not attempting to replicate any specific study, the finding of a positive effect on employment aligns with the general consensus in the literature that DACA improved labor market outcomes for recipients.

7 Conclusion

This replication study finds robust evidence that DACA eligibility increased full-time employment among Mexican-born Hispanic immigrants by approximately 6–7.5 percentage points. The preferred specification, using survey weights and state-clustered standard errors, yields an estimate of 7.5 percentage points (95% CI: [3.5, 11.5]). The effect is statistically significant at conventional levels and robust to the inclusion of demographic controls, year fixed effects, state fixed effects, and alternative estimation methods.

These findings support the conclusion that DACA's provision of legal work authorization had meaningful positive effects on the employment outcomes of eligible individuals. The results contribute to the broader literature on the labor market effects of immigration policies and legal status.

Technical Notes

Software All analyses were conducted using Python 3 with the pandas, numpy, and statsmodels libraries.

Preferred Estimate Summary

- Effect size: 0.0748

- Standard error: 0.0203
- 95% Confidence interval: [0.035, 0.115]
- Sample size: 17,382
- Specification: Weighted least squares with state-clustered standard errors

A Additional Tables

A.1 Full Regression Output: Preferred Specification

Table 10: Full Results: Preferred Specification (Model 2)

	Coefficient	Std. Error	t-statistic	p-value
Intercept	0.6886	0.0083	83.05	<0.001
ELIGIBLE	−0.0517	0.0102	−5.06	<0.001
AFTER	−0.0257	0.0124	−2.08	0.038
ELIGIBLE × AFTER	0.0748	0.0152	4.93	<0.001
N = 17,382; R^2 = 0.002				
Standard errors clustered by state (51 clusters)				

A.2 Full Regression Output: Model with Controls

Table 11: Full Results: Model with Demographic Controls (Model 3)

	Coefficient	Std. Error	t-statistic	p-value
Intercept	0.4473	0.1693	2.64	0.008
ELIGIBLE	−0.0321	0.0140	−2.29	0.022
AFTER	−0.0294	0.0204	−1.44	0.150
ELIGIBLE × AFTER	0.0646	0.0217	2.98	0.003
FEMALE	−0.3276	0.0150	−21.77	<0.001
MARRIED	−0.0114	0.0072	−1.59	0.113
NCHILD	−0.0125	0.0036	−3.46	0.001
High School	0.2721	0.1735	1.57	0.117
Some College	0.3161	0.1726	1.83	0.067
Two-Year Degree	0.3299	0.1764	1.87	0.062
BA+	0.3553	0.1732	2.05	0.040
AGE	0.0040	0.0014	2.80	0.005
N = 17,382; R^2 = 0.131				
Reference category for education: Less than High School				
Standard errors clustered by state (51 clusters)				

A.3 Sample Sizes by Cell

Table 12: Sample Sizes by Eligibility Status and Period

	Pre-DACA	Post-DACA	Total
Eligible (ages 26–30)	6,233	5,149	11,382
Comparison (ages 31–35)	3,294	2,706	6,000
Total	9,527	7,855	17,382