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

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Abstract

This study estimates the causal impact of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on full-time employment among ethnically Hispanic-Mexican Mexican-born individuals in the United States. Using American Community Survey data from 2008–2016 (excluding 2012), I employ a difference-in-differences design comparing individuals aged 26–30 at the time of policy implementation (treatment group) to those aged 31–35 (control group). The preferred specification, which includes demographic controls, education, state and year fixed effects, and state-clustered standard errors, yields a treatment effect of 5.12 percentage points (95% CI: 2.24–8.00, $p < 0.001$), indicating that DACA eligibility significantly increased the probability of full-time employment among eligible individuals. This effect is robust across multiple specifications and subgroup analyses.

Contents

1   Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented on June 15, 2012, represented a significant shift in U.S. immigration policy. The program offered temporary relief from deportation and work authorization to certain undocumented immigrants who arrived in the United States as children. Given that DACA provides legal work authorization—a key barrier to formal employment for undocumented immigrants—the program might be expected to increase employment rates among eligible individuals.

This replication study examines the following research question: *Among ethnically Hispanic-Mexican Mexican-born people living in the United States, what was the causal impact of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on the probability of full-time employment?*

Full-time employment is defined as usually working 35 hours per week or more, consistent with standard definitions in labor economics. The identification strategy exploits the age-based eligibility cutoff for DACA, comparing individuals who were ages 26–30 when the policy was implemented (treated group) to those who were ages 31–35 (control group). The latter group would have been eligible for DACA if not for their age, making them a natural comparison group.

This study contributes to the growing literature on the labor market effects of immigration policy by providing an independent replication using pre-specified methods and a clean-room analytical approach.

2   Background

2.1   The DACA Program

DACA was enacted by the U.S. federal government on June 15, 2012, through executive action. The program allowed qualifying undocumented immigrants to apply for and receive:

- Deferred action on deportation for two years (renewable)
- Authorization to work legally in the United States
- Eligibility for a Social Security number

- Ability to apply for driver's licenses in some states

2.2 Eligibility Criteria

To qualify for DACA, applicants had to meet several criteria:

1. Arrived in the U.S. before their 16th birthday
2. Had not yet turned 31 as of June 15, 2012
3. Lived continuously in the U.S. since June 15, 2007
4. Were physically present in the U.S. on June 15, 2012
5. Did not have lawful status (citizenship or legal residency) at that time
6. Met certain educational or military service requirements

Applications 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% receiving approval.

2.3 Expected Effects

The theoretical expectation is that DACA would increase employment, particularly full-time employment, through several mechanisms:

1. **Legal work authorization**: Allows DACA recipients to work in the formal labor market, potentially shifting from informal to formal employment and from part-time to full-time positions.
2. **Reduced deportation fear**: May increase job search effort and willingness to take visible employment.
3. **Driver's license access**: In states allowing DACA recipients to obtain licenses, this removes a significant barrier to employment requiring commuting.
4. **Social Security numbers**: Enables employment verification and payroll processing through standard channels.

3 Data

3.1 Data Source

The analysis uses data from the American Community Survey (ACS) as provided through IPUMS USA, covering the years 2008–2016. The year 2012 is excluded from the analysis because it cannot be determined whether observations from that year occurred before or after DACA implementation.

The provided dataset represents a pre-constructed analytic sample of ethnically Hispanic-Mexican Mexican-born individuals meeting certain criteria related to DACA eligibility. No further sample restrictions are applied.

3.2 Sample Construction

The sample consists of 17,382 person-level observations. The key variables for identification are:

- **ELIGIBLE**: Equals 1 for individuals who would have been DACA-eligible based on age (ages 26–30 at June 2012), and 0 for the comparison group (ages 31–35 at June 2012)
- **AFTER**: Equals 1 in post-DACA years (2013–2016), and 0 in pre-DACA years (2008–2011)
- **FT**: Equals 1 for individuals in full-time work (usually working 35+ hours per week), and 0 otherwise

Individuals not in the labor force are retained in the analysis with FT = 0, consistent with the instructions.

3.3 Sample Characteristics

Table 1 presents the sample composition by treatment group and time period.

Table 1: Sample Composition by Treatment Group and Time Period

	Pre-DACA (2008–11)	Post-DACA (2013–16)	Total
Control (Ages 31–35)	3,294	2,706	6,000
Treated (Ages 26–30)	6,233	5,149	11,382
Total	9,527	7,855	17,382

Table 2 presents descriptive statistics by treatment group.

Table 2: Descriptive Statistics by Treatment Group

	Control (31–35)	Treated (26–30)
N	6,000	11,382
Mean Age	32.75	27.97
% Female	47.1%	48.2%
% Married (spouse present)	51.6%	41.8%
% Has Children	69.8%	56.0%
FT Employment Rate	65.8%	64.4%

The treatment group is younger on average (by design), less likely to be married, and less likely to have children. These differences motivate the inclusion of demographic controls in the regression analysis.

3.4 Geographic Distribution

The sample is heavily concentrated in a few states with large Hispanic-Mexican populations:

- California: 7,796 observations (44.9%)
- Texas: 3,572 observations (20.5%)
- Illinois: 995 observations (5.7%)
- Arizona: 860 observations (4.9%)
- Other states: 24.0%

This geographic concentration motivates the use of state fixed effects and state-clustered standard errors.

4 Methodology

4.1 Identification Strategy

The identification strategy employs a difference-in-differences (DiD) design, exploiting the age-based cutoff for DACA eligibility. The key identifying assumption is that, in the absence of DACA, trends in full-time employment would have been parallel between the treatment group (ages 26–30 at June 2012) and the control group (ages 31–35 at June 2012).

The intuition is straightforward: individuals aged 26–30 and 31–35 at the time of DACA implementation are likely similar in many respects—they come from the same communities, face similar labor market conditions, and have similar characteristics. The key difference is that the younger group was eligible for DACA while the older group was not.

4.2 Econometric Specification

The basic DiD model can be written as:

$$FT_i = \beta_0 + \beta_1 ELIGIBLE_i + \beta_2 AFTER_t + \beta_3(ELIGIBLE_i \times AFTER_t) + \varepsilon_i \quad (1)$$

where:

- FT_i is an indicator for full-time employment
- $ELIGIBLE_i$ indicates membership in the treatment group
- $AFTER_t$ indicates the post-DACA period
- β_3 is the DiD estimate—the treatment effect of interest

The preferred specification extends this basic model:

$$FT_i = \beta_0 + \beta_1 ELIGIBLE_i + \beta_3(ELIGIBLE_i \times AFTER_t)$$
$$+ \mathbf{X}'_i\gamma + \delta_s + \tau_t + \varepsilon_i \tag{2}$$

where:

- $\mathbf{X}_i$ is a vector of individual characteristics (sex, marital status, presence of children, age, education)
- δ_s represents state fixed effects
- τ_t represents year fixed effects (which subsume the AFTER main effect)

Standard errors are clustered at the state level to account for within-state correlation in errors and state-level policy variation.

4.3 Control Variables

The following control variables are included:

1. **FEMALE**: Indicator for female (=1) vs. male (=0)
2. **MARRIED**: Indicator for married with spouse present
3. **HAS_CHILDREN**: Indicator for having one or more children
4. **AGE_CENTERED**: Age centered at 30
5. **EDUC_RECODE**: Categorical education variable (Less than HS, HS Degree, Some College, Two-Year Degree, BA+)

These controls help account for compositional differences between the treatment and control groups that may affect employment outcomes.

5 Results

5.1 Raw Difference-in-Differences

Before turning to regression results, Table 3 presents the raw means used to calculate the basic DiD estimate.

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

	Pre-DACA	Post-DACA	Change
Control (31–35)	66.97%	64.49%	-2.48 pp
Treated (26–30)	62.63%	66.58%	$+3.94$ pp
DiD Estimate			**$+6.43$ pp**

The raw DiD estimate suggests that DACA eligibility increased full-time employment by approximately 6.43 percentage points. Notably, the control group experienced a slight *decline* in full-time employment over this period (-2.48 pp), while the treated group experienced an *increase* ($+3.94$ pp).

5.2 Main Regression Results

Table 4 presents the DiD estimates across five specifications of increasing complexity.

Table 4: Difference-in-Differences Regression Results

	(1) Basic	(2) + Demo	(3) + Educ	(4) + FE	(5) Clustered
ELIGIBLE × AFTER	0.0643***	0.0549***	0.0526***	0.0512***	0.0512***
	(0.0153)	(0.0142)	(0.0142)	(0.0142)	(0.0147)
ELIGIBLE	−0.0434***	−0.0231*	−0.0241*	−0.0034	−0.0034
	(0.0102)	(0.0131)	(0.0131)	(0.0149)	(0.0069)
AFTER	−0.0248**	−0.0274*	−0.0265*	—	—
	(0.0123)	(0.0148)	(0.0148)		
FEMALE		−0.3371***	−0.3431***	−0.3426***	−0.3426***
		(0.0070)	(0.0070)	(0.0070)	(0.0135)
MARRIED		−0.0296***	−0.0310***	−0.0329***	−0.0329***
		(0.0079)	(0.0079)	(0.0079)	(0.0053)
HAS_CHILDREN		0.0077	0.0168**	0.0162*	0.0162***
		(0.0084)	(0.0084)	(0.0085)	(0.0059)
AGE_CENTERED		0.0030	0.0027	0.0073***	0.0073***
		(0.0019)	(0.0019)	(0.0024)	(0.0014)
Education Controls	No	No	Yes	Yes	Yes
State FE	No	No	No	Yes	Yes
Year FE	No	No	No	Yes	Yes
SE Type	HC1	HC1	HC1	HC1	Clustered
R^2	0.002	0.126	0.130	0.137	0.137
N	17,382	17,382	17,379	17,379	17,379

Notes: Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Column (5) uses standard errors clustered at the state level.

5.2.1 Key Findings

1. **Consistent positive effect**: The DiD estimate is positive and statistically significant at the 1% level across all specifications, ranging from 5.12 to 6.43 percentage points.

2. **Robustness to controls**: Adding demographic controls, education, and fixed effects

attenuates the estimate slightly (from 6.43 pp to 5.12 pp), but the effect remains highly significant.

3. **Large gender effect**: Women are approximately 34 percentage points less likely to be employed full-time than men, a substantial and highly significant difference.

4. **Marriage effect**: Being married with spouse present is associated with about 3.3 percentage points lower full-time employment probability, potentially reflecting household specialization.

5.3 Preferred Specification

The preferred specification is Model (5), which includes:

- Demographic controls (sex, marital status, children, age)
- Education controls (categorical)
- State fixed effects
- Year fixed effects
- Standard errors clustered at the state level

Preferred Estimate

Effect Size: **5.12 percentage points**

Standard Error: 1.47 pp (state-clustered)

95% Confidence Interval: [2.24, 8.00] pp

p-value: 0.0005

Sample Size: 17,379

Interpretation: DACA eligibility is associated with a 5.12 percentage point increase in the probability of full-time employment. This effect is statistically significant at the 0.1% level. Given that the pre-DACA full-time employment rate in the treated group was 62.63%, this represents an increase of approximately 8.2% in relative terms.

6 Robustness Checks

6.1 Heterogeneity by Gender

Table 5 presents DiD estimates separately by gender.

Table 5: Difference-in-Differences by Gender

Subgroup	DiD Estimate	SE	N	Significance
Male	0.0615	0.0170	9,075	***
Female	0.0452	0.0232	8,307	*

Notes: Basic DiD specification (no controls). * $p < 0.10$, *** $p < 0.01$

The effect is larger and more precisely estimated for men (6.15 pp) than for women (4.52 pp). Both estimates are positive, though the effect for women is only marginally significant. This gender heterogeneity may reflect differential labor market attachment or different barriers to formal employment faced by men and women.

6.2 Heterogeneity by Education

Table 6 presents DiD estimates by education level.

Table 6: Difference-in-Differences by Education Level

Education	DiD Estimate	SE	N	Significance
High School Degree	0.0482	0.0180	12,444	***
Some College	0.1075	0.0380	2,877	***
Two-Year Degree	0.1256	0.0657	991	*
BA+	0.0856	0.0588	1,058	

Notes: Basic DiD specification (no controls). * $p < 0.10$, *** $p < 0.01$

Interestingly, the effect appears largest for individuals with "Some College" or "Two-Year Degree" education (10–13 pp), and smaller for those with only a high school degree (4.8 pp) or a bachelor's degree or higher (8.6 pp, not significant). This pattern may suggest that

DACA had the largest impact on individuals in the middle of the skill distribution, who may have faced the greatest barriers to formal employment in the absence of work authorization.

6.3 Year-by-Year Analysis

Table 7 presents full-time employment rates for the treated group by year.

Table 7: Full-Time Employment Rates for Treated Group by Year

Year	Period	FT Rate (%)
2008	Pre-DACA	66.67
2009	Pre-DACA	61.74
2010	Pre-DACA	60.64
2011	Pre-DACA	61.68
2013	Post-DACA	64.20
2014	Post-DACA	63.97
2015	Post-DACA	67.97
2016	Post-DACA	70.82

Several patterns emerge:

1. Full-time employment declined during the Great Recession (2008–2010)
2. Employment was relatively stable in 2010–2011
3. There is a steady increase in employment from 2013 through 2016
4. The largest gains occurred in 2015–2016, consistent with gradual program uptake

6.4 Placebo Test

To assess the plausibility of the parallel trends assumption, I conduct a placebo test using only pre-DACA data (2008–2011), with a "fake" treatment assigned at 2010. If trends were parallel before DACA, we should not observe a significant effect at this placebo cutoff.

The null result in the placebo test supports the parallel trends assumption: there is no evidence of differential trends between treatment and control groups in the pre-DACA period.

6.5 Sensitivity to Sample Restrictions

The analysis follows the instruction to use the full provided sample without additional restrictions. This means:

- Individuals not in the labor force are included (with FT = 0)
- No restrictions are made by gender, education, or other characteristics
- Survey weights are not applied (consistent with interpreting results as sample averages)

The robustness of results across demographic subgroups suggests that the main findings are not driven by any particular subsample.

7 Discussion

7.1 Summary of Findings

This study finds that DACA eligibility increased full-time employment by approximately 5.1 percentage points among ethnically Hispanic-Mexican Mexican-born individuals in the United States. This effect is:

- Statistically significant at the 0.1% level
- Robust across multiple specifications
- Present for both men and women, though larger for men
- Larger for individuals with some post-secondary education

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7.2 Interpretation

The estimated effect size is economically meaningful. A 5.1 percentage point increase in full-time employment represents an 8.2% increase relative to the pre-DACA baseline rate of 62.6% in the treated group. This is consistent with the theoretical expectation that legal work authorization would increase formal labor market participation.

Several mechanisms may contribute to this effect:

1. **Direct employment access**: DACA recipients can now complete I-9 employment verification, allowing them to work in formal sector jobs that were previously inaccessible.

2. **Hours adjustment**: Some individuals may have been working part-time in informal arrangements and transitioned to full-time formal employment.

3. **Reduced job search frictions**: With work authorization and Social Security numbers, job search becomes more efficient.

4. **Transportation access**: In states where DACA recipients can obtain driver's licenses, increased mobility may expand employment opportunities.

7.3 Limitations

Several limitations should be noted:

1. **Intent-to-treat interpretation**: The analysis estimates the effect of DACA *eligibility*, not actual DACA receipt. Not all eligible individuals applied for or received DACA, so the effect on actual recipients may be larger.

2. **Potential violations of parallel trends**: While the placebo test provides some reassurance, we cannot directly test whether trends would have been parallel in the absence of treatment.

3. **Age-based identification**: The comparison between 26–30 and 31–35 year-olds assumes these groups would have similar employment trends absent DACA. Life-cycle employment patterns might differ between these age groups.

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4. **Repeated cross-sections**: The ACS is not panel data, so we observe different individuals before and after DACA. Compositional changes could affect the estimates.

5. **Geographic concentration**: The heavy concentration of the sample in California and Texas means results may not generalize to other regions.

7.4 Comparison to Literature

The estimated effect of approximately 5 percentage points is broadly consistent with other studies examining DACA's labor market effects, though direct comparisons are complicated by differences in samples, outcomes, and methodologies. The positive direction of the effect aligns with the theoretical expectation that work authorization would increase employment.

8 Conclusion

This replication study provides evidence that DACA eligibility increased full-time employment among ethnically Hispanic-Mexican Mexican-born individuals by approximately 5.1 percentage points. This finding is statistically robust and economically meaningful, suggesting that DACA achieved its goal of improving labor market outcomes for eligible individuals.

The analysis employs a difference-in-differences design comparing individuals aged 26–30 at DACA implementation (eligible) to those aged 31–35 (ineligible due to age). The preferred specification includes demographic and education controls, state and year fixed effects, and state-clustered standard errors to account for geographic correlation.

Key findings include:

- A 5.12 percentage point increase in full-time employment (95% CI: 2.24–8.00)
- Larger effects for men than women
- Larger effects for those with some college education
- Null placebo test supporting parallel trends assumption

These results contribute to the policy debate around DACA by demonstrating measurable improvements in economic outcomes for eligible individuals.

Appendices

A   Additional Tables

A.1   Full Regression Output for Preferred Specification

Table 8 presents the complete regression output for Model 5 (preferred specification).

Table 8: Full Regression Output: Preferred Specification (Model 5)

Variable	Coefficient	Std. Error	95% CI Lower	95% CI Upper
Key Variables of Interest				
ELIGIBLE × AFTER	0.0512	0.0147	0.0224	0.0800
ELIGIBLE	−0.0034	0.0069	−0.0170	0.0102
Demographic Controls				
FEMALE	−0.3426	0.0135	−0.3691	−0.3162
MARRIED	−0.0329	0.0053	−0.0433	−0.0225
HAS_CHILDREN	0.0162	0.0059	0.0047	0.0277
AGE_CENTERED	0.0073	0.0014	0.0045	0.0101
Education (Reference: High School Degree)				
Less than HS	(omitted due to small cell size)			
Some College	(included in model)			
Two-Year Degree	(included in model)			
BA+	(included in model)			
Fixed Effects				
State FE	Yes (51 states)			
Year FE	Yes (8 years)			
Model Statistics				
R-squared	0.137			
N	17,379			
Clusters (States)	51			

A.2 Sample Distribution by Year

Table 9: Observations by Year

Year	Observations	Period	Cumulative %
2008	2,354	Pre-DACA	13.5%
2009	2,379	Pre-DACA	27.2%
2010	2,444	Pre-DACA	41.3%
2011	2,350	Pre-DACA	54.8%
2013	2,124	Post-DACA	67.0%
2014	2,056	Post-DACA	78.8%
2015	1,850	Post-DACA	89.5%
2016	1,825	Post-DACA	100.0%
Total	**17,382**		

A.3 Pre-Treatment Balance Check

Table 10: Pre-Treatment Characteristics (2008–2011 Only)

	Control	Treated
N	3,294	6,233
% Female	45.6%	48.1%
% Married (spouse present)	48.8%	36.7%
FT Employment Rate	67.0%	62.6%

The pre-treatment balance shows some differences between groups, particularly in marriage rates, which motivates the inclusion of demographic controls.

B   Variable Definitions

Table 11: Key Variable Definitions

Variable	Definition
FT	Full-time employment indicator: 1 if usually working 35+ hours per week, 0 otherwise
ELIGIBLE	Treatment group indicator: 1 if ages 26–30 at June 2012, 0 if ages 31–35
AFTER	Post-DACA period indicator: 1 for years 2013–2016, 0 for years 2008–2011
FEMALE	Sex indicator: 1 if female, 0 if male
MARRIED	Marital status indicator: 1 if married with spouse present
HAS_CHILDREN	Children indicator: 1 if NCHILD > 0
AGE_CENTERED	Age minus 30
EDUC_RECODE	Education category: Less than HS, HS Degree, Some College, Two-Year Degree, BA+
STATEFIP	State FIPS code
YEAR	Survey year

C   Analytical Decisions

This section documents the key analytical decisions made during the replication:

1. **Data file**: Used the numeric version of the prepared data file (prepared_data_numeric_version.csv) for analysis.

2. **Treatment/Control assignment**: Used the provided ELIGIBLE variable without modification; did not create own eligibility criteria.

3. **Outcome variable**: Used the provided FT variable without modification.

4. **Time period indicator**: Used the provided AFTER variable without modification.

5. **Sample restrictions**: No additional sample restrictions beyond what was provided. Kept individuals not in the labor force (FT = 0 for these individuals).

6. **Survey weights**: Did not apply survey weights. Results represent sample averages.

7. **Standard errors**: Used heteroskedasticity-robust (HC1) standard errors for most models; used state-clustered standard errors for the preferred specification.

8. **Fixed effects**: Included state and year fixed effects in the preferred specification to control for state-specific and time-specific factors.

9. **Control variables**: Included sex, marital status, presence of children, age, and education as controls based on their theoretical relevance and observed imbalance.

10. **Software**: Python with pandas, statsmodels, and scipy packages.

Technical Notes

Software and Reproducibility

Analysis was conducted using:

- Python 3.x
- pandas (data manipulation)
- statsmodels (regression analysis)
- scipy (statistical functions)

All code is available in `analysis.py` in the replication folder. The analysis can be reproduced by running this script in the same directory as the data files.

Computation of Standard Errors

For the preferred specification (Model 5), standard errors are clustered at the state level (STATEFIP). This accounts for:

- Within-state correlation in outcomes
- State-level policy variation affecting DACA implementation
- Potential serial correlation within states over time

The number of clusters (51 states represented in the data) exceeds the commonly cited threshold of 42 clusters for reliable clustered inference.