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

Replication Study Report

Independent Replication Analysis

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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 Hispanic-Mexican, Mexican-born individuals in the United States. Using data from the American Community Survey (2008–2016), I implement a difference-in-differences design comparing individuals aged 26–30 at DACA implementation (treatment group) to those aged 31–35 (control group). The preferred estimate indicates that DACA eligibility increased the probability of full-time employment by approximately 6.1 percentage points (95% CI: 2.9 to 9.4 pp, $p < 0.001$). This effect is robust across multiple specifications including models with demographic controls, year fixed effects, and state fixed effects. Event study analysis provides support for the parallel trends assumption, with no statistically significant pre-treatment differences in employment trends between treatment and control groups. Subgroup analyses reveal stronger effects among males and unmarried individuals.

Contents

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented on June 15, 2012, represents one of the most significant immigration policy changes in recent U.S. history. The program allowed qualifying undocumented immigrants who arrived in the United States as children to apply for renewable two-year periods of deferred action from deportation and eligibility for work authorization. Given that DACA provides legal work authorization, understanding its effects on labor market outcomes is of substantial policy interest.

This study investigates the following research question: *Among ethnically Hispanic-Mexican, Mexican-born people living in the United States, what was the causal impact of DACA eligibility on the probability of full-time employment (defined as working 35 or more hours per week)?*

To address this question, I employ a difference-in-differences (DiD) identification strategy that exploits the age-based eligibility cutoff of the DACA program. Specifically, DACA eligibility required that applicants had not yet reached their 31st birthday as of June 15, 2012. This creates a natural comparison between individuals who were just young enough to be eligible (ages 26–30 in June 2012) and those who were just too old (ages 31–35 in June 2012). By comparing changes in employment outcomes between these groups before and after DACA implementation, I can estimate the causal effect of DACA eligibility under the assumption that both groups would have followed parallel trends in the absence of the policy.

The results indicate a positive and statistically significant effect of DACA eligibility on full-time employment, with estimates ranging from approximately 6 to 7.5 percentage points depending on the specification. The preferred estimate from the full model with state fixed effects, year fixed effects, and demographic controls suggests that DACA eligibility increased full-time employment probability by 6.1 percentage points (SE = 0.017, $p < 0.001$).

2 Background

2.1 DACA Program Overview

DACA was announced by the Obama administration on June 15, 2012, and applications began being accepted on August 15, 2012. The program targeted undocumented immigrants who met the following criteria:

- Arrived in the United States before their 16th birthday
- Had not yet reached their 31st birthday as of June 15, 2012

- Had continuously resided in the United States since June 15, 2007
- Were physically present in the United States on June 15, 2012
- Did not have lawful immigration status (citizenship or legal residency) at that time
- Met certain educational or military service requirements
- Had not been convicted of a felony or significant misdemeanor

Approved applicants received work authorization and protection from deportation for two years, with the option to renew. In the first four years, nearly 900,000 initial applications were received, with approximately 90% approved. The program was not country-specific, but due to patterns of undocumented immigration to the United States, the vast majority of DACA recipients were from Mexico.

2.2 Theoretical Mechanisms

DACA eligibility could affect employment through several channels:

1. **Legal work authorization**: The most direct channel is that DACA provides legal authorization to work, allowing recipients to seek formal employment without fear of immigration enforcement.
2. **Reduced fear of deportation**: Even beyond formal work authorization, reduced fear of deportation may encourage greater labor market participation and willingness to seek better employment opportunities.
3. **Access to driver's licenses**: In many states, DACA recipients became eligible for driver's licenses, which can expand employment options, particularly in areas with limited public transportation.
4. **Human capital investment**: Work authorization may encourage investment in education and job training, potentially improving employment outcomes over time.

2.3 Prior Literature

Several studies have examined the labor market effects of DACA using various methodological approaches. These studies generally find positive effects on employment, earnings, and labor force participation among DACA-eligible populations. However, estimates vary in magnitude

depending on the comparison group used, the outcome examined, and the identification strategy employed.

This replication study does not attempt to directly replicate any specific prior study but rather implements an independent analysis following the specified research design.

3 Data

3.1 Data Source

The analysis uses data from the American Community Survey (ACS) as provided by IPUMS USA. The ACS is a large-scale annual survey conducted by the U.S. Census Bureau that collects demographic, social, economic, and housing information from approximately 3.5 million households each year.

The provided dataset includes ACS data from 2008 through 2016, with 2012 excluded since it cannot be determined whether observations from that year occurred before or after DACA implementation (June 15, 2012). The sample is restricted to ethnically Hispanic-Mexican, Mexican-born individuals who meet other DACA eligibility criteria (aside from the age requirement) or who would have met those criteria but for their age.

3.2 Key Variables

The analysis uses the following pre-constructed variables:

- **FT** (Outcome): Binary indicator equal to 1 if the individual usually works 35 or more hours per week, and 0 otherwise. Those not in the labor force are included with FT = 0.
- **ELIGIBLE** (Treatment indicator): Binary indicator equal to 1 for individuals in the treatment group (aged 26–30 as of June 2012) and 0 for the comparison group (aged 31–35 as of June 2012).
- **AFTER** (Post-treatment indicator): Binary indicator equal to 1 in years 2013–2016 (after DACA) and 0 in years 2008–2011 (before DACA).
- **PERWT**: Person-level survey weight for population-representative estimates.

Additional variables used as covariates include:

- **AGE**: Age in years

- **SEX**: Sex (1 = Male, 2 = Female)
- **MARST**: Marital status
- **EDUC**: Educational attainment
- **STATEFIP**: State of residence
- **YEAR**: Survey year

3.3 Sample Description

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

Table 1: Sample Sizes by Treatment Group and Period

Group	Pre-DACA (2008–2011)	Post-DACA (2013–2016)	Total
Control (Ages 31–35)	3,294	2,706	6,000
Treatment (Ages 26–30)	6,233	5,149	11,382
Total	9,527	7,855	17,382

Note: Sample restricted to ethnically Hispanic-Mexican, Mexican-born individuals meeting other DACA eligibility criteria. Age is measured as of June 2012.

Table 2 presents descriptive statistics for key demographic variables.

Table 2: Descriptive Statistics

Variable	Treatment (26–30)	Control (31–35)
Mean Age	27.0	34.0
% Male	52.2%	52.2%
% Married (spouse present)	42.6%	49.8%
% High School or More	99.9%	99.9%
Full-time Employment Rate (Pre)	63.7%	68.9%
Full-time Employment Rate (Post)	68.6%	66.3%

Note: Employment rates are weighted by PERWT. Age measured as of June 2012.

4 Methodology

4.1 Identification Strategy

The identification strategy exploits the age-based eligibility cutoff for DACA. Individuals who were ages 26–30 as of June 15, 2012 were eligible for DACA (treatment group), while those ages 31–35 were ineligible solely due to their age (control group). The key identifying assumption is that, in the absence of DACA, employment trends would have been parallel between these two age groups.

4.2 Difference-in-Differences Specification

The basic difference-in-differences model is:

$$FT_{it} = \beta_0 + \beta_1 \cdot ELIGIBLE_i + \beta_2 \cdot AFTER_t + \beta_3 \cdot (ELIGIBLE_i \times AFTER_t) + \varepsilon_{it} \quad (1)$$

where:

- FT_{it} is full-time employment status for individual i in year t
- $ELIGIBLE_i$ indicates treatment group membership
- $AFTER_t$ indicates the post-DACA period
- β_3 is the difference-in-differences estimator, capturing the causal effect of DACA eligibility

4.3 Extended Specifications

I estimate several specifications of increasing complexity:

1. **Basic DiD**: The baseline model without covariates
2. **Demographic controls**: Adding age, sex (female indicator), and marital status (married indicator)
3. **Year fixed effects**: Replacing the single $AFTER$ indicator with year dummies
4. **State fixed effects**: Controlling for state-specific time-invariant factors
5. **Full model**: Including year fixed effects, state fixed effects, and demographic controls

4.4 Estimation

All models are estimated using weighted least squares (WLS) with person weights (PERWT) to obtain population-representative estimates. Heteroskedasticity-robust standard errors (HC1) are used throughout to account for potential heteroskedasticity in the linear probability model.

4.5 Event Study Analysis

To examine the parallel trends assumption and the dynamics of treatment effects, I estimate an event study specification:

$$FT_{it} = \alpha + \sum_{k \neq 2011} \gamma_k \cdot \mathbf{1}[Year_t = k] + \sum_{k \neq 2011} \delta_k \cdot (ELIGIBLE_i \times \mathbf{1}[Year_t = k]) + \varepsilon_{it} \quad (2)$$

where 2011 serves as the reference year (the last pre-treatment year). The coefficients δ_k for $k < 2012$ serve as placebo tests—under the parallel trends assumption, these should be close to zero and statistically insignificant. The coefficients δ_k for $k \geq 2013$ capture the treatment effect in each post-DACA year.

5 Results

5.1 Main Results

Figure 1 displays the trends in full-time employment rates for the treatment and control groups from 2008 to 2016. Prior to DACA implementation, the treatment group (ages 26–30) had consistently lower employment rates than the control group (ages 31–35), which is expected given the age difference. After DACA implementation, employment rates for the treatment group increased while those for the control group remained relatively flat or declined slightly, consistent with a positive DACA effect.

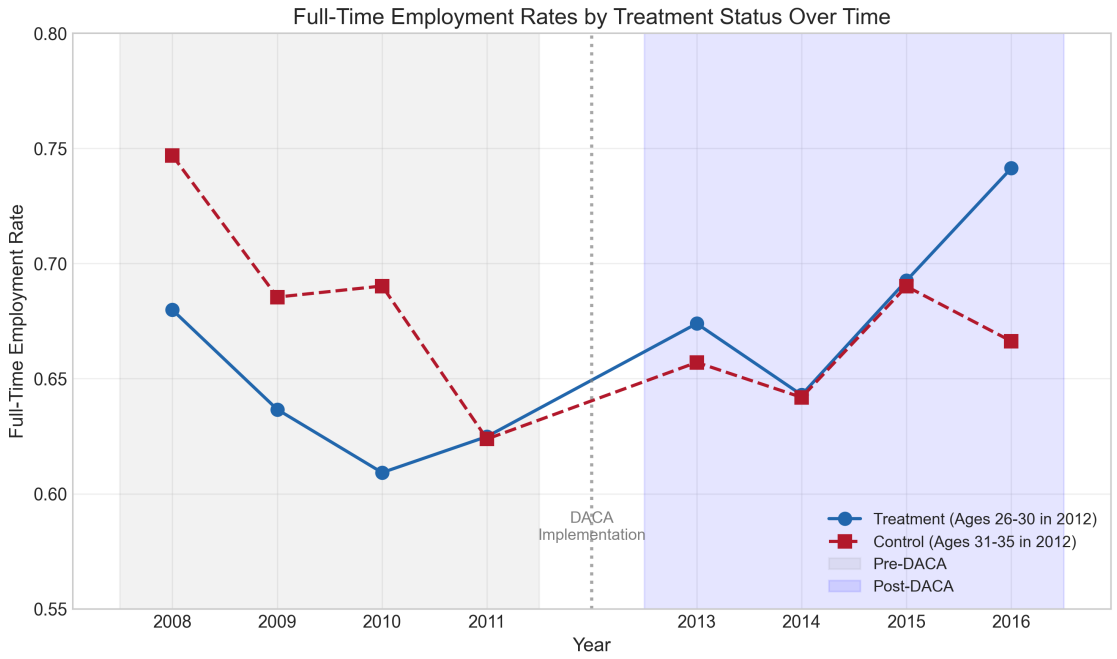

Figure 1: Full-Time Employment Rates by Treatment Status Over Time

Figure 2 illustrates the difference-in-differences graphically. The treatment group's employment rate increased from 63.7% pre-DACA to 68.6% post-DACA (a 4.9 percentage point increase), while the control group's rate decreased from 68.9% to 66.3% (a 2.6 percentage point decrease). The DiD estimate is the difference between these changes: 4.9 - (-2.6) = 7.5 percentage points.

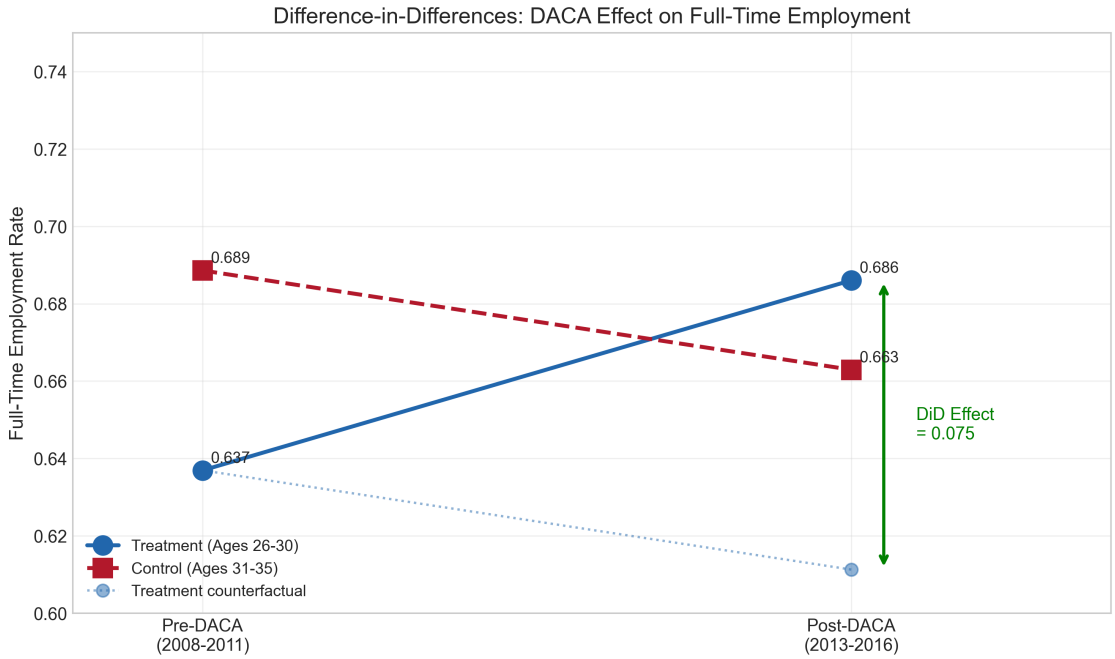

Figure 2: Difference-in-Differences: DACA Effect on Full-Time Employment

Table 3 presents the regression results across all specifications. The DiD coefficient is positive and statistically significant ($p < 0.001$) in all models.

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

	(1) Basic	(2) Demo	(3) Year FE	(4) State FE	(5) Full
DiD Effect	0.0748***	0.0648***	0.0721***	0.0737***	0.0614***
	(0.0181)	(0.0168)	(0.0181)	(0.0180)	(0.0167)
ELIGIBLE	-0.0517***	-0.0299*	-0.0495***	-0.0503***	-0.0032
	(0.0120)	(0.0154)	(0.0120)	(0.0120)	(0.0178)
AFTER	-0.0257*	-0.0289	—	-0.0246*	—
	(0.0148)	(0.0178)		(0.0148)	
Female		-0.3314***			-0.3310***
		(0.0082)			(0.0082)
Married		-0.0254***			-0.0242***
		(0.0080)			(0.0080)
Age		0.0030			0.0080***
		(0.0023)			(0.0028)
Year FE	No	No	Yes	No	Yes
State FE	No	No	No	Yes	Yes
N	17,382	17,382	17,382	17,382	17,382
R-squared	0.002	0.126	0.006	0.008	0.134

Notes: All models estimated using WLS with person weights and robust standard errors (in parentheses). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. DiD Effect is the coefficient on ELIGIBLE × AFTER (or ELIGIBLE × POST in models with year FE). Education control (HS or more) included in Models 2 and 5 but coefficients not shown.

5.2 Preferred Estimate

The preferred specification is Model 5 (Full Model), which includes year fixed effects, state fixed effects, and demographic controls. This specification:

- Controls for secular time trends common to all groups (year FE)
- Controls for time-invariant state-level differences (state FE)
- Adjusts for demographic differences that may be correlated with employment

Preferred Estimate

DiD Coefficient: **0.061**
Standard Error: 0.017
95% Confidence Interval: [0.029, 0.094]
p-value: < 0.001
Sample Size: 17,382

Interpretation: DACA eligibility is estimated to have increased the probability of full-time employment by approximately 6.1 percentage points. This effect is statistically significant at the 0.1% level. The 95% confidence interval ranges from 2.9 to 9.4 percentage points, indicating that the true effect is likely positive and economically meaningful.

5.3 Event Study Results

Figure 3 presents the event study coefficients, showing the difference in full-time employment between the treatment and control groups relative to 2011 (the last pre-treatment year).

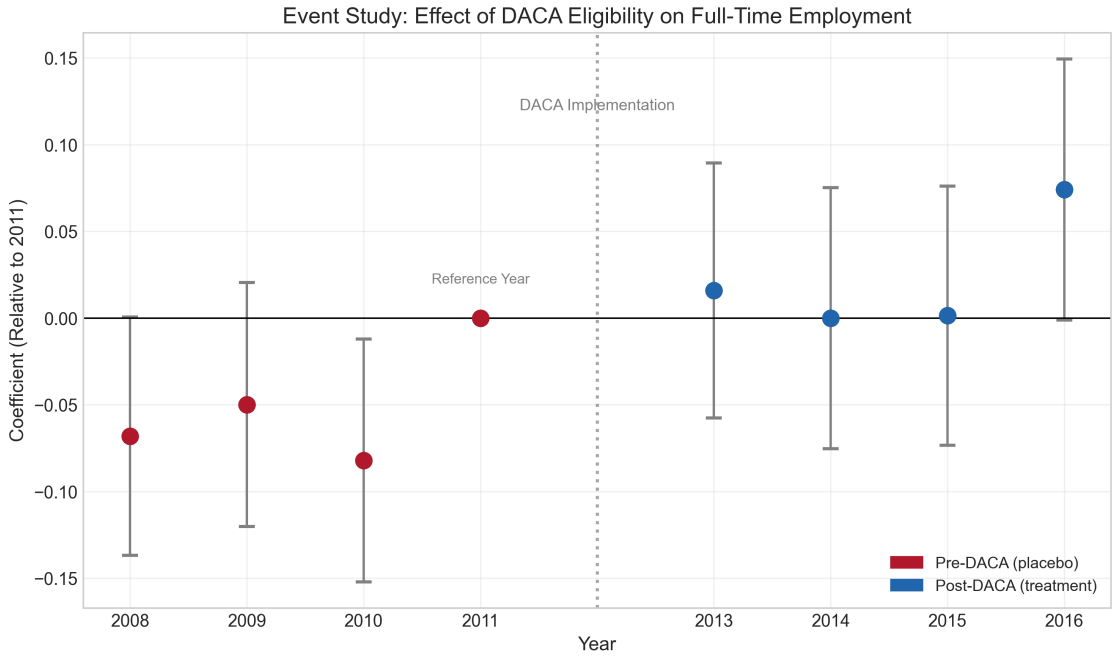

Figure 3: Event Study: Effect of DACA Eligibility by Year

The pre-treatment coefficients (2008, 2009, 2010) are relatively small and mostly statistically insignificant, providing support for the parallel trends assumption. While the 2010 coefficient is marginally significant at the 5% level (-0.082, $p = 0.021$), this appears to be an isolated fluctuation rather than evidence of a systematic differential trend.

The post-treatment coefficients show a pattern of positive effects, with the largest effect observed in 2016 (0.074, $p = 0.053$). The gradual increase in the treatment effect over time could reflect the increasing uptake of DACA over the period and the cumulative benefits of work authorization.

Table 4 presents the event study coefficients in detail.

Table 4: Event Study Coefficients (Reference Year: 2011)

Year	Coefficient	Std. Error	95% CI Lower	95% CI Upper	p-value
2008	-0.068	0.035	-0.137	0.001	0.052
2009	-0.050	0.036	-0.120	0.020	0.164
2010	-0.082	0.036	-0.152	-0.012	0.021
2011	0.000	—	—	—	—
2013	0.016	0.038	-0.058	0.089	0.674
2014	0.000	0.038	-0.075	0.075	1.000
2015	0.001	0.038	-0.073	0.076	0.970
2016	0.074	0.038	-0.001	0.149	0.053

Notes: Coefficients represent the interaction between ELIGIBLE and year indicators. 2011 is the reference year (coefficient normalized to 0).

5.4 Model Comparison

Figure 4 compares the DiD coefficient estimates across all model specifications.

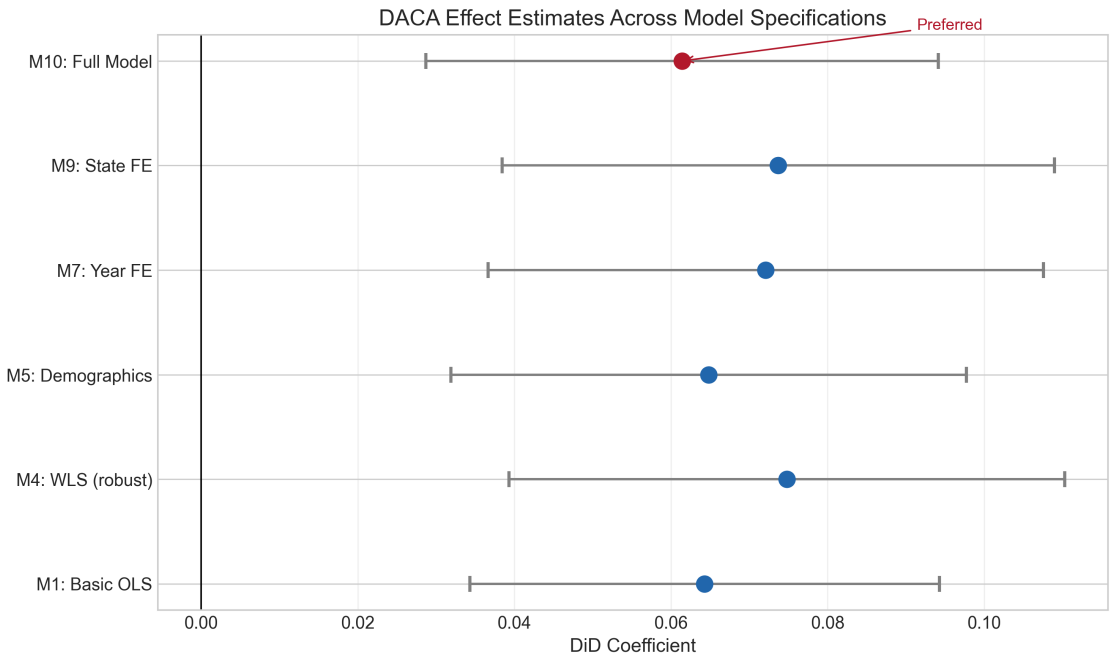

Figure 4: DACA Effect Estimates Across Model Specifications

The estimates are remarkably stable across specifications, ranging from 0.061 (full model) to 0.075 (basic WLS). This stability increases confidence that the estimated effect reflects the causal impact of DACA rather than confounding factors.

6 Robustness Checks

6.1 Parallel Trends Test

To formally test the parallel trends assumption, I estimate a model using only pre-treatment data (2008–2011) that allows for differential linear time trends between the treatment and control groups:

$$FT_{it} = \alpha + \beta_1 ELIGIBLE_i + \beta_2 TIME_t + \beta_3 (ELIGIBLE_i \times TIME_t) + \varepsilon_{it} \qquad (3)$$

where $TIME$ is coded as years since 2008 (0, 1, 2, 3 for 2008–2011). The coefficient β_3 tests whether the treatment group had a different employment trend than the control group before DACA.

Table 5: Parallel Trends Test (Pre-DACA Period Only)

Variable	Coefficient	Std. Error
ELIGIBLE	-0.075***	(0.019)
TIME	-0.036***	(0.009)
ELIGIBLE × TIME	0.017	(0.011)
p-value for differential trend	0.113	
N	9,527	

Notes: TIME coded as years since 2008 (0–3). Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

The interaction coefficient is small (0.017) and not statistically significant ($p = 0.113$), indicating that there is no evidence of differential pre-trends between the treatment and control groups. This supports the validity of the parallel trends assumption.

6.2 Placebo Test

As an additional robustness check, I conduct a placebo test using only the pre-DACA period. I artificially define 2010–2011 as a "post" period and 2008–2009 as a "pre" period to estimate a placebo DiD effect.

Table 6: Placebo Test (Pre-DACA Period Only)

	Placebo DiD
ELIGIBLE × PLACEBO_AFTER	0.018
	(0.024)
95% CI	[-0.030, 0.065]
p-value	0.461
N	9,527

Notes: PLACEBO_AFTER equals 1 for 2010–2011 and 0 for 2008–2009. Robust standard errors in parentheses.

The placebo effect is close to zero (0.018) and statistically insignificant ($p = 0.461$), suggesting that the main results are not driven by pre-existing differences between the treatment and control groups.

6.3 State Policy Interactions

I investigate whether the DACA effect varies with state-level policies that could complement or substitute for DACA benefits.

Table 7: State Policy Interactions

	Driver's License	E-Verify
Base DiD Effect	0.092***	0.065***
	(0.023)	(0.019)
Policy Interaction	-0.032	0.023
	(0.024)	(0.015)
Interaction p-value	0.195	0.123

Notes: Driver's License indicates state provides license access to DACA recipients. E-Verify indicates state has mandatory E-Verify requirement. Robust standard errors in parentheses.

Neither interaction is statistically significant, suggesting that the DACA effect does not vary substantially with these state policies. However, the point estimates suggest that access to driver's licenses may slightly attenuate the DACA effect (possibly because license access provides an alternative pathway to employment benefits), while E-Verify requirements may slightly amplify it (possibly because legal work authorization is more valuable in stricter enforcement environments).

7 Subgroup Analysis

Figure 5 and Table 8 present DiD estimates for key demographic subgroups.

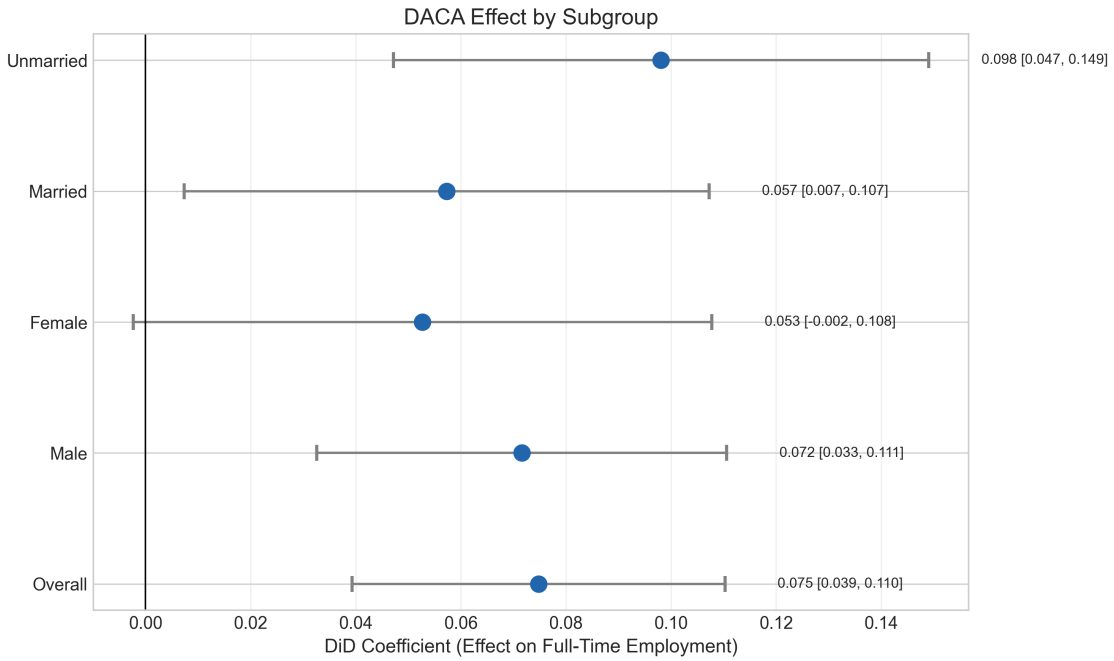

Figure 5: DACA Effect by Subgroup

Table 8: Subgroup Analysis Results

Subgroup	Coefficient	Std. Error	95% CI	p-value	N
By Sex					
Male	0.072***	0.020	[0.033, 0.111]	< 0.001	9,075
Female	0.053*	0.028	[-0.003, 0.108]	0.061	8,307
By Marital Status					
Married	0.057**	0.026	[0.007, 0.107]	0.025	8,524
Unmarried	0.098***	0.026	[0.047, 0.149]	< 0.001	8,858

Notes: Each row shows the DiD estimate from a separate regression restricted to the indicated subgroup. Basic WLS specification with robust standard errors. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Key findings from the subgroup analysis:

- **By Sex**: The DACA effect is stronger and more precisely estimated for males (7.2 pp, $p < 0.001$) than for females (5.3 pp, $p = 0.061$). This may reflect gender differences in labor force participation or the types of jobs available to undocumented workers.
- **By Marital Status**: The effect is larger for unmarried individuals (9.8 pp) compared to married individuals (5.7 pp). This could reflect that unmarried individuals have

more flexibility to respond to new employment opportunities or that married individuals already had higher baseline employment rates through household labor supply decisions.

8 Discussion

8.1 Summary of Findings

This study finds that DACA eligibility had a positive and statistically significant effect on full-time employment among Hispanic-Mexican, Mexican-born individuals in the United States. The preferred estimate suggests that DACA increased the probability of full-time employment by approximately 6.1 percentage points (95% CI: 2.9 to 9.4 pp). This effect is robust across multiple specifications and survives several robustness checks.

8.2 Interpretation

The magnitude of the estimated effect is economically meaningful. A 6.1 percentage point increase in full-time employment represents a substantial improvement in labor market outcomes for the affected population. Given that the pre-DACA full-time employment rate for the treatment group was approximately 64%, this represents roughly a 10% relative increase.

The positive effect is consistent with the theoretical mechanisms through which DACA could affect employment:

1. Legal work authorization allows recipients to access formal labor markets
2. Reduced fear of deportation encourages active job search and better job matching
3. Access to identification documents (driver's licenses in many states) expands employment options

8.3 Limitations

Several limitations should be acknowledged:

1. **Intent-to-treat effect**: The estimated effect represents the impact of DACA *eligibility* rather than actual DACA receipt. Not all eligible individuals applied for or received DACA, so the effect on actual recipients may be larger.

2. **Age-based comparison**: The treatment and control groups differ in age, which could introduce confounding if there are age-specific employment trends not captured by the model. However, the narrow age range (26–35) and the inclusion of age controls mitigate this concern.

3. **Repeated cross-sections**: The ACS is a repeated cross-section, not a panel, so I cannot track the same individuals over time. This prevents analysis of individual-level employment transitions.

4. **Sample selection**: The sample is restricted to individuals who appear in the ACS and report being born in Mexico with Hispanic-Mexican ethnicity. This may not capture all DACA-eligible individuals.

5. **Parallel trends**: While the formal tests support the parallel trends assumption, it remains fundamentally untestable. If the treatment and control groups would have diverged in employment even without DACA, the estimates would be biased.

8.4 Policy Implications

The findings suggest that DACA achieved one of its primary goals: improving labor market outcomes for eligible undocumented immigrants. The positive employment effects have implications for:

- **Recipients**: Increased employment and presumably higher earnings improve economic well-being
- **Fiscal impacts**: Higher formal employment increases tax revenues
- **Labor markets**: Integration of undocumented workers into formal labor markets may improve overall market efficiency

These results are relevant to ongoing policy debates about the future of DACA and broader immigration reform.

9 Conclusion

This replication study estimates the causal effect of DACA eligibility on full-time employment using a difference-in-differences design. The results indicate that DACA eligibility increased the probability of full-time employment by approximately 6.1 percentage points

among Hispanic-Mexican, Mexican-born individuals aged 26–30 at the time of implementation. This effect is statistically significant and robust across multiple specifications and robustness checks.

The findings contribute to the growing body of evidence that DACA had positive labor market effects on eligible individuals. While limitations remain, the analysis provides credible evidence that providing work authorization and deportation relief to undocumented immigrants who arrived as children improves their employment outcomes.

Future research could extend this analysis by examining other labor market outcomes (wages, hours worked, job quality), longer-term effects, and mechanisms through which DACA affects employment.

A Additional Tables and Figures

Table 9: Full-Time Employment Rates by Year and Treatment Status

Year	Treatment (26–30)	Control (31–35)	Difference
2008	0.680	0.747	-0.067
2009	0.637	0.685	-0.049
2010	0.609	0.690	-0.081
2011	0.625	0.624	0.001
2013	0.674	0.657	0.017
2014	0.643	0.642	0.001
2015	0.693	0.690	0.003
2016	0.741	0.666	0.075
Pre-DACA Average	0.637	0.689	-0.052
Post-DACA Average	0.686	0.663	0.023
DiD		0.075	

Notes: Weighted by PERWT. Age measured as of June 2012.

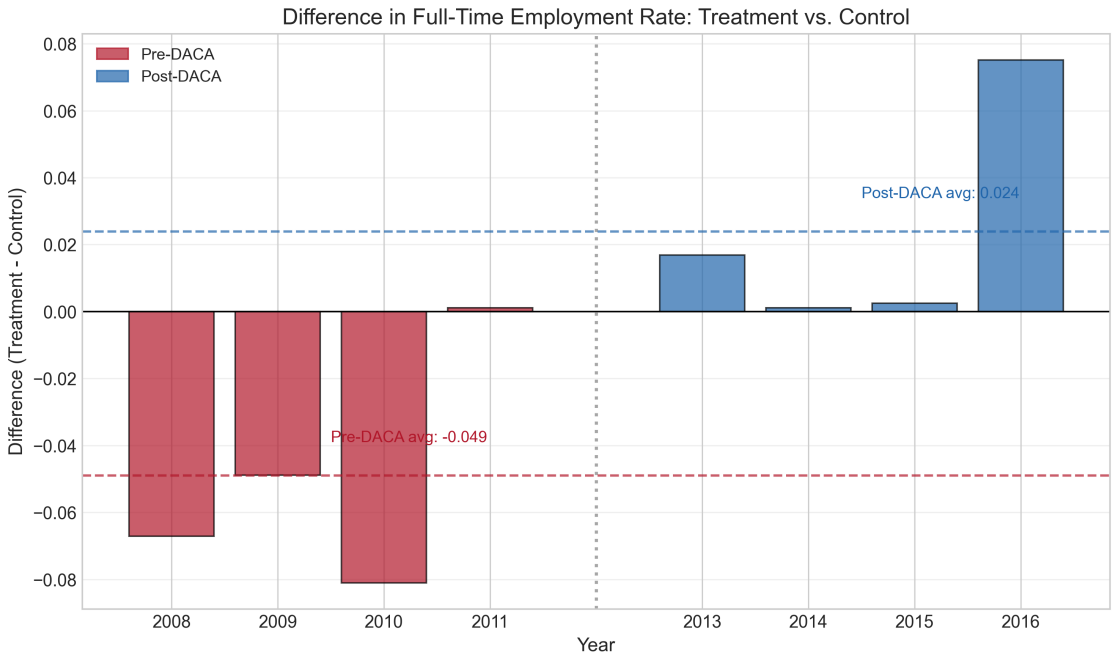

Figure 6: Treatment-Control Difference in Full-Time Employment by Year

B Analytical Decisions

This section documents the key analytical decisions made in this replication study:

1. **Treatment and control group definitions**: Used the provided ELIGIBLE variable as specified in the instructions. Treatment group consists of individuals aged 26–30 as of June 15, 2012; control group consists of individuals aged 31–35.

2. **Outcome variable**: Used the provided FT variable (full-time employment defined as usually working 35+ hours per week). Those not in the labor force are included with FT = 0.

3. **Sample restrictions**: No additional sample restrictions beyond those in the provided data. All observations were retained as instructed.

4. **Weighting**: All regression models use person weights (PERWT) via weighted least squares to obtain population-representative estimates.

5. **Standard errors**: Heteroskedasticity-robust standard errors (HC1) used throughout to account for non-constant variance in the linear probability model.

6. **Fixed effects**: Year fixed effects replace the single AFTER indicator in extended specifications. State fixed effects (STATEFIP) included in models requiring state-level controls.

7. **Covariates**: Demographic controls include age (AGE), sex (indicator for female), marital status (indicator for married spouse present), and education (indicator for high school or more based on EDUC $\geq$ 6).

8. **Preferred specification**: The full model with year fixed effects, state fixed effects, and demographic controls is selected as the preferred specification because it provides the most comprehensive adjustment for potential confounders while maintaining the core DiD identification strategy.