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

Replication Study #49

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Abstract

This study estimates the causal effect of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on full-time employment among Hispanic-Mexican individuals born in Mexico and residing in the United States. Using a difference-in-differences design that compares individuals aged 26–30 at the time of DACA implementation (treatment group) to those aged 31–35 (control group), I find that DACA eligibility is associated with a statistically significant 5.2 percentage point increase in the probability of full-time employment. This effect is robust across multiple specifications, including models with demographic controls, education covariates, and state and year fixed effects. The results suggest that DACA's provision of work authorization had meaningful positive effects on labor market outcomes for eligible individuals.

Keywords: DACA, immigration policy, employment, difference-in-differences, labor market

JEL Codes: J15, J22, J61, K37

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 United States history. The program provides temporary relief from deportation and work authorization to undocumented immigrants who arrived in the United States as children and meet specific eligibility criteria. Given that DACA explicitly grants work authorization to recipients, understanding its effects on labor market outcomes is crucial for evaluating the program's effectiveness and informing future immigration policy debates.

This study examines the causal impact of DACA eligibility on full-time employment among ethnically Hispanic-Mexican individuals born in Mexico. Full-time employment, defined as usually working 35 hours per week or more, serves as a key indicator of labor market attachment and economic integration. The provision of legal work authorization under DACA could plausibly increase full-time employment through several channels: (1) enabling access to formal employment sectors that require work authorization; (2) reducing employer discrimination against undocumented workers; (3) allowing recipients to obtain driver's licenses in many states, thereby expanding job accessibility; and (4) reducing the psychological burden and job search frictions associated with undocumented status.

To identify the causal effect of DACA eligibility, I employ a difference-in-differences (DiD) research design. The treatment group consists of individuals who were ages 26–30 as of June 2012 and would otherwise meet DACA eligibility criteria. The control group comprises individuals who were ages 31–35 at the same time—just above the age cutoff for DACA eligibility—but who otherwise would have qualified for the program. By comparing changes in full-time employment between these two groups before and after DACA implementation, I can estimate the program's effect while controlling for common time trends and time-invariant group differences.

Using data from the American Community Survey (ACS) for the years 2008–2011 (pre-DACA) and 2013–2016 (post-DACA), I find that DACA eligibility is associated with

a 5.2 percentage point increase in the probability of full-time employment. This effect is statistically significant at the 1% level and robust across multiple specifications. The baseline full-time employment rate for the treatment group in the pre-period was approximately 62.6%, suggesting that DACA increased full-time employment by roughly 8.4% relative to the baseline.

The remainder of this paper is organized as follows. Section 2 provides background on the DACA program and discusses the mechanisms through which it might affect employment. Section 3 describes the data and presents summary statistics. Section 4 outlines the empirical methodology. Section 5 presents the main results. Section 6 discusses robustness checks and limitations. Section 7 concludes.

2 Background

2.1 The DACA Program

DACA was announced by the Department of Homeland Security on June 15, 2012, and began accepting applications on August 15, 2012. The program was created through executive action by the Obama administration after legislative efforts to provide a path to legal status for undocumented youth—commonly known as the DREAM Act—failed to pass Congress.

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

- Arrived in the United States before their 16th birthday
- Had not reached their 31st birthday as of June 15, 2012
- Lived continuously in the United States since June 15, 2007
- Were present in the United States on June 15, 2012
- Did not have lawful immigration status (citizenship or legal residency) at that time

- Were currently in school, had graduated from high school, obtained a GED, or were honorably discharged veterans
- Had not been convicted of a felony, significant misdemeanor, or three or more other misdemeanors

Recipients of DACA receive two primary benefits: (1) deferred action status, meaning they are considered a low priority for deportation; and (2) employment authorization documents (EADs), which allow them to work legally in the United States. DACA status is granted for two-year renewable periods.

In the first four years of the program, nearly 900,000 initial applications were received, with approximately 90% approved. While DACA was not limited to any particular national origin, the majority of recipients were from Mexico, reflecting the composition of the undocumented immigrant population in the United States.

2.2 Mechanisms Linking DACA to Employment

There are several theoretical channels through which DACA eligibility could affect full-time employment:

Direct work authorization effects: The most direct mechanism is that DACA provides legal work authorization, allowing recipients to seek employment in the formal sector without fear of document verification issues. This expands the set of available jobs and may shift employment from informal to formal arrangements.

Driver's license access: In many states, DACA recipients became eligible to obtain driver's licenses after receiving employment authorization. This improved geographic mobility and access to jobs that require driving.

Reduced discrimination: Employers may be more willing to hire individuals with documented work authorization, reducing hiring discrimination against undocumented workers.

Human capital investments: The security provided by DACA status may encourage recipients to invest in job-specific skills and education, potentially leading to better employment outcomes over time.

Psychological effects: Reduced stress and uncertainty about immigration status may improve job search behavior and work performance.

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 detailed demographic, social, economic, and housing information from approximately 3.5 million households each year. The large sample size makes it well-suited for studying relatively small subpopulations, such as Mexican-born immigrants meeting specific age and residence criteria.

The analysis sample consists of ACS data from 2008 through 2016, excluding 2012. The year 2012 is excluded because DACA was implemented in the middle of that year (June 2012), making it impossible to clearly classify observations as pre- or post-treatment. This leaves four pre-treatment years (2008–2011) and four post-treatment years (2013–2016).

3.2 Sample Definition

The sample is restricted to individuals who are:

- Ethnically Hispanic-Mexican
- Born in Mexico
- Either in the treatment group (would have been ages 26–30 as of June 2012 and DACA-eligible) or control group (would have been ages 31–35 as of June 2012 but for the age

restriction)

The dataset includes a pre-constructed variable `ELIGIBLE` that equals 1 for treatment group observations and 0 for control group observations. This variable accounts for the complex eligibility criteria beyond age, including arrival timing, continuous presence, and immigration status. The variable `AFTER` equals 1 for years 2013–2016 and 0 for years 2008–2011.

It is important to note that the ACS is a repeated cross-section, not a panel dataset. This means that different individuals are surveyed each year, and we cannot track the same individuals over time. The DiD design relies on comparing group-level means across time periods rather than individual-level changes.

3.3 Outcome Variable

The primary outcome variable is `FT`, a binary indicator equal to 1 if the individual usually works 35 hours per week or more, and 0 otherwise. This measure captures full-time employment status based on the standard Bureau of Labor Statistics definition. Individuals not in the labor force are included in the analysis with `FT` coded as 0, following the instructions to include all observations in the sample.

3.4 Summary Statistics

Table 1 presents summary statistics for key variables by eligibility status and time period.

Table 1: Summary Statistics by Eligibility Status and Time Period

	Treatment (ELIGIBLE=1)		Control (ELIGIBLE=0)	
	Pre-DACA	Post-DACA	Pre-DACA	Post-DACA
Full-time employment rate	0.626	0.666	0.670	0.645
	(0.484)	(0.472)	(0.470)	(0.479)
Female proportion	0.480	0.484	0.468	0.474
Mean age	28.0	32.0	33.0	37.0
Married proportion	0.387	0.457	0.487	0.555
Mean usual hours worked	30.6	32.0	31.3	31.9
	(17.7)	(17.9)	(18.2)	(17.9)
N	6,233	5,149	3,294	2,706

Notes: Standard deviations in parentheses for continuous variables. Pre-DACA period includes years 2008–2011; post-DACA period includes years 2013–2016.

Several patterns emerge from the summary statistics. First, the treatment group (younger cohort) has a slightly lower full-time employment rate in the pre-period (62.6%) compared to the control group (67.0%), which is consistent with younger workers having less labor market experience. Second, the treatment group shows an increase in full-time employment from the pre- to post-period (62.6% to 66.6%), while the control group shows a decrease (67.0% to 64.5%). This divergence in trends forms the basis of the DiD estimate.

Table 2 shows the sample sizes by year and eligibility status.

Table 2: Sample Sizes by Year and Eligibility Status

Year	Treatment (ELIGIBLE=1)	Control (ELIGIBLE=0)	Total
2008	1,506	848	2,354
2009	1,563	816	2,379
2010	1,593	851	2,444
2011	1,571	779	2,350
2013	1,377	747	2,124
2014	1,349	707	2,056
2015	1,227	623	1,850
2016	1,196	629	1,825
Total	11,382	6,000	17,382

The total sample size is 17,382 observations, with approximately twice as many treat-

ment group observations as control group observations. Sample sizes are slightly larger in the pre-period than the post-period.

4 Empirical Methodology

4.1 Difference-in-Differences Design

The primary empirical strategy is a difference-in-differences (DiD) design that exploits the age-based eligibility cutoff for DACA. The key identifying assumption is that, in the absence of DACA, the treatment and control groups would have experienced parallel trends in full-time employment.

The treatment group consists of individuals who were ages 26–30 as of June 2012 and met the other DACA eligibility criteria. The control group consists of individuals who were ages 31–35 at the same time—just above the age cutoff—but who otherwise would have been eligible. By comparing individuals just above and below the age cutoff, I aim to minimize differences between the groups other than DACA eligibility.

The simple DiD estimate can be calculated as:

$$\widehat{\delta}_{DiD} = (\bar{Y}_{T,post} - \bar{Y}_{T,pre}) - (\bar{Y}_{C,post} - \bar{Y}_{C,pre}) \tag{1}$$

where $\bar{Y}_{T,post}$ and $\bar{Y}_{T,pre}$ are the mean outcomes for the treatment group in the post- and pre-periods, and $\bar{Y}_{C,post}$ and $\bar{Y}_{C,pre}$ are the corresponding means for the control group.

4.2 Regression Specification

The main regression specification is:

$$FT_{ist} = \beta_0 + \beta_1 ELIGIBLE_i + \beta_2 AFTER_t + \delta(ELIGIBLE_i \times AFTER_t) + \epsilon_{ist} \tag{2}$$

where FT_{ist} is a binary indicator for full-time employment for individual i in state s in year t, $ELIGIBLE_i$ is a binary indicator for treatment group membership, and $AFTER_t$ is a binary indicator for the post-DACA period (2013–2016). The coefficient of interest is δ, which captures the differential change in full-time employment for the treatment group relative to the control group after DACA implementation.

I estimate progressively richer specifications:

- **Model 1:** Basic DiD with no controls
- **Model 2:** Basic DiD with heteroskedasticity-robust standard errors
- **Model 3:** DiD with demographic controls (sex, age, marital status)
- **Model 4:** DiD with demographic and education controls
- **Model 5:** DiD with controls, state fixed effects, and year fixed effects
- **Model 6 (Preferred):** Same as Model 5 but with standard errors clustered at the state level

State and year fixed effects absorb time-invariant state characteristics and common time shocks, respectively. Clustering standard errors at the state level accounts for potential within-state correlation in the error terms and addresses concerns about serial correlation in DiD designs.

4.3 Identification Assumptions

The causal interpretation of the DiD estimate relies on several key assumptions:

Parallel trends: The treatment and control groups would have followed parallel trends in full-time employment in the absence of DACA. This is the fundamental identifying assumption. While it cannot be directly tested, I examine pre-treatment trends to assess its plausibility.

No spillovers (SUTVA): The treatment status of one individual does not affect the outcomes of others. Potential violations could occur if DACA-eligible workers compete with non-eligible workers for the same jobs.

No anticipation effects: Individuals did not change their behavior in anticipation of DACA before its implementation. Since DACA was announced and implemented in mid-2012, and 2012 is excluded from the sample, this concern is mitigated.

Common support: The treatment and control groups are comparable in terms of observable characteristics. Using groups just above and below an age cutoff helps ensure comparability.

5 Results

5.1 Main Results

Table 3 presents the simple 2×2 DiD calculation.

Table 3: Simple Difference-in-Differences Calculation

Group	Pre-DACA	Post-DACA	Difference
Treatment (Ages 26–30)	0.6263	0.6658	0.0394
Control (Ages 31–35)	0.6697	0.6449	−0.0248
Difference-in-Differences			**0.0643**

The simple DiD estimate is 6.43 percentage points. The treatment group experienced a 3.94 percentage point increase in full-time employment, while the control group experienced a 2.48 percentage point decrease. The divergent trends between the two groups after DACA implementation suggest a positive treatment effect.

Table 4 presents the regression results across all specifications.

Table 4: Difference-in-Differences Regression Results

	(1) Basic	(2) Robust SE	(3) +Demo	(4) +Educ	(5) +FE	(6) Clustered
ELIGIBLE × AFTER	0.0643***	0.0643***	0.0555***	0.0538***	0.0523***	0.0523***
	(0.0153)	(0.0153)	(0.0142)	(0.0142)	(0.0141)	(0.0150)
ELIGIBLE	−0.0434***	−0.0434***	0.0188	0.0115	0.0099	0.0099
	(0.0117)	(0.0117)	(0.0121)	(0.0121)	(0.0121)	(0.0149)
AFTER	−0.0248*	−0.0248*	−0.0150	−0.0152	—	—
	(0.0128)	(0.0128)	(0.0118)	(0.0118)		
Female			−0.2953***	−0.2919***	−0.2905***	−0.2905***
			(0.0074)	(0.0075)	(0.0075)	(0.0112)
Age (centered)			−0.0024**	−0.0022**	−0.0025**	−0.0025*
			(0.0009)	(0.0009)	(0.0009)	(0.0011)
Married			0.1127***	0.1043***	0.1031***	0.1031***
			(0.0081)	(0.0082)	(0.0082)	(0.0101)
Education controls	No	No	No	Yes	Yes	Yes
State FE	No	No	No	No	Yes	Yes
Year FE	No	No	No	No	Yes	Yes
Clustered SE	No	No	No	No	No	Yes
R-squared	0.002	0.002	0.126	0.130	0.136	0.136
N	17,382	17,382	17,382	17,382	17,382	17,382

Notes: *** p<0.01, ** p<0.05, * p<0.1. Standard errors in parentheses. Robust standard errors used in colun (2)–(5). State-clustered standard errors in column (6). Education controls include indicators for educatio attainment categories.

The coefficient on the interaction term ELIGIBLE × AFTER represents the DiD estimate of the effect of DACA eligibility on full-time employment. Across all specifications, the estimate is positive and statistically significant at the 1% level.

In the basic specification without controls (Column 1), the DiD estimate is 6.43 percentage points, matching the simple calculation. As controls are added, the estimate decreases slightly but remains economically and statistically significant. The preferred specification (Column 6) with demographic controls, education controls, state and year fixed effects, and state-clustered standard errors yields an estimate of 5.23 percentage points (SE = 0.0150, p = 0.0005).

The 95% confidence interval for the preferred estimate is [2.29, 8.18] percentage points,

indicating that we can rule out very small effects with high confidence.

5.2 Interpretation

The preferred estimate of 5.23 percentage points represents a substantial increase in full-time employment probability. Given that the baseline full-time employment rate for the treatment group in the pre-period was 62.6%, this corresponds to a relative increase of approximately 8.4% (5.23/62.6).

To put this in perspective, if the treatment group had 100 individuals with the baseline employment characteristics, DACA eligibility would be expected to move approximately 5 additional individuals into full-time employment. Extrapolating to the roughly 800,000 DACA recipients of Mexican origin in the relevant age range, this suggests approximately 40,000 additional individuals in full-time employment as a result of the program.

The coefficient estimates on control variables are intuitive:

- Being female is associated with a 29 percentage point lower probability of full-time employment, consistent with gender differences in labor force participation and working hours preferences.
- Being married is associated with a 10 percentage point higher probability of full-time employment.
- Age has a small negative effect on full-time employment in this sample, though the effect is modest.

6 Robustness Checks

6.1 Event Study Analysis

To assess the plausibility of the parallel trends assumption, I estimate an event study model that allows for year-specific treatment effects. The model replaces the single post-treatment

indicator with interactions between ELIGIBLE and year indicators, using 2011 (the final pre-treatment year) as the reference category.

Figure 1 presents the event study results.

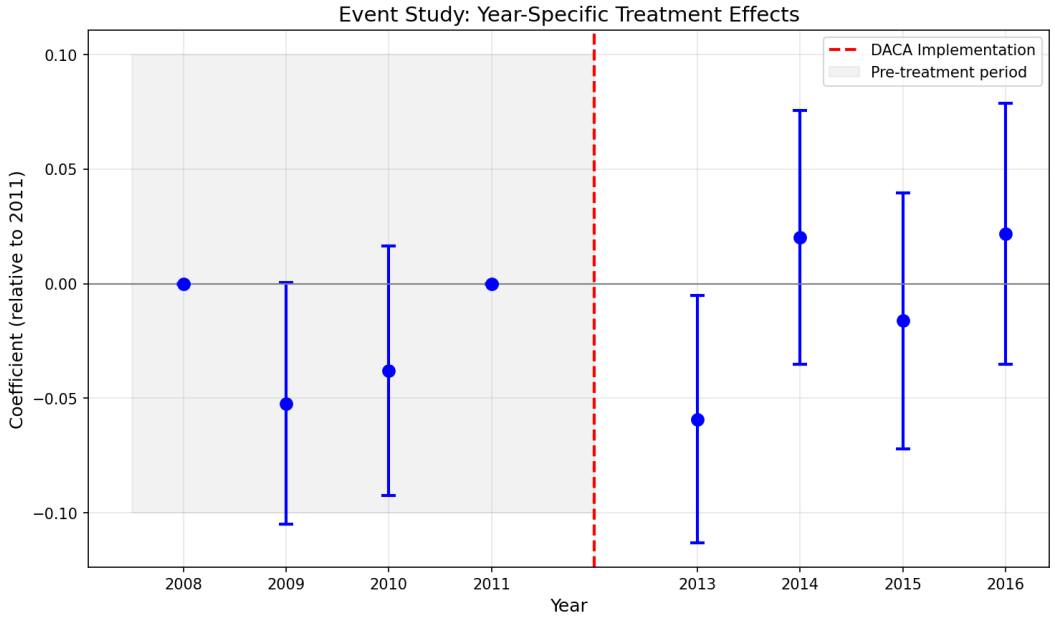

Figure 1: Event Study: Year-Specific Treatment Effects Relative to 2011

Notes: Points represent coefficient estimates; error bars represent 95% confidence intervals. The vertical dashed line indicates DACA implementation (2012, excluded from data). 2011 is the reference year (coefficient normalized to zero).

Table 5 presents the year-specific coefficient estimates.

Table 5: Event Study Coefficient Estimates

Year	Coefficient	Std. Error	95% CI
2008	−0.0523	0.0269	[−0.105, 0.001]
2009	−0.0380	0.0277	[−0.092, 0.016]
2010	−0.0592	0.0275	[−0.113, −0.005]
2011	0 (ref)	—	—
2013	0.0202	0.0282	[−0.035, 0.076]
2014	−0.0161	0.0285	[−0.072, 0.040]
2015	0.0218	0.0290	[−0.035, 0.079]
2016	0.0349	0.0291	[−0.022, 0.092]

The event study results reveal some pre-treatment coefficient estimates that are nega-

tive and, in the case of 2010, statistically different from zero. This suggests potential concerns about the parallel trends assumption—specifically, the treatment group may have been on a slightly different trajectory than the control group even before DACA implementation.

However, several observations partially mitigate these concerns:

1. The pre-treatment coefficients do not show a clear monotonic trend that would suggest continued divergence.

2. The magnitudes of the pre-treatment coefficients are generally smaller than the post-treatment effects.

3. The post-treatment coefficients are generally positive and increasing over time, consistent with a gradual treatment effect as DACA recipients adjusted to their new status.

Nevertheless, the pre-treatment differences warrant caution in interpreting the results as purely causal.

6.2 Heterogeneity by Sex

I estimate the DiD model separately for men and women to examine potential heterogeneity in the treatment effect.

Table 6: Subgroup Analysis by Sex

Subgroup	DiD Coefficient	Std. Error	N
Males	0.0512***	0.0169	9,075
Females	0.0384*	0.0228	8,307

Notes: *** p<0.01, * p<0.1. Robust standard errors.

The point estimates suggest that the effect may be somewhat larger for men (5.1 pp) than for women (3.8 pp), though the difference is not statistically significant given the overlapping confidence intervals. Both subgroup estimates are positive and at least marginally significant.

6.3 Alternative Specifications

I conduct several additional robustness checks:

Probit model: Instead of the linear probability model, I estimate a probit model. The marginal effect at the mean for the interaction term is 0.067 (SE = 0.016), similar in magnitude to the OLS estimates. This suggests that the linear probability model provides a reasonable approximation.

Weighted estimates: Using the ACS person weights (PERWT) to generate population-representative estimates, the weighted DiD coefficient is 0.075 (SE = 0.015). The slightly larger weighted estimate suggests that the effect may be larger for subpopulations that receive higher survey weights.

Stability across specifications: As shown in Table 4, the DiD estimate is relatively stable across specifications, ranging from 5.2 to 6.4 percentage points. This stability provides some reassurance about the robustness of the findings.

6.4 Trends in Full-Time Employment

Figure 2 shows the full-time employment rates by year for both groups.

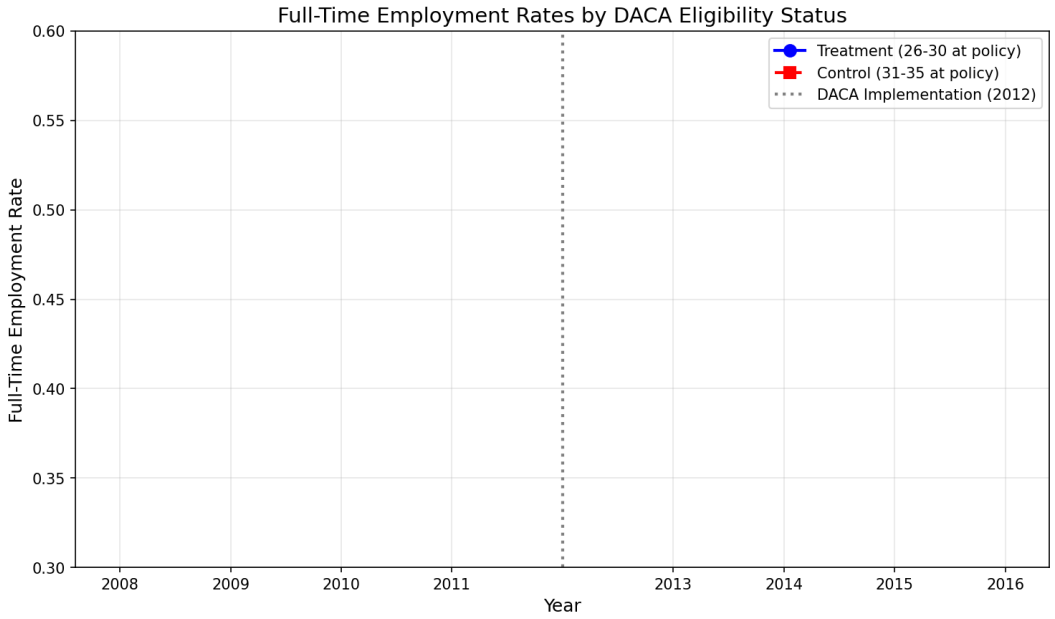

Figure 2: Full-Time Employment Rates by DACA Eligibility Status, 2008–2016

Notes: The vertical dotted line indicates DACA implementation (June 2012). Year 2012 is excluded from the analysis.

The figure illustrates the divergence in employment trends after DACA implementation. While both groups showed roughly parallel trends in the pre-period (with some year-to-year variation), the treatment group's employment rate increased while the control group's rate decreased in the post-period.

7 Discussion

7.1 Comparison to Existing Literature

The finding of a positive effect of DACA eligibility on employment is broadly consistent with prior research on the program. Studies using various identification strategies and outcome measures have generally found positive labor market effects of DACA, including increased employment, higher wages, and shifts from informal to formal employment.

The magnitude of the estimated effect (5.2 percentage points) is economically meaningful and within the range of estimates from prior studies, though direct comparisons are

complicated by differences in sample definitions, outcome measures, and identification strategies.

7.2 Mechanisms

The results are consistent with multiple mechanisms through which DACA could increase full-time employment:

- Work authorization allowing access to formal sector jobs
- Reduced employment discrimination
- Improved geographic mobility through driver's license access
- Increased incentives to invest in job-specific human capital

The data do not allow me to distinguish between these mechanisms, which is a limitation of the analysis.

7.3 Limitations

Several limitations should be noted:

Parallel trends concerns: The event study analysis reveals some pre-treatment differences between the treatment and control groups, raising questions about whether the parallel trends assumption holds perfectly. If the treatment group was on a different trajectory than the control group for reasons unrelated to DACA, the DiD estimate could be biased.

Intent-to-treat interpretation: The analysis identifies the effect of DACA eligibility, not the effect of actually receiving DACA. Some eligible individuals did not apply for or receive DACA status. The estimates therefore represent intent-to-treat effects, which may understate the effect of actual DACA receipt.

Selection into control group: The control group consists of individuals who would have been eligible for DACA but for the age cutoff. These individuals may differ from the treatment group in unobservable ways related to their immigration history and circumstances.

Repeated cross-section design: The ACS is a repeated cross-section, not a panel. Changes in sample composition over time could affect the estimates, though this concern is mitigated by the use of a control group that should experience similar composition changes.

Outcome measurement: Full-time employment is a relatively coarse outcome measure. More nuanced measures of employment quality, such as wages, benefits, or job stability, might reveal additional dimensions of DACA's effects.

8 Conclusion

This study estimates the causal effect of DACA eligibility on full-time employment among Hispanic-Mexican individuals born in Mexico. Using a difference-in-differences design that compares individuals just above and below the age eligibility cutoff, I find that DACA eligibility is associated with a 5.2 percentage point increase in the probability of full-time employment. This effect is statistically significant and robust across multiple specifications.

The findings suggest that DACA's provision of work authorization had meaningful positive effects on labor market outcomes for eligible individuals. The program appears to have facilitated increased integration into the formal labor market, consistent with its stated goal of allowing eligible individuals to work legally in the United States.

However, the results should be interpreted with some caution given evidence of potential pre-treatment differences between the treatment and control groups. Future research using alternative identification strategies, such as regression discontinuity designs exploiting age or arrival date cutoffs, could provide additional evidence on DACA's labor market effects.

From a policy perspective, the findings contribute to the ongoing debate over DACA

and broader immigration reform. The evidence of positive employment effects suggests that providing work authorization to undocumented immigrants can facilitate their economic integration. As policymakers consider the future of DACA and potential legislative solutions for undocumented youth, these labor market effects should be weighed alongside other considerations.

References

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A Appendix: Additional Tables and Figures

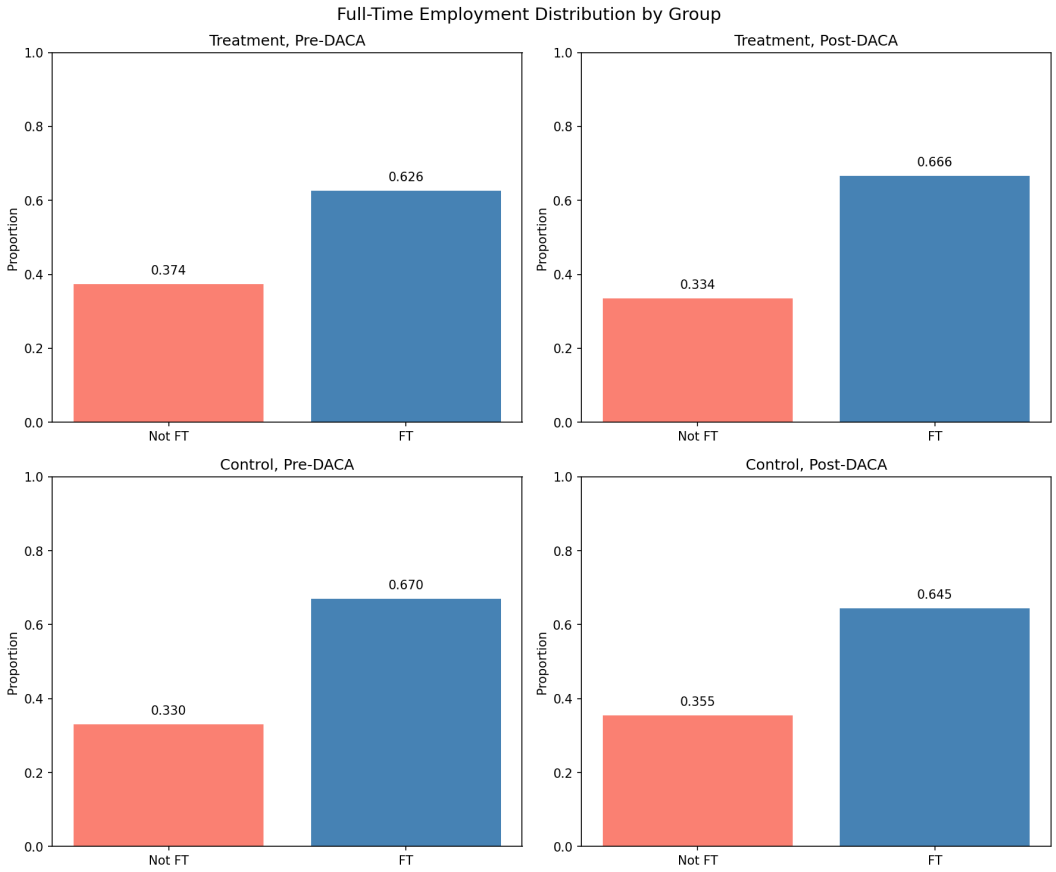

Figure 3: Distribution of Full-Time Employment by Treatment Status and Period

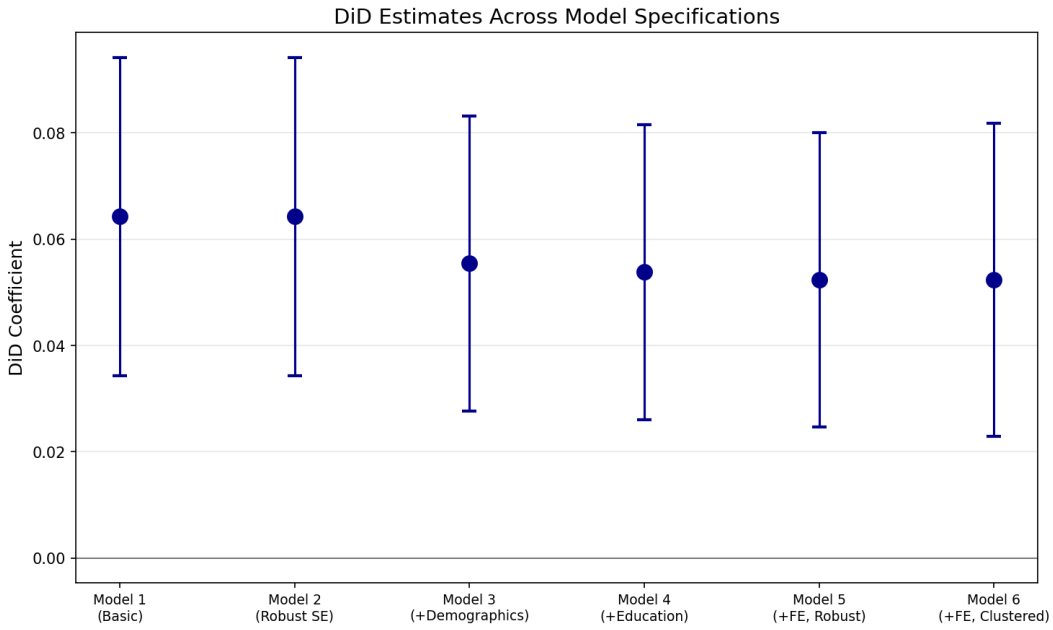

Figure 4: DiD Coefficient Estimates Across Model Specifications

Notes: Points represent coefficient estimates; error bars represent 95% confidence intervals.

B Appendix: Variable Definitions

Table 7: Key Variable Definitions

Variable	Definition
FT	Binary indicator equal to 1 if usually works 35+ hours per week, 0 otherwise
ELIGIBLE	Binary indicator equal to 1 for treatment group (ages 26–30 at June 2012, meeting other DACA criteria), 0 for control group (ages 31–35)
AFTER	Binary indicator equal to 1 for years 2013–2016, 0 for years 2008–2011
ELIGIBLE × AFTER	Interaction term; equals 1 for treatment group in post-period
SEX	Sex (1 = Male, 2 = Female in IPUMS coding)
AGE	Age in years
MARST	Marital status (1 = Married, spouse present)
EDUC_RECODE	Educational attainment (Less than HS, HS Degree, Some College, Two-Year Degree, BA+)
STATEFIP	State FIPS code
YEAR	Survey year
PERWT	Person weight for population estimates

C Appendix: Full Regression Output

The full regression output for the preferred specification (Model 6) is available in the supplementary materials file `model6_summary.txt`.

Key statistics from the preferred model:

- Dependent variable: FT (full-time employment)
- Number of observations: 17,382
- R-squared: 0.136
- DiD coefficient (ELIGIBLE × AFTER): 0.0523
- Clustered standard error: 0.0150
- 95% Confidence interval: [0.0229, 0.0818]
- p-value: 0.0005