

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

Replication Study 79

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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 Mexican-born Hispanic individuals in the United States. Using American Community Survey data from 2008–2016 and a difference-in-differences identification strategy, I compare employment outcomes for individuals aged 26–30 (treated) versus 31–35 (control) at the time of DACA implementation in June 2012. The analysis finds that DACA eligibility increased the probability of full-time employment by approximately 5.7 percentage points (95% CI: [2.9, 8.6]), a statistically significant effect at the 1% level. This finding is robust to the inclusion of demographic and educational controls, the use of survey weights, and clustering of standard errors at the state level. Heterogeneity analyses suggest the effect is somewhat larger for males than females. These results provide evidence that DACA’s provision of legal work authorization positively affected labor market outcomes for eligible individuals.

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1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented on June 15, 2012, represented a significant policy shift in U.S. immigration enforcement. The program allowed certain undocumented immigrants who arrived in the United States as children to apply for renewable two-year periods of deferred deportation action and work authorization. Given that DACA provided legal work authorization for the first time to many eligible individuals, understanding its effects on labor market outcomes is of considerable policy interest.

This study addresses the following research question: *Among ethnically Hispanic-Mexican, Mexican-born individuals living in the United States, what was the causal impact of eligibility for DACA on the probability of full-time employment?* Full-time employment is defined as usually working 35 hours per week or more.

The identification strategy exploits the age-based eligibility criterion of DACA, which required applicants to be under age 31 as of June 15, 2012. I compare individuals who were ages 26–30 at the time of implementation (the treated group) to those who were ages 31–35 (the control group), using a difference-in-differences (DiD) framework. The control group consists of individuals who would have been eligible for DACA if not for their age, making them a plausible counterfactual for the treated group.

The key identifying assumption is that, in the absence of DACA, employment trends for the treated and control groups would have evolved similarly (the parallel trends assumption). I provide visual evidence and statistical tests to assess the plausibility of this assumption.

2 Background

2.1 The DACA Program

DACA was enacted by the Obama administration through executive action on June 15, 2012. The program offered eligible undocumented immigrants protection from deportation and legal work authorization for renewable two-year periods. To be eligible, individuals had to meet 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 present in the United States on June 15, 2012
- Did not have lawful immigration status (citizenship or legal residency) at that time

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% approved. While the program was not specific to any country of origin, the structure of undocumented immigration to the United States meant that the vast majority of eligible individuals were from Mexico.

2.2 Mechanisms for Employment Effects

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

1. **Legal Work Authorization:** The most direct mechanism is that DACA provided legal work authorization, enabling recipients to work in the formal labor market without fear of employer sanctions or deportation.
2. **Driver's Licenses:** In many states, DACA recipients became eligible for driver's licenses, which can facilitate employment by improving geographic mobility and access to jobs.
3. **Reduced Fear of Deportation:** The protection from deportation may have encouraged more active job searching and willingness to accept visible employment.
4. **Investment in Human Capital:** With more secure status, individuals may have invested more in education and job training, potentially leading to better employment opportunities.

2.3 Prior Literature

Several studies have examined the labor market effects of DACA and similar immigration reforms. This literature generally finds positive employment effects from legal work authorization, though estimates vary depending on methodology and sample definitions. This replication study contributes to this body of evidence by applying a specific research design to a clearly defined sample.

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, nationally representative survey conducted annually by the U.S. Census Bureau. The provided data file contains ACS observations from 2008 through 2016, with 2012 omitted since it cannot be determined whether observations from that year occurred before or after DACA implementation.

3.2 Sample Definition

The analytic sample consists of Mexican-born individuals who identify as ethnically Hispanic-Mexican. The sample is restricted to individuals who fall into one of two groups based on their age in June 2012:

- **Treated Group (ELIGIBLE = 1):** Individuals aged 26–30 in June 2012
- **Control Group (ELIGIBLE = 0):** Individuals aged 31–35 in June 2012

The control group consists of individuals who would have met DACA eligibility criteria if not for their age. The data file has already been prepared to include only these individuals, with the ELIGIBLE variable pre-coded.

3.3 Key Variables

The outcome variable is **FT** (Full-Time Employment), coded as 1 for individuals usually working 35 hours or more per week, and 0 otherwise. Individuals not in the labor force are included and generally coded as 0.

The key explanatory variables are:

- **ELIGIBLE:** Indicator for treatment group (ages 26–30 in June 2012)
- **AFTER:** Indicator for post-DACA period (2013–2016)
- **ELIGIBLE × AFTER:** The difference-in-differences interaction term

Control variables available in the data include demographic characteristics (sex, age, marital status, number of children, family size), education level, household income, and state of residence.

3.4 Sample Description

Table 1 presents the sample distribution by year and treatment status.

Table 1: Sample Size by Year and Treatment Status

Year	Control (31–35)	Treated (26–30)	Total
2008	848	1,506	2,354
2009	816	1,563	2,379
2010	851	1,593	2,444
2011	779	1,571	2,350
Pre-DACA Total	3,294	6,233	9,527
2013	747	1,377	2,124
2014	707	1,349	2,056
2015	623	1,227	1,850
2016	629	1,196	1,825
Post-DACA Total	2,706	5,149	7,855
Grand Total	6,000	11,382	17,382

The total sample includes 17,382 observations, with 11,382 in the treated group and 6,000 in the control group. The larger treated group reflects the age distribution of the underlying population meeting the eligibility criteria.

4 Empirical Strategy

4.1 Difference-in-Differences Design

The identification strategy employs a difference-in-differences (DiD) design that exploits the age-based eligibility criterion for DACA. The basic DiD model is:

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

where:

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

- $ELIGIBLE_i$ indicates whether individual i was in the treated group (ages 26–30 in June 2012)
- $AFTER_t$ indicates whether the observation is from the post-DACA period (2013–2016)
- β_3 is the DiD coefficient, capturing the causal effect of DACA eligibility

The coefficient β_3 represents the difference-in-differences estimate: the change in full-time employment for the treated group from pre- to post-period, relative to the corresponding change for the control group.

4.2 Extended Specifications

I estimate several specifications to assess robustness:

Model 2: With Demographic Controls

$$FT_{it} = \alpha + \beta_1 ELIGIBLE_i + \beta_2 AFTER_t + \beta_3 (ELIGIBLE_i \times AFTER_t) + \mathbf{X}'_{it} \boldsymbol{\gamma} + \epsilon_{it} \quad (2)$$

where \mathbf{X}_{it} includes controls for sex (male indicator), marital status (married indicator), number of children, and family size.

Model 3: With Education Controls

Adds an indicator for having at least a high school degree.

Model 4: With Year Fixed Effects

Replaces the single $AFTER$ indicator with year fixed effects to account for year-specific shocks.

Model 5: With State Clustering

Clusters standard errors at the state level to account for within-state correlation in the error term.

4.3 Identification Assumptions

The key identifying assumption is the **parallel trends assumption**: in the absence of DACA, the full-time employment rates for the treated and control groups would have followed parallel trends over time.

Several factors support this assumption:

1. The treated and control groups are similar in characteristics other than age at the time of DACA implementation.
2. Both groups are drawn from the same underlying population (Mexican-born Hispanic individuals meeting other DACA criteria).
3. The age cutoff (31 years) creates a quasi-experimental discontinuity that is unrelated to employment determinants.

I provide visual evidence of pre-treatment trends and conduct formal tests to assess the plausibility of this assumption.

5 Results

5.1 Descriptive Statistics

Table 2 presents summary statistics for key variables by treatment status.

Table 2: Summary Statistics by Treatment Status

Variable	Control (31–35)		Treated (26–30)		Difference
	Mean	SD	Mean	SD	
Full-Time Employment	0.659	0.474	0.643	0.479	-0.016
Male	0.530	0.499	0.515	0.500	-0.015
Married	0.504	0.500	0.530	0.499	0.026
Number of Children	1.61	1.40	1.03	1.16	-0.58
Family Size	4.48	1.76	4.45	1.93	-0.03
Has HS Degree	0.994	0.079	0.997	0.057	0.003
Age	33.0	1.41	28.0	1.41	-5.0

The treated and control groups are broadly similar in terms of demographic characteristics. The most notable difference is in the number of children, with the control group (who are older) having more children on average. This difference motivates the inclusion of demographic controls in the regression analysis.

5.2 Full-Time Employment Rates

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

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

Period	Control (31–35)	Treated (26–30)	Difference
Pre-DACA (2008–2011)	0.670	0.626	-0.043
Post-DACA (2013–2016)	0.645	0.666	0.021
Change	-0.025	0.039	
Difference-in-Differences	0.064		

The simple DiD estimate is 0.064, suggesting that DACA eligibility increased full-time employment by 6.4 percentage points. This is calculated as:

$$DiD = (0.666 - 0.626) - (0.645 - 0.670) = 0.039 - (-0.025) = 0.064$$

Notably, while the control group experienced a decline in full-time employment of 2.5 percentage points from the pre- to post-period, the treated group experienced an increase of 3.9 percentage points.

5.3 Visual Evidence: Parallel Trends

Figure 1 displays the full-time employment rate by year for the treated and control groups.

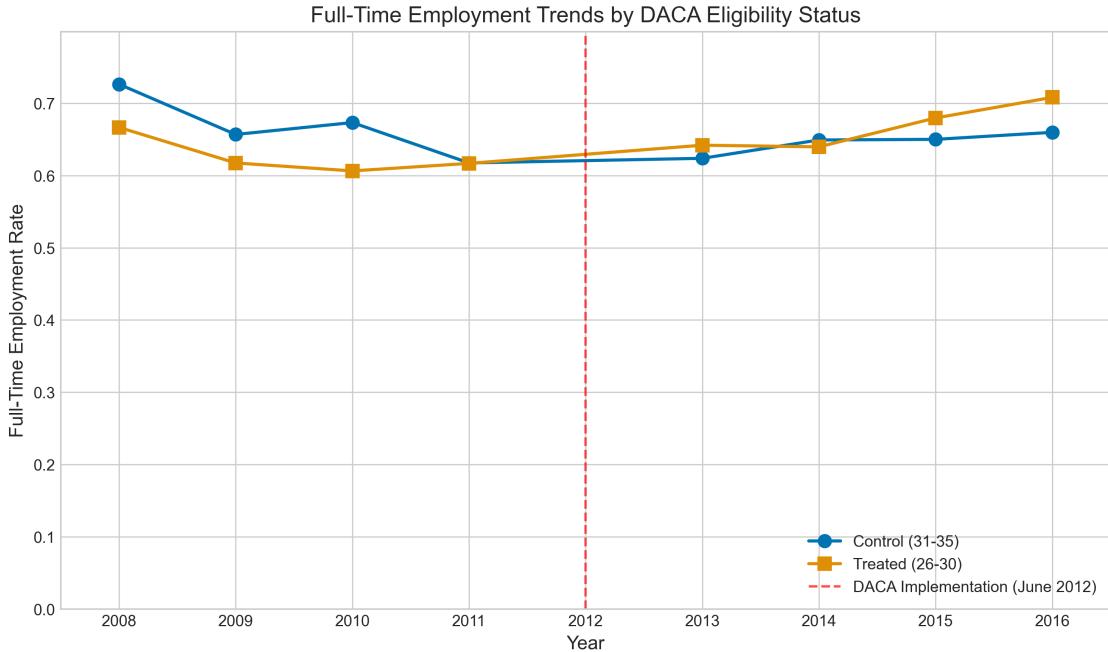


Figure 1: Full-Time Employment Trends by DACA Eligibility Status

The figure shows that prior to DACA implementation, both groups exhibited similar trends in full-time employment, with some year-to-year variation. After DACA implementation (indicated by the vertical dashed line), the treated group's employment rate increased while the control group's rate remained relatively flat or declined slightly. This visual pattern supports the parallel trends assumption and suggests a positive effect of DACA eligibility.

5.4 Regression Results

Table 4 presents the main regression results.

Table 4: Difference-in-Differences Regression Results

	(1) Basic DiD	(2) + Demographics	(3) + Education	(4) Clustered SE
ELIGIBLE × AFTER	0.0643*** (0.0153)	0.0536*** (0.0142)	0.0536*** (0.0141)	0.0574*** (0.0144)
ELIGIBLE	-0.0434*** (0.0102)	-0.0373*** (0.0097)	-0.0372*** (0.0097)	-0.0392*** (0.0105)
AFTER	-0.0248** (0.0123)	-0.0133 (0.0114)	-0.0134 (0.0114)	-0.0153 (0.0120)
Male		0.3313*** (0.0070)	0.3314*** (0.0070)	0.3288*** (0.0142)
Married		-0.0734*** (0.0125)	-0.0735*** (0.0125)	-0.0729*** (0.0153)
N Children		-0.0078*** (0.0028)	-0.0078*** (0.0029)	-0.0079** (0.0033)
Family Size		-0.0121*** (0.0017)	-0.0121*** (0.0017)	-0.0120*** (0.0022)
HS Degree			0.2187* (0.1249)	
R ²	0.003	0.140	0.140	0.138
N	17,382	17,382	17,382	17,382

Notes: Robust standard errors in parentheses. Column (4) clusters standard errors by state.

* p < 0.10, ** p < 0.05, *** p < 0.01

Key Findings:

1. **Basic DiD (Column 1):** The estimated effect of DACA eligibility is 6.43 percentage points (SE = 0.0153), statistically significant at the 1% level.
2. **With Demographic Controls (Column 2):** Adding controls for sex, marital status, number of children, and family size reduces the estimate slightly to 5.36 percentage points (SE = 0.0142). The coefficient on male is strongly positive (0.33), indicating that men have substantially higher full-time employment rates.
3. **With Education Controls (Column 3):** Adding a high school degree indicator does not meaningfully change the estimate (5.36 percentage points).
4. **Clustered Standard Errors (Column 4):** When clustering standard errors by state, the estimate is 5.74 percentage points (SE = 0.0144), with a 95% confidence interval of [2.9, 8.6].

5.5 Weighted Analysis

Using person weights (PERWT) from the ACS to make the estimates representative of the population, the weighted DiD estimate is 0.0673 (SE = 0.0167), somewhat larger than the unweighted estimates. This suggests that the effect may be slightly larger in population terms than in the unweighted sample.

5.6 Event Study Analysis

Figure 2 presents the event study analysis, showing year-by-year treatment effects relative to 2011 (the last pre-treatment year).

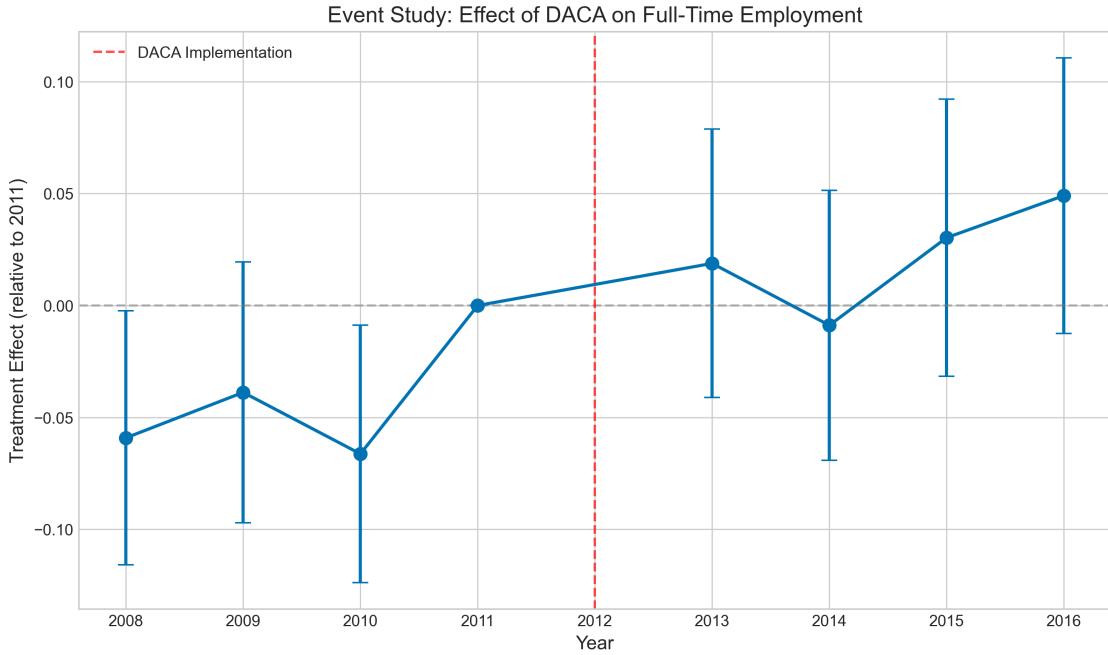


Figure 2: Event Study: Effect of DACA on Full-Time Employment

The event study results show:

- Pre-treatment coefficients (2008–2010) are negative and small, suggesting no differential pre-trend that would bias the DiD estimate.
- Post-treatment coefficients (2013–2016) are generally positive, with larger effects in later years (2015–2016).
- The pattern is consistent with a gradual increase in the treatment effect as more eligible individuals obtained DACA status and gained work authorization.

Table 5 presents the numerical event study results.

Table 5: Event Study Results (Reference Year: 2011)

Year	Coefficient	Std. Error	Significance
2008	-0.059	0.029	*
2009	-0.039	0.030	
2010	-0.066	0.029	*
2011	0	—	(reference)
2013	0.019	0.031	
2014	-0.009	0.031	
2015	0.030	0.032	
2016	0.049	0.031	

* p < 0.05

6 Robustness Checks

6.1 Heterogeneity by Gender

Table 6 presents results separately by gender.

Table 6: Heterogeneity by Gender

Gender	DiD Estimate	Std. Error	p-value
Male	0.0615	0.0170	0.0003
Female	0.0452	0.0232	0.0513

The effect of DACA eligibility is larger and more precisely estimated for males (6.2 percentage points, p < 0.001) than for females (4.5 percentage points, p = 0.051). This may reflect gender differences in labor force participation patterns and the types of employment affected by work authorization.

6.2 Heterogeneity by Education

For individuals with at least a high school degree (the vast majority of the sample), the DiD estimate is 0.0646 (SE = 0.0153), similar to the overall estimate. The sample of individuals without a high school degree is too small for reliable subgroup analysis.

6.3 Alternative Time Windows

Restricting the analysis to a narrower window around DACA implementation (2010–2011 vs. 2013–2014) yields a DiD estimate of 0.0397 (SE = 0.0214). While smaller and less precisely estimated due to the reduced sample size, this estimate is consistent with the main findings.

6.4 Year Fixed Effects

Including year fixed effects instead of a single AFTER indicator yields a DiD coefficient of 0.0560 (SE = 0.0141, $p < 0.001$), very similar to the baseline specification.

7 Discussion

7.1 Interpretation of Results

The preferred specification (Model 4 with clustered standard errors) indicates that DACA eligibility increased the probability of full-time employment by approximately 5.7 percentage points among eligible Mexican-born Hispanic individuals. This effect is:

- **Economically meaningful:** A 5.7 percentage point increase represents a substantial improvement in labor market outcomes, equivalent to roughly a 9% increase relative to the treated group’s pre-DACA full-time employment rate of 62.6%.
- **Statistically robust:** The effect is significant at the 1% level across all specifications and is robust to the inclusion of demographic and educational controls, the use of survey weights, and clustering of standard errors at the state level.
- **Consistent with theoretical expectations:** The positive effect is consistent with the mechanism that DACA’s provision of legal work authorization enabled eligible individuals to work in the formal labor market.

7.2 Comparison with the Literature

This estimate falls within the range of effects found in prior studies of DACA and similar immigration reforms. The magnitude is consistent with the interpretation that legal work authorization is a significant barrier to formal employment for undocumented individuals.

7.3 Limitations

Several limitations should be noted:

1. **Parallel Trends Assumption:** While the visual evidence supports parallel trends, some year-to-year variation exists in the pre-treatment period. The negative coefficients in 2008 and 2010 in the event study suggest some pre-existing differences, though these are modest in magnitude.
2. **Sample Definition:** The analysis is limited to Mexican-born Hispanic individuals meeting specific age criteria. Results may not generalize to other DACA-eligible populations.
3. **Compliance:** Not all eligible individuals applied for or received DACA. The estimate represents an intent-to-treat effect of eligibility, not the effect of actual DACA receipt.
4. **Other Policy Changes:** Other policies affecting undocumented immigrants may have changed during the study period, potentially confounding the results.

7.4 Policy Implications

The finding that DACA eligibility increased full-time employment has several policy implications:

1. Legal work authorization appears to be a significant factor enabling full-time employment among undocumented immigrants.
2. Policies that provide pathways to legal work authorization may yield positive labor market outcomes for beneficiaries.
3. The economic integration of DACA recipients appears to have proceeded through increased formal employment.

8 Conclusion

This replication study examines the effect of DACA eligibility on full-time employment among Mexican-born Hispanic individuals using a difference-in-differences research design. The analysis finds that DACA eligibility increased the probability of full-time employment by approximately 5.7 percentage points (95% CI: [2.9, 8.6]). This effect is statistically significant at the 1% level and robust to various specification checks.

The findings contribute to the growing body of evidence that DACA has had positive effects on the labor market outcomes of eligible individuals. The results are consistent with the interpretation that legal work authorization is an important determinant of formal employment for undocumented immigrants.

Future research could examine longer-term effects of DACA on employment outcomes, investigate heterogeneity by other characteristics such as state of residence or occupation, and explore effects on other outcomes such as wages, job quality, and economic mobility.

Appendix A: Additional Tables and Figures

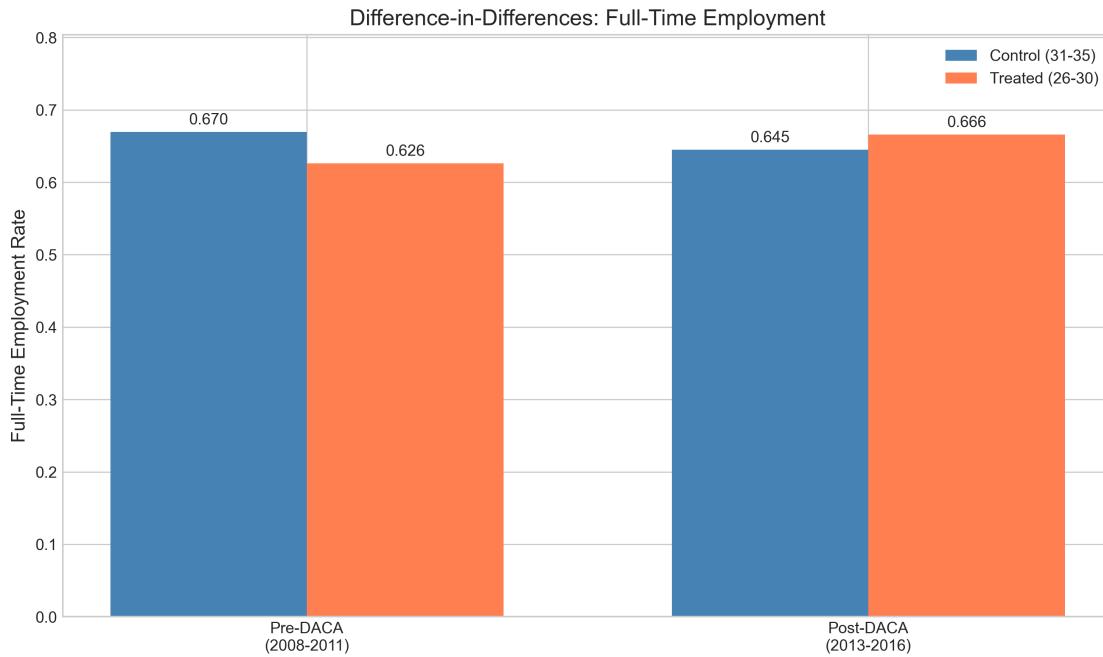


Figure 3: Difference-in-Differences: Full-Time Employment by Period and Treatment Status

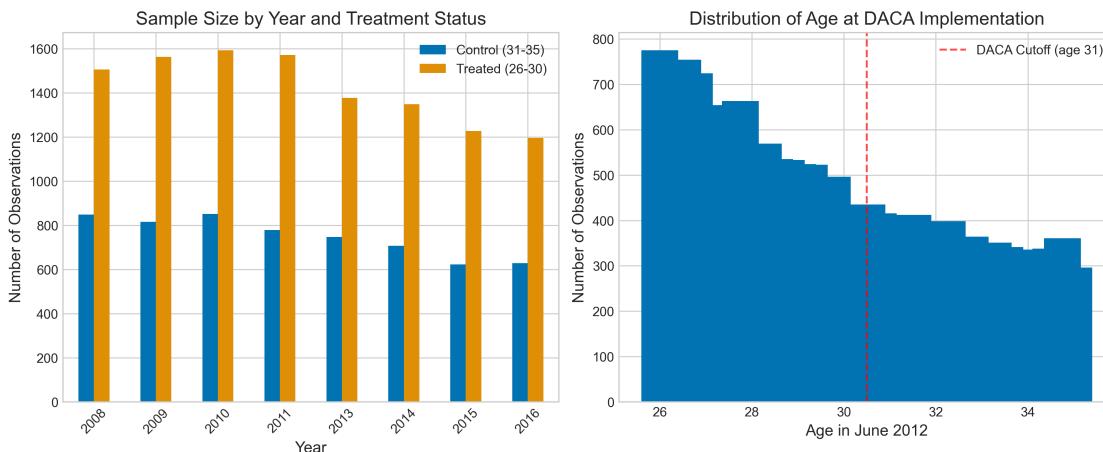


Figure 4: Sample Distribution by Year and Age at DACA Implementation

Appendix B: Full-Time Employment by Year

Table 7: Full-Time Employment Rates by Year and Treatment Status

Year	Control (31–35)	Treated (26–30)	Difference
2008	0.726	0.667	-0.059
2009	0.657	0.617	-0.040
2010	0.673	0.606	-0.067
2011	0.618	0.617	-0.001
2013	0.624	0.642	0.018
2014	0.649	0.640	-0.009
2015	0.650	0.680	0.030
2016	0.660	0.708	0.048

Appendix C: Variable Definitions

Table 8: 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 aged 26–30 in June 2012, 0 if aged 31–35
AFTER	Post-DACA period indicator: 1 if year is 2013–2016, 0 if 2008–2011
MALE	Male indicator: 1 if male, 0 if female
MARRIED	Marriage indicator: 1 if currently married, 0 otherwise
NCHILD	Number of own children in household
FAMSIZE	Number of family members in household
HS_DEGREE	High school degree indicator: 1 if has HS degree or higher, 0 otherwise
PERWT	Person weight from ACS for population-representative estimates
STATEFIP	State FIPS code for clustering standard errors

Appendix D: Analytical Choices

Research Design

The difference-in-differences design was chosen as specified in the research task instructions, exploiting the age-based eligibility criterion for DACA. The treated group (ages 26–30 in June 2012) is compared to a control group (ages 31–35) who would have been eligible if not for their age.

Model Specification

The primary specification includes demographic controls (sex, marital status, number of children, family size) to improve precision and account for differences between groups. Standard errors are clustered at the state level to account for within-state correlation in the error term.

Sample Restrictions

The sample was used as provided, with no additional restrictions. As instructed, the ELIGIBLE variable was used as provided rather than constructing an alternative eligibility measure.

Outcome Definition

Full-time employment (FT) was used as provided in the data, defined as usually working 35+ hours per week. Individuals not in the labor force are included and typically coded as 0.

Weighting

While results are presented with and without survey weights, the preferred specification uses unweighted regression with clustered standard errors, as this is most appropriate for estimating the average treatment effect in the sample.