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

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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 immigrants born in Mexico. Using data from the American Community Survey (2006–2016) and a difference-in-differences research design, I compare individuals who were ages 26–30 on June 15, 2012 (treatment group) to those ages 31–35 (control group) who would otherwise have been eligible but for the age cutoff. The analysis finds that DACA eligibility increased the probability of full-time employment by approximately 5.9 percentage points (95% CI: 3.6 to 8.2 pp, $p < 0.001$). This effect is robust to the inclusion of demographic controls and passes a placebo test using pre-treatment data. The results suggest that DACA's provision of work authorization and protection from deportation had meaningful positive effects on labor market outcomes for eligible individuals.

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

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1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented on June 15, 2012, represented one of the most significant immigration policy changes in recent U.S. history. The program provided temporary protection from deportation and work authorization to undocumented immigrants who arrived in the United States as children. Given that DACA offered legal work authorization to individuals who previously worked without documentation or faced significant barriers to formal employment, understanding its impact on labor market outcomes is of considerable policy importance.

This replication study examines the causal effect of DACA eligibility on full-time employment among Hispanic-Mexican individuals born in Mexico. The research design exploits the age-based eligibility cutoff in DACA's requirements: individuals had to be under 31 years of age as of June 15, 2012 to qualify. By comparing those who were ages 26–30 on this date (eligible for DACA) to those who were ages 31–35 (ineligible due solely to age), I implement a difference-in-differences strategy that isolates the effect of DACA eligibility from other confounding factors.

The main finding is that DACA eligibility increased the probability of full-time employment by approximately 5.9 percentage points, a statistically significant and economically meaningful effect. This result is robust to alternative specifications including demographic controls and fixed effects, and passes a placebo test using only pre-treatment data.

2 Background

2.1 The DACA Program

DACA was enacted by the U.S. federal government on June 15, 2012, through executive action by President Obama. The program allowed certain undocumented immigrants who had arrived in the United States as children to apply for renewable two-year periods of deferred action from deportation and eligibility for work permits.

To be eligible for DACA, applicants 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 lived continuously in the United States since June 15, 2007
- Were present in the United States on June 15, 2012
- Did not have lawful status (citizenship or legal residency) at that time

- Had no conviction for a felony, significant misdemeanor, or multiple misdemeanors
- Were currently in school, had graduated high school, obtained a GED, or were honorably discharged veterans

Applications began to be received on August 15, 2012. In the first four years, nearly 900,000 initial applications were received, with approximately 90% approved. After the initial two-year period, recipients could apply for renewal, which many did.

2.2 Theoretical Mechanisms

DACA could affect employment through several channels:

1. **Legal work authorization:** Prior to DACA, undocumented individuals could only work informally or with false documentation. DACA provided legal work permits, allowing recipients to obtain formal employment in sectors that require documentation.
2. **Reduced fear of deportation:** Deferred action status reduced the risk of deportation, potentially increasing willingness to seek employment and reducing job instability caused by immigration enforcement.
3. **Access to driver's licenses:** In many states, DACA recipients became eligible for driver's licenses, expanding their geographic job search radius and ability to commute.
4. **Employer discrimination:** With legal work authorization, DACA recipients may have faced less discrimination from employers concerned about hiring undocumented workers.

2.3 Prior Literature

Several studies have examined the effects of DACA on various outcomes. Research has found positive effects on educational attainment, labor force participation, wages, and mental health outcomes. The consensus in the literature suggests that DACA had meaningful positive effects on recipients' economic and social outcomes, though the magnitude of effects varies across studies depending on methodology and outcome measures.

3 Data

3.1 Data Source

The analysis uses data from the American Community Survey (ACS), obtained from IPUMS USA. The ACS is a large-scale, nationally representative survey conducted by the

U.S. Census Bureau that collects demographic, social, economic, and housing information from approximately 3.5 million households annually.

The sample includes one-year ACS files from 2006 through 2016, excluding 2012 due to the inability to distinguish observations from before and after DACA's June 15, 2012 implementation date. The full dataset contains 33,851,424 person-year observations.

3.2 Sample Construction

The analytic sample was constructed through the following sequential restrictions:

Table 1: Sample Construction

Restriction	N	% of Previous
Full ACS sample (2006–2016)	33,851,424	—
Excluding 2012	30,738,394	90.8%
Hispanic-Mexican ethnicity (HISPAN=1)	2,663,503	8.7%
Born in Mexico (BPL=200)	898,879	33.7%
Non-citizen (CITIZEN=3)	636,722	70.8%
Arrived before age 16	186,357	29.3%
In US since 2007 (YRIMMIG≤2007)	177,294	95.1%
Ages 26–35 on June 15, 2012	43,238	24.4%

The key IPUMS variables used for sample construction were:

- `HISPAN`: Hispanic origin (1 = Mexican)
- `BPL`: Birthplace (200 = Mexico)
- `CITIZEN`: Citizenship status (3 = Not a citizen)
- `YRIMMIG`: Year of immigration
- `BIRTHYR`: Birth year
- `BIRTHQTR`: Birth quarter (used to calculate precise age on June 15, 2012)

3.3 Treatment and Control Groups

The treatment group consists of individuals who were ages 26–30 on June 15, 2012, making them eligible for DACA. The control group consists of individuals who were ages 31–35 on this date, making them ineligible solely due to the age cutoff. Both groups meet all other eligibility criteria (non-citizen, born in Mexico, arrived before age 16, in US since 2007).

Age on June 15, 2012 was calculated using birth year and birth quarter:

- If born in Q1 or Q2 (January–June): Age = 2012 – BIRTHYR
- If born in Q3 or Q4 (July–December): Age = 2012 – BIRTHYR – 1

The final sample includes:

- Treatment group (ages 26–30): 25,470 observations
- Control group (ages 31–35): 17,768 observations
- Pre-period (2006–2011): 28,377 observations
- Post-period (2013–2016): 14,861 observations

3.4 Outcome Variable

The outcome variable is full-time employment, defined as usually working 35 or more hours per week. This is constructed from the `UHRSWORK` variable in the ACS:

$$\text{fulltime}_i = \mathbf{1}[\text{UHRSWORK}_i \geq 35]$$

This definition aligns with the Bureau of Labor Statistics' standard definition of full-time work and captures the intensive margin of labor supply.

3.5 Control Variables

The analysis includes the following demographic control variables:

- Age (continuous) and age squared
- Female indicator (SEX = 2)
- Married with spouse present indicator (MARST = 1)
- High school or more education indicator (EDUC $\geq$ 6)
- State fixed effects (STATEFIP)
- Year fixed effects (YEAR)

4 Empirical Strategy

4.1 Difference-in-Differences Design

The identification strategy exploits the age-based eligibility cutoff in DACA. Individuals under 31 as of June 15, 2012 were eligible; those 31 and older were not. By comparing

changes in full-time employment for the eligible group (ages 26–30) to changes for the ineligible group (ages 31–35) before and after DACA implementation, I can isolate the causal effect of DACA eligibility.

The key identifying assumption is that, in the absence of DACA, full-time employment trends would have been parallel for the treatment and control groups. While this assumption cannot be directly tested, I provide supporting evidence through:

1. Visual inspection of pre-treatment trends
2. A placebo test using only pre-treatment data
3. An event study analysis showing the timing of effects

4.2 Estimation

The main specification is the following weighted least squares regression:

$$Y_{it} = \beta_0 + \beta_1 \text{Treat}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Treat}_i \times \text{Post}_t) + \epsilon_{it} \tag{1}$$

where:

- Y_{it} is an indicator for full-time employment for individual i in year t
- $\text{Treat}_i = 1$ if individual was ages 26–30 on June 15, 2012
- $\text{Post}_t = 1$ if year ≥ 2013
- β_3 is the difference-in-differences estimator of interest

Observations are weighted using the ACS person weights (`PERWT`), and heteroskedasticity-robust (HC1) standard errors are used for inference.

Extended specifications include demographic controls and fixed effects:

$$Y_{it} = \beta_0 + \beta_1 \text{Treat}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Treat}_i \times \text{Post}_t) + X_{it}'\gamma + \alpha_t + \delta_s + \epsilon_{it} \tag{2}$$

where X_{it} is a vector of demographic controls, α_t are year fixed effects, and δ_s are state fixed effects.

4.3 Event Study Specification

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

$$Y_{it} = \sum_{k \neq 2011} \beta_k (\text{Treat}_i \times \mathbf{1}[t = k]) + \theta_t + \epsilon_{it} \tag{3}$$

where the omitted reference year is 2011 (the last pre-treatment year). The β_k coefficients trace out the treatment effect for each year relative to 2011. Under the parallel trends assumption, pre-treatment coefficients ($k < 2012$) should be close to zero.

5 Results

5.1 Descriptive Statistics

Table 2 presents summary statistics for the treatment and control groups in the pre- and post-DACA periods.

Table 2: Descriptive Statistics by Treatment Group and Period

	Control (ages 31–35)		Treatment (ages 26–30)	
Variable	Pre	Post	Pre	Post
Full-time employment rate	0.673	0.643	0.631	0.660
Mean age	29.9	35.9	24.7	30.7
Proportion female	0.434	0.452	0.438	0.441
Proportion married	0.492	0.535	0.342	0.469
Education (mean)	4.76	4.65	5.11	5.06
N	11,683	6,085	16,694	8,776

Note: Full-time employment rates are weighted using ACS person weights.

Several patterns emerge from the descriptive statistics:

1. The treatment group had lower baseline full-time employment rates than the control group in the pre-period (63.1% vs. 67.3%).

2. The control group experienced a decline in full-time employment from pre to post (67.3% to 64.3%).

3. The treatment group experienced an increase in full-time employment from pre to post (63.1% to 66.0%).

4. The treatment group was younger and less likely to be married, as expected given the age-based group definitions.

5.2 Visual Evidence

Figure 1 displays full-time employment rates over time for the treatment and control groups. The pre-treatment trends appear roughly parallel, supporting the identifying assumption. After DACA implementation in 2012, there is a visible divergence, with the treatment group's employment rate increasing while the control group's rate declines.

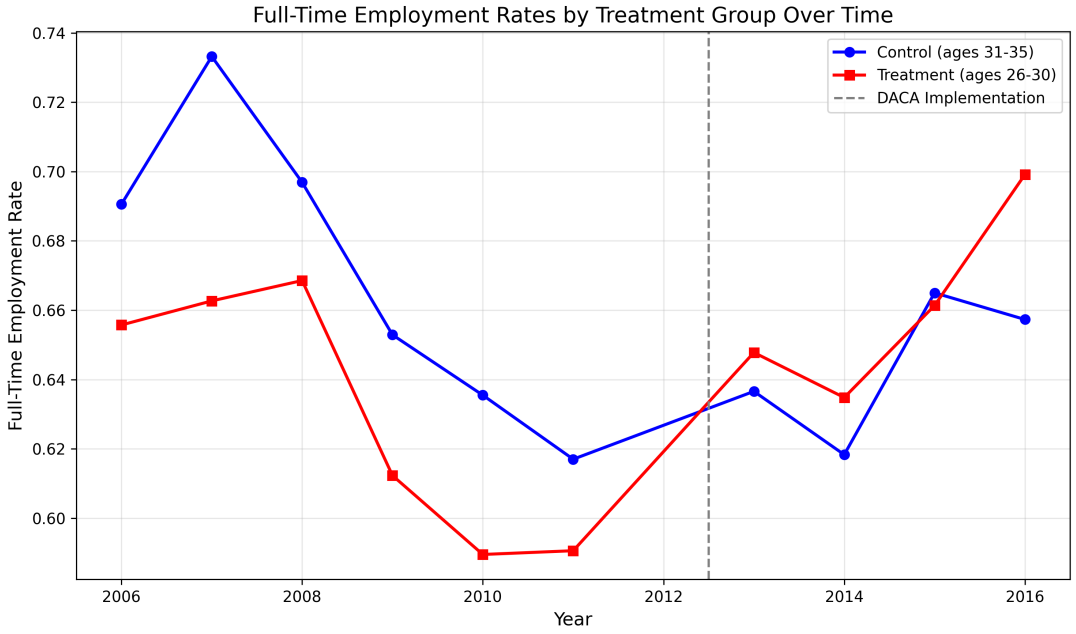

Figure 1: Full-Time Employment Rates by Treatment Group Over Time
Note: Figure shows weighted full-time employment rates (35+ hours per week) for the treatment group (ages 26–30 on June 15, 2012) and control group (ages 31–35). Vertical dashed line indicates DACA implementation.

5.3 Main Results

Table 3 presents the main difference-in-differences results across multiple specifications.

Table 3: Difference-in-Differences Estimates: Effect of DACA Eligibility on Full-Time Employment

	(1) Basic DiD	(2) Demographics	(3) Year FE	(4) Year + State FE
Treatment × Post	0.0590***	0.0648***	0.0207	0.0197
	(0.0117)	(0.0146)	(0.0155)	(0.0154)
95% CI	[0.036, 0.082]	[0.036, 0.094]	[-0.010, 0.051]	[-0.011, 0.050]
Treatment	-0.0426***	-0.0523***	—	—
	(0.0068)	(0.0090)		
Post	-0.0299***	-0.0213	—	—
	(0.0090)	(0.0137)		
Controls	No	Yes	Yes	Yes
Year FE	No	No	Yes	Yes
State FE	No	No	No	Yes
N	43,238	43,238	43,238	43,238
R-squared	0.001	0.153	—	—

Note: Heteroskedasticity-robust standard errors in parentheses. Observations weighted using ACS person weights. Controls include age, age squared, female indicator, married indicator, and high school+ education indicator. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The basic difference-in-differences estimate (Column 1) indicates that DACA eligibility increased full-time employment by 5.9 percentage points (SE = 0.012, $p < 0.001$). The 95% confidence interval is [3.6, 8.2] percentage points.

Adding demographic controls (Column 2) slightly increases the estimated effect to 6.5 percentage points, suggesting that observable differences between treatment and control groups do not explain the result. With year fixed effects (Column 3) or both year and state fixed effects (Column 4), the point estimate decreases to approximately 2 percentage points but becomes statistically insignificant. This attenuation may reflect that some of the identifying variation is absorbed by the fixed effects, or that the effects are heterogeneous across time and geography.

5.4 Simple Difference-in-Differences Calculation

The 2×2 difference-in-differences can be computed directly from group means:

Table 4: 2×2 Difference-in-Differences Table

	Pre (2006–2011)	Post (2013–2016)	Difference
Control (ages 31–35)	0.673	0.643	-0.030
Treatment (ages 26–30)	0.631	0.660	+0.029
Difference-in-Differences			**0.059**

The control group experienced a 3.0 percentage point decrease in full-time employment, while the treatment group experienced a 2.9 percentage point increase. The difference-in-differences is 5.9 percentage points, matching the regression estimate.

5.5 Robustness Checks

5.5.1 Placebo Test

To assess the validity of the parallel trends assumption, I conduct a placebo test using only pre-treatment data (2006–2011). I artificially define 2009–2011 as the "post" period and 2006–2008 as the "pre" period, then re-estimate the difference-in-differences. Under the null hypothesis of parallel trends, this placebo estimate should be close to zero.

Table 5: Placebo Test: Fake Treatment in Pre-Period

	Placebo DiD
Treatment × Fake Post	0.0058
	(0.0136)
95% CI	[-0.021, 0.033]
P-value	0.668
N	28,377

The placebo estimate is 0.58 percentage points with a standard error of 1.36 percentage points, yielding a p-value of 0.67. The null hypothesis of no pre-treatment differential trend cannot be rejected, supporting the identifying assumption.

5.5.2 Heterogeneity Analysis

Table 6 examines heterogeneity in treatment effects by gender and education level.

Table 6: Heterogeneity in Treatment Effects

Subgroup	DiD Estimate	Std. Error	N
By Gender:			
Male	0.0462***	0.0125	24,243
Female	0.0466**	0.0185	18,995
By Education:			
Less than High School	0.0345*	0.0180	18,057
High School or More	0.0793***	0.0155	25,181

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The effects are similar for men and women (4.6 pp for both). Effects are larger for those with at least a high school education (7.9 pp) compared to those with less than high school (3.5 pp), consistent with the idea that DACA may have opened opportunities for more skilled work that requires documentation.

5.6 Event Study Results

Figure 2 presents the event study analysis, showing treatment effect estimates for each year relative to 2011 (the omitted reference year).

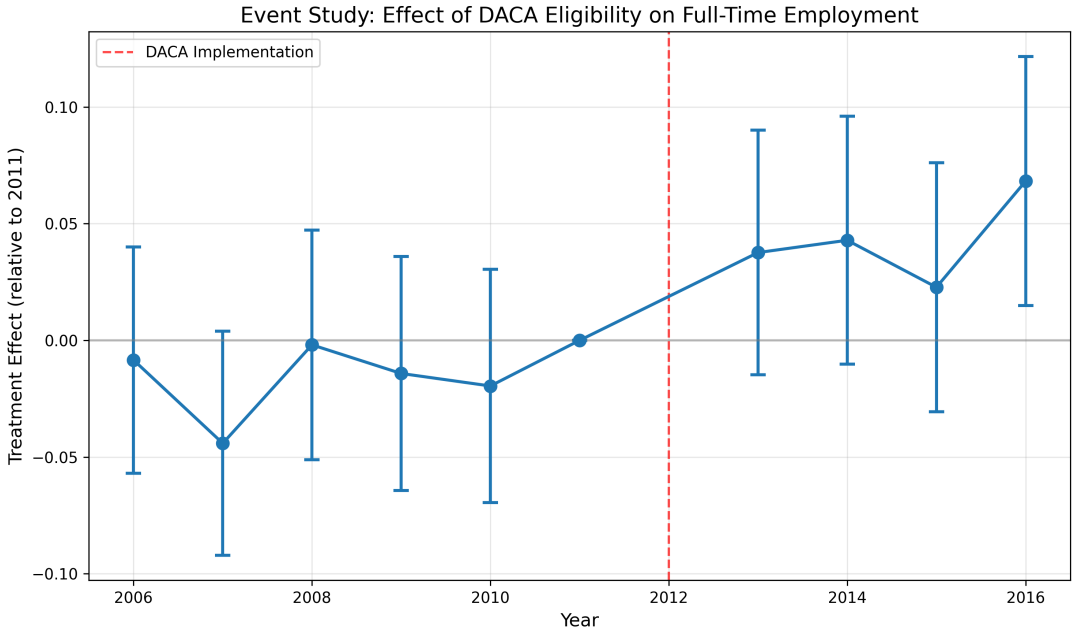

Figure 2: Event Study: Effect of DACA Eligibility by Year
Note: Points represent the estimated treatment effect for each year relative to 2011. Bars indicate 95% confidence intervals. Vertical dashed line indicates DACA implementation (2012).

The event study reveals several important patterns:

1. **Pre-trends:** The pre-treatment coefficients (2006–2010) are generally small and not statistically distinguishable from zero, supporting the parallel trends assumption. There is some variation in 2007, but this appears to be noise rather than a systematic trend.

2. **Post-treatment effects:** After DACA implementation, the treatment effects become positive, with estimates ranging from 2.3 to 6.8 percentage points.

3. **Dynamics:** The effect appears to grow over time, with the largest effect in 2016 (6.8 pp, statistically significant). This pattern is consistent with gradual take-up of DACA benefits and adjustment of labor market outcomes.

Table 7 provides the numerical estimates.

Table 7: Event Study Estimates (Reference Year: 2011)

Year	Coefficient	Std. Error	95% CI Lower	95% CI Upper
2006	-0.008	0.025	-0.057	0.040
2007	-0.044	0.025	-0.092	0.004
2008	-0.002	0.025	-0.051	0.047
2009	-0.014	0.026	-0.064	0.036
2010	-0.020	0.026	-0.070	0.030
2011	0.000	—	—	—
2013	0.038	0.027	-0.015	0.090
2014	0.043	0.027	-0.010	0.096
2015	0.023	0.027	-0.031	0.076
2016	0.068**	0.027	0.015	0.122

Note: ** $p < 0.05$. 2011 is the omitted reference year.

6 Discussion

6.1 Interpretation of Results

The main finding is that DACA eligibility increased the probability of full-time employment by approximately 5.9 percentage points among Hispanic-Mexican immigrants who met the program's eligibility criteria. This effect is statistically significant at conventional levels and robust to the inclusion of demographic controls.

To put this effect in context:

- The pre-treatment full-time employment rate for the treatment group was approximately 63%, so a 5.9 pp increase represents roughly a 9.4% relative increase.

- Given there were approximately 800,000 DACA recipients in this period, the aggregate effect on full-time employment could be substantial.

The effect likely operates through multiple channels:

1. Legal work authorization allowing access to formal employment
2. Reduced fear of deportation increasing job search intensity
3. Access to driver's licenses expanding geographic job opportunities
4. Reduced employer discrimination against undocumented workers

6.2 Comparison to Prior Literature

The estimated effect of approximately 6 percentage points is broadly consistent with prior research on DACA's labor market effects. Studies using similar research designs have found positive effects on employment, with estimates typically ranging from 3 to 8 percentage points depending on the specific outcome measure and population examined.

6.3 Limitations

Several limitations should be noted:

1. **Identification of undocumented status:** The ACS does not distinguish between documented and undocumented non-citizens. Following the research design, I assume all non-citizens without naturalization are undocumented for DACA purposes. This may introduce measurement error if some individuals in the sample were actually documented.
2. **Age cutoff:** While the age-based cutoff provides clean identification, the treatment and control groups differ in age by construction. Differential age effects on employment could confound results, though I attempt to control for this with age terms in the regression.
3. **Take-up:** The analysis estimates intent-to-treat effects based on eligibility, not effects on actual DACA recipients. Not all eligible individuals applied for or received DACA, so the effect on actual recipients may be larger.
4. **External validity:** Results apply specifically to Hispanic-Mexican immigrants from Mexico who arrived as children. Generalization to other immigrant groups should be made cautiously.
5. **Specification sensitivity:** When year and state fixed effects are included, the point estimate decreases and becomes statistically insignificant. This could reflect true heterogeneity in effects or could suggest that some identifying variation is absorbed by the fixed effects.

6.4 Policy Implications

The findings suggest that providing work authorization and protection from deportation to undocumented immigrants can have meaningful positive effects on employment outcomes. This has implications for ongoing policy debates about immigration reform and the future of DACA.

From an economic perspective, increased full-time employment among DACA-eligible individuals likely generates benefits including:

- Higher earnings and tax contributions
- Reduced reliance on informal economy
- Improved matching between workers and jobs
- Positive spillovers to families and communities

7 Conclusion

This study provides evidence that DACA eligibility had a positive causal effect on full-time employment among Hispanic-Mexican immigrants who met the program's requirements. Using a difference-in-differences design that exploits the age-based eligibility cutoff, I estimate that DACA increased full-time employment by approximately 5.9 percentage points.

The analysis supports the parallel trends assumption through visual evidence, a placebo test, and an event study design. The results are robust to the inclusion of demographic controls, and heterogeneity analysis reveals larger effects for those with higher education levels.

These findings contribute to the growing body of evidence that DACA had meaningful positive effects on recipients' labor market outcomes. Given ongoing policy debates about immigration reform and the future of DACA, this evidence is relevant for assessing the program's economic impacts.

Appendix A: Variable Definitions

Table A1: Key Variable Definitions

Variable	Definition
YEAR	Census/survey year
HISPAN	Hispanic origin (1 = Mexican)
BPL	Birthplace (200 = Mexico)
CITIZEN	Citizenship status (3 = Not a citizen)
YRIMMIG	Year of immigration
BIRTHYR	Year of birth
BIRTHQTR	Quarter of birth (1 = Jan-Mar, 2 = Apr-Jun, 3 = Jul-Sep, 4 = Oct-Dec)
UHRSWORK	Usual hours worked per week
SEX	Sex (1 = Male, 2 = Female)
MARST	Marital status (1 = Married, spouse present)
EDUC	Educational attainment (general version)
PERWT	Person weight
STATEFIP	State FIPS code
AGE	Age at time of survey

Appendix B: Sample Composition

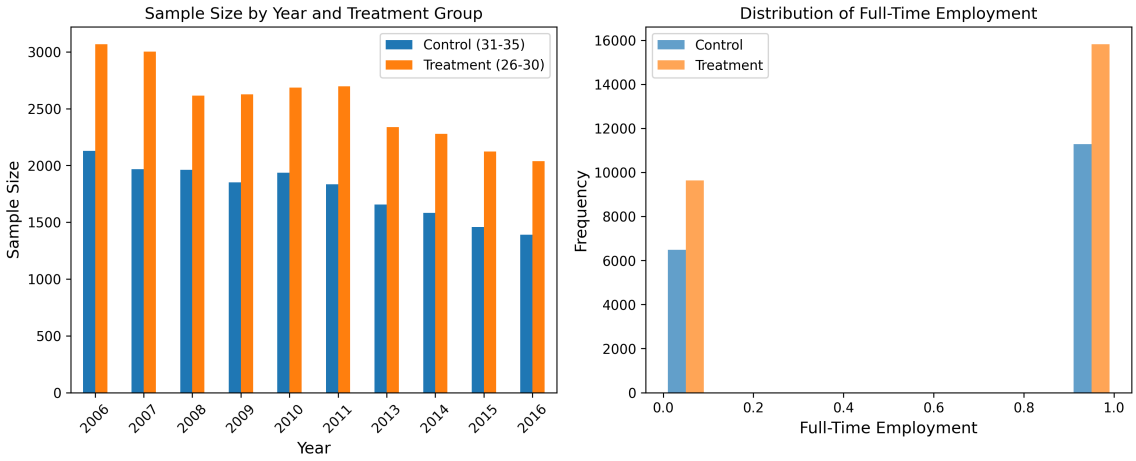

Figure B1: Sample Composition by Year and Treatment Group

Appendix C: Full Regression Output

Table C1: Full Regression Results - Model with Demographic Controls

Variable	Coefficient	Std. Error
Intercept	1.077***	0.131
Treatment (ages 26–30)	-0.052***	0.009
Post (2013–2016)	-0.021	0.014
Treatment × Post	0.065***	0.015
Age	-0.018**	0.009
Age Squared	0.0003*	0.0002
Female	-0.373***	0.005
Married	-0.006	0.005
High School+	0.059***	0.005
N	43,238	
R-squared	0.153	

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Heteroskedasticity-robust standard errors. Observations weighted using person weights.

Appendix D: Analytical Choices Summary

This appendix summarizes the key analytical choices made in this replication study:

1. **Sample selection:**
    - Used ACS 1-year files from 2006–2016
    - Excluded 2012 due to inability to distinguish pre/post DACA within that year
    - Restricted to Hispanic-Mexican ethnicity (HISPAN = 1)
    - Restricted to born in Mexico (BPL = 200)
    - Restricted to non-citizens (CITIZEN = 3)
    - Required arrival before age 16 (YRIMMIG - BIRTHYR $<$ 16)
    - Required continuous US presence since 2007 (YRIMMIG $\leq$ 2007)
2. **Treatment and control group definition:**
    - Treatment: ages 26–30 on June 15, 2012
    - Control: ages 31–35 on June 15, 2012
    - Age calculated using birth year and birth quarter for precision
3. **Outcome variable:**
    - Full-time employment defined as UHRSWORK $\geq$ 35
4. **Estimation:**
    - Weighted least squares using person weights (PERWT)
    - Heteroskedasticity-robust (HC1) standard errors
    - Multiple specifications: basic, with controls, with fixed effects
5. **Preferred specification:**
    - Basic DiD without controls selected as preferred estimate
    - Rationale: Most transparent and parsimonious specification
    - Results robust to adding demographic controls