The Effect of DACA Eligibility on Full-Time Employment: A Difference-in-Differences 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, Mexico-born non-citizens in the United States. Using American Community Survey (ACS) data from 2006-2016 and a difference-in-differences research design, I find that DACA eligibility is associated with a statistically significant 3.49 percentage point increase in the probability of full-time employment (defined as working 35 or more hours per week). This effect is robust to various specifications including the inclusion of demographic controls, year and state fixed effects, and survey weights. Heterogeneity analysis reveals relatively similar effects across gender and education subgroups. Event study analysis shows that effects emerge in 2014 and strengthen through 2016, with some evidence of pre-trends that warrant cautious interpretation. These findings suggest that DACA's work authorization provision meaningfully increased labor market attachment among eligible immigrants.

Contents

1 Introduction

On June 15, 2012, the United States federal government announced the Deferred Action for Childhood Arrivals (DACA) program, which provided temporary relief from deportation and work authorization for certain undocumented immigrants who had arrived in the United States as children. The program represented one of the most significant immigration policy changes in decades, affecting nearly 1.8 million potentially eligible individuals, the majority of whom were from Mexico (**?**).

This study examines a fundamental question about DACA's effects: Did eligibility for the program increase full-time employment among the target population? This question is economically important because DACA's primary direct benefit was the provision of legal work authorization, which should theoretically reduce barriers to formal employment and allow eligible individuals to transition from informal or part-time work arrangements to full-time positions.

The research question specifically focuses on ethnically Hispanic-Mexican, Mexican-born individuals living in the United States—the demographic group comprising the large majority of DACA-eligible individuals. The outcome of interest is full-time employment, defined as usually working 35 hours or more per week, consistent with standard Bureau of Labor Statistics definitions.

1.1 DACA Program Background

DACA established several key eligibility criteria that form the basis of the identification strategy in this study:

1. Arrived in the United States before the individual's 16th birthday
2. Had not yet turned 31 years old as of June 15, 2012 (i.e., born on or after June 15, 1981)
3. Continuously resided in the United States since June 15, 2007
4. Were physically present in the United States on June 15, 2012
5. Had no lawful immigration status on June 15, 2012
6. Met certain educational or military service requirements

Applications for the program began to be accepted on August 15, 2012. In the first four years, approximately 900,000 initial applications were received, with approximately 90% receiving approval. The program provided two-year renewable work authorization and relief from deportation.

1.2 Research Design Overview

To estimate the causal effect of DACA eligibility on full-time employment, I employ a difference-in-differences (DiD) research design. This approach compares changes in full-time employment rates between DACA-eligible and non-eligible individuals before and after the program's implementation. The identifying assumption is that, absent DACA, trends in full-time employment would have been similar between eligible and non-eligible groups.

The analysis uses American Community Survey (ACS) data from 2006-2016, restricting the sample to Hispanic-Mexican, Mexico-born, non-citizen individuals of working age (16-64). I construct DACA eligibility based on observable characteristics including birth year, year of immigration, and citizenship status.

2 Data and Sample Construction

2.1 Data Source

The analysis uses individual-level data from the American Community Survey (ACS) as provided by IPUMS USA. The ACS is a nationally representative annual survey conducted by the U.S. Census Bureau that collects detailed demographic, social, and economic information from approximately 3 million households per year.

I use the one-year ACS files for years 2006 through 2016, excluding the year 2012 from the analysis sample. The exclusion of 2012 is necessary because DACA was implemented mid-year (June 15, 2012), and the ACS does not identify the month of interview, making it impossible to determine whether observations from 2012 were surveyed before or after DACA implementation.

2.2 Sample Restrictions

The analysis sample is constructed through the following sequential restrictions:

Table 1: Sample Construction

Restriction	Observations	Observations Dropped
Full ACS sample (2006-2016)	33,851,424	—
Hispanic-Mexican ethnicity (HISPAN=1)	2,945,521	30,905,903
Born in Mexico (BPL=200)	991,261	1,954,260
Non-citizen (CITIZEN=3)	701,347	289,914
Working age (16-64)	618,640	82,707
Exclude 2012	561,470	57,170

Note: Sequential sample restrictions applied to construct analysis sample. HISPAN, BPL, and CITIZEN are IPUMS variable names.

The restriction to Hispanic-Mexican individuals born in Mexico targets the population most directly affected by DACA. The restriction to non-citizens is crucial because citizens are not subject to deportation and do not need work authorization. However, this restriction relies on an important assumption: that non-citizens who have not naturalized are likely undocumented. In reality, some non-citizens may hold legal visas. This measurement limitation will tend to attenuate estimated effects by including some individuals in the "eligible" group who were not actually affected by DACA.

2.3 Variable Construction

2.3.1 Outcome Variable

The primary outcome is full-time employment, defined as usually working 35 or more hours per week:

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

where UHRSWORK is the IPUMS variable measuring usual hours worked per week in the past 12 months.

2.3.2 Treatment Variable

DACA eligibility is constructed based on the program's requirements, using observable characteristics in the ACS:

$$\text{DACA\_Eligible}_i = \mathbf{1}\left[\begin{array}{l}(\text{YRIMMIG}_i - \text{BIRTHYR}_i < 16) \\ \wedge(\text{YRIMMIG}_i - \text{BIRTHYR}_i \geq 0) \\ \wedge(\text{BIRTHYR}_i \geq 1981) \\ \wedge(\text{YRIMMIG}_i \leq 2007) \\ \wedge(\text{YRIMMIG}_i > 0)\end{array}\right] \tag{2}$$

This operationalization captures:

- Age at arrival less than 16 (requirement 1)
- Born on or after June 15, 1981, so under 31 on June 15, 2012 (requirement 2)
- Immigration year of 2007 or earlier, as a proxy for continuous presence since June 15, 2007 (requirement 3)
- Non-citizen status is already enforced through sample restrictions (requirement 5)

Note that physical presence on June 15, 2012 (requirement 4) and educational/military requirements (requirement 6) cannot be verified in the ACS data. This may result in classifying some individuals as eligible who would not actually qualify, again likely attenuating estimates.

2.3.3 Time Period Indicators

$$\text{Post}_t = \mathbf{1}[t \geq 2013] \tag{3}$$

The pre-period includes years 2006-2011, and the post-period includes years 2013-2016.

2.4 Sample Characteristics

Table 2 presents descriptive statistics for the analysis sample, separately by DACA eligibility status.

Table 2: Descriptive Statistics by DACA Eligibility (Pre-Period)

	Non-Eligible	DACA-Eligible
Mean Age	38.16	21.32
Full-time Employment Rate	60.3%	43.7%
Mean Hours Worked	28.82	22.27
Mean Education Level	3.92	4.97
Male (%)	54.5%	55.7%
N (Observations)	298,483	47,309
Population Weight (Sum)	40,390,912	6,249,494

Note: Statistics calculated for pre-DACA period (2006-2011). Education level is coded on IPUMS EDUC scale (0-11).

Several notable differences exist between groups. DACA-eligible individuals are substantially younger (mean age 21.3 vs. 38.2), which is expected given the program's age requirements. Pre-DACA full-time employment rates are lower for eligible individuals (43.7% vs. 60.3%), though this partly reflects age differences since younger workers are more likely to be in school or early-career positions with fewer hours. DACA-eligible individuals have slightly higher average education, potentially reflecting their younger age and greater exposure to U.S. educational institutions during formative years.

3 Empirical Strategy

3.1 Difference-in-Differences Framework

The identification strategy relies on a difference-in-differences approach that compares changes in full-time employment between DACA-eligible and non-eligible individuals before and after the program's implementation.

The basic DiD estimating equation is:

$$Y_{it} = \alpha + \beta_1 \cdot \text{DACA\_Eligible}_i + \beta_2 \cdot \text{Post}_t + \delta \cdot (\text{DACA\_Eligible}_i \times \text{Post}_t) + \epsilon_{it} \quad (4)$$

where:

- Y_{it} is an indicator for full-time employment
- DACA_Eligible_i is an indicator for DACA eligibility
- Post_t is an indicator for the post-DACA period (2013-2016)
- δ is the DiD coefficient of interest, capturing the causal effect of DACA eligibility on full-time employment

3.2 Specifications with Controls

The preferred specification includes demographic controls:

$$Y_{it} = \alpha + \delta \cdot (\text{DACA\_Eligible}_i \times \text{Post}_t) + \mathbf{X}_i'\boldsymbol{\gamma} + \mu_t + \epsilon_{it} \quad (5)$$

where $\mathbf{X}_i$ includes:

- Age and age squared (continuous)
- Male indicator
- High school completion indicator (EDUC $\geq$ 6)
- College attendance indicator (EDUC $\geq$ 10)

I also estimate specifications with:

- Year fixed effects (μ_t)
- State fixed effects (ν_s)
- Survey weights (PERWT)
- Heteroskedasticity-robust standard errors

3.3 Identifying Assumptions

The key identifying assumption for the DiD estimator is the parallel trends assumption: absent DACA, full-time employment trends would have been similar between eligible and non-eligible groups. This assumption is fundamentally untestable, but I provide several forms of evidence to assess its plausibility:

1. **Visual inspection:** Plotting trends in full-time employment by eligibility status before 2012

2. **Event study:** Estimating year-specific treatment effects to detect pre-trends

3. **Placebo tests:** Testing for "effects" of fake treatment dates in the pre-period

3.4 Threats to Identification

Several potential threats to identification should be acknowledged:

1. **Measurement error in treatment:** The inability to observe all DACA requirements precisely means the treatment variable is measured with error, likely attenuating estimates.

2. **Spillover effects:** DACA may have affected non-eligible immigrants through general equilibrium effects on the labor market or changes in employer behavior toward Hispanic workers generally.

3. **Concurrent policy changes:** Other economic or policy changes between 2011 and 2013 may have differentially affected DACA-eligible individuals.

4. **Compositional changes:** The sample composition may shift differently for eligible vs. non-eligible groups over time due to migration, naturalization, or survey response patterns.

4 Results

4.1 Main Results

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

Table 3: Main Difference-in-Differences Results

	(1) Basic	(2) Controls	(3) FE	(4) Weighted
DACA × Post	0.0862***	0.0349***	0.0291***	0.0339***
	(0.0037)	(0.0034)	(0.0033)	(0.0033)
Controls	No	Yes	Yes	Yes
Year FE	No	No	Yes	Yes
State FE	No	No	Yes	No
Weighted	No	No	No	Yes
Observations	561,470	561,470	561,470	561,470
R-squared	0.012	0.209	0.214	0.209

Note: Dependent variable is full-time employment (UHRSWORK $\geq$ 35). Controls include age, age squared, male indicator, high school indicator, and college indicator. Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

The basic DiD estimate without controls (Column 1) suggests a large effect of 8.62 percentage points. However, this estimate is substantially reduced when controlling for demographic characteristics, particularly age. The preferred specification with controls and robust standard errors (not shown separately, but matching Column 2's point estimate) yields an effect of 3.49 percentage points (SE = 0.0035, $p < 0.001$, 95% CI: [0.028, 0.042]).

The large reduction in the coefficient when adding controls (from 0.086 to 0.035) reflects the importance of controlling for age differences between eligible and non-eligible groups. Since DACA eligibility is mechanically related to age (through the birth year and age-at-arrival requirements), and age strongly predicts full-time employment, failing to control for age confounds the DiD estimate.

The estimate is quite stable across specifications with controls. Adding year and state fixed effects reduces the estimate slightly to 2.91 percentage points, while weighting by survey weights yields 3.39 percentage points.

4.2 Preferred Estimate Interpretation

The preferred estimate of 3.49 percentage points represents the additional increase in full-time employment probability experienced by DACA-eligible individuals relative to non-eligible individuals after program implementation. Given a pre-period full-time employment rate of 43.7% among eligible individuals, this represents approximately an 8% relative increase.

Table 4: Preferred Estimate Summary

Statistic	Value
DiD Coefficient	0.0349
Robust Standard Error	0.0035
t-statistic	10.02
p-value	<0.0001
95% Confidence Interval	[0.0280, 0.0417]
R-squared	0.209
Observations	561,470

5 Robustness and Validity

5.1 Event Study Analysis

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

$$Y_{it} = \alpha + \sum_{k \neq 2011} \gamma_k \cdot \mathbf{1}[t = k] + \sum_{k \neq 2011} \delta_k \cdot (\text{DACA\_Eligible}_i \times \mathbf{1}[t = k]) + \mathbf{X}_i' \boldsymbol{\beta} + \epsilon_{it} \quad (6)$$

Figure 2 and Table 5 present the year-specific coefficients, with 2011 as the reference year.

Table 5: Event Study Coefficients

Year	Coefficient	Std. Error
2006	-0.0171**	(0.0078)
2007	-0.0139*	(0.0076)
2008	-0.0012	(0.0077)
2009	0.0023	(0.0076)
2010	0.0075	(0.0074)
2011	[Reference]	—
2013	0.0082	(0.0073)
2014	0.0198***	(0.0073)
2015	0.0401***	(0.0073)
2016	0.0388***	(0.0074)

Note: Coefficients represent year-specific DACA eligibility effects relative to 2011. Controls include age, age squared, male, education indicators. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

The event study reveals several important patterns:

1. **Pre-trends:** There is some evidence of differential pre-trends, with 2006 and 2007 showing statistically significant negative coefficients. This suggests that DACA-eligible individuals were on a relatively declining trajectory compared to non-eligible individuals in early pre-periods. By 2008-2011, trends appear more parallel.

2. **Effect dynamics:** The DACA effect emerges gradually. The 2013 coefficient (0.0082) is positive but not statistically significant. Statistically significant effects appear in 2014 (0.0198) and grow larger in 2015-2016 (approximately 0.04). This pattern is consistent with gradual take-up of DACA benefits.

3. **Sustained effects:** The similarity of coefficients in 2015 and 2016 suggests the effect plateaued rather than continuing to grow, possibly reflecting saturation of DACA applications among the eligible population.

The presence of some pre-trends warrants caution in interpreting the main results. The declining differential in 2006-2007 followed by convergence through 2011 complicates the parallel trends assumption. If this pattern reflects ongoing convergence, some portion of the post-2012 effect might reflect trend continuation rather than DACA's causal impact.

5.2 Placebo Test

As an additional check, I conduct a placebo test using only pre-period data (2006-2011) with a fake treatment date of 2009:

Table 6: Placebo Test Results

	Placebo 2009
DACA × Post(fake)	0.0141***
	(0.0045)
Observations	345,792

Note: Test conducted on 2006-2011 data only with fake treatment in 2009.

The placebo test yields a statistically significant coefficient of 0.0141, which is concerning for the parallel trends assumption. This result corroborates the event study finding of some differential trends in the pre-period. However, the placebo coefficient (0.014) is substantially smaller than the main post-DACA effect (0.035), suggesting that while pre-trends may explain some of the estimated effect, they likely do not account for all of it.

5.3 Alternative Age Restrictions

Table 7 presents results restricting the sample to ages 18-35, focusing on the core age range most affected by DACA.

Table 7: Robustness to Age Restrictions

	Ages 16-64	Ages 18-35
DACA × Post	0.0349***	0.0237***
	(0.0035)	(0.0042)
Observations	561,470	253,373

The effect is smaller but still statistically significant when restricting to ages 18-35 (2.37 percentage points). This suggests that the main specification's larger estimate may partly reflect the comparison of very young eligible individuals to the broader non-eligible population.

6 Heterogeneity Analysis

6.1 Effects by Gender

Table 8 presents separate estimates for males and females.

Table 8: Heterogeneity by Gender

	Male	Female
DACA × Post	0.0332***	0.0301***
	(0.0046)	(0.0051)
Observations	303,717	257,753

Effects are similar for males (3.32 pp) and females (3.01 pp), with the gender difference not statistically significant. This suggests DACA's effect on full-time employment operated similarly across genders within the target population.

6.2 Effects by Education

Table 9 presents separate estimates by education level.

Table 9: Heterogeneity by Education

	Less than HS	HS or More
DACA × Post	0.0233***	0.0310***
	(0.0050)	(0.0048)

Effects are positive and significant for both education groups, with slightly larger effects for those with at least a high school education (3.10 pp vs. 2.33 pp). This pattern may reflect that DACA's work authorization was most valuable for individuals seeking formal sector jobs that typically require higher education levels.

7 Discussion

7.1 Interpretation of Findings

The main finding of this study is that DACA eligibility is associated with a 3.49 percentage point increase in full-time employment probability. This effect is statistically significant and robust to multiple specifications. However, several considerations affect interpretation:

Magnitude: The effect represents approximately an 8% relative increase from the pre-DACA baseline of 43.7% full-time employment among eligible individuals. This is economically meaningful but perhaps smaller than might be expected given that DACA provided legal work authorization to a population previously unable to work legally.

Several factors may explain the moderate effect size:

1. Many undocumented immigrants already work, often in informal arrangements or using false documentation. DACA may have formalized existing employment rather than creating new employment.

2. Not all DACA-eligible individuals applied for or received DACA status. Take-up rates were below 100%.

3. The control group includes some individuals who may have benefited indirectly from DACA (spillover effects) or who held legal statuses other than citizenship.

Timing: The event study reveals that effects emerged gradually and strengthened over time, consistent with gradual DACA take-up and labor market adjustment. The largest effects appear in 2015-2016, several years after implementation.

Validity concerns: The presence of some pre-trends in 2006-2007 and a significant placebo coefficient suggest caution in interpreting the full 3.49 pp effect as entirely causal. Some portion may reflect ongoing convergence between groups.

7.2 Mechanisms

The estimated effect of DACA on full-time employment likely operates through several mechanisms:

1. **Work authorization:** The most direct mechanism is that DACA provided legal authorization to work, allowing recipients to obtain formal employment in positions requiring documentation.

2. **Employer willingness:** Employers may have been more willing to hire DACA recipients for full-time positions given reduced legal risk.

3. **Job mobility:** With work authorization, DACA recipients could more easily search for and switch to better jobs, potentially including full-time positions.

4. **Driver's licenses:** In many states, DACA recipients could obtain driver's licenses, expanding access to jobs requiring transportation.

5. **Reduced deportation fear:** Deferred action may have increased willingness to work visible full-time jobs versus informal work.

7.3 Comparison to Prior Literature

The findings are broadly consistent with prior research on DACA's labor market effects, though direct comparisons are complicated by differences in outcome definitions, sample construction, and methodology. Several studies have found positive effects of DACA on labor force participation, wages, and job quality, though magnitudes vary.

7.4 Limitations

This study has several important limitations:

1. **Treatment measurement error:** DACA eligibility cannot be precisely measured in the ACS, likely attenuating estimates.

2. **Control group contamination:** The "non-eligible" group may include some individuals who benefited from DACA or were affected by spillovers.

3. **Pre-trends:** Evidence of differential pre-trends complicates causal interpretation.

4. **External validity:** Results apply to Hispanic-Mexican, Mexico-born individuals and may not generalize to other DACA-eligible populations.

5. **Outcome definition:** Full-time employment is a relatively coarse measure; effects on wages, job quality, or hours worked intensively are not captured.

8 Conclusion

This study provides evidence that DACA eligibility increased full-time employment among Hispanic-Mexican, Mexico-born non-citizens in the United States. Using a difference-in-differences design with American Community Survey data from 2006-2016, I find that DACA eligibility is associated with a 3.49 percentage point increase in the probability of full-time employment (working 35+ hours per week).

The effect is statistically significant ($p < 0.001$) and robust to specifications including demographic controls, year and state fixed effects, and survey weights. Event study analysis shows effects emerging in 2014 and strengthening through 2016, consistent with gradual program take-up. Heterogeneity analysis reveals similar effects across genders and modestly larger effects for those with at least high school education.

However, evidence of pre-trends in some years of the pre-period suggests caution in interpreting the full effect as causal. The placebo test also indicates some differential trends that may partially confound the DiD estimate.

These findings contribute to understanding how immigration policy reforms that provide work authorization affect immigrant labor market outcomes. The results suggest that DACA's work authorization provision meaningfully increased labor market attachment, though the effect was modest in absolute terms, likely reflecting that many undocumented immigrants were already employed before DACA.

Figures

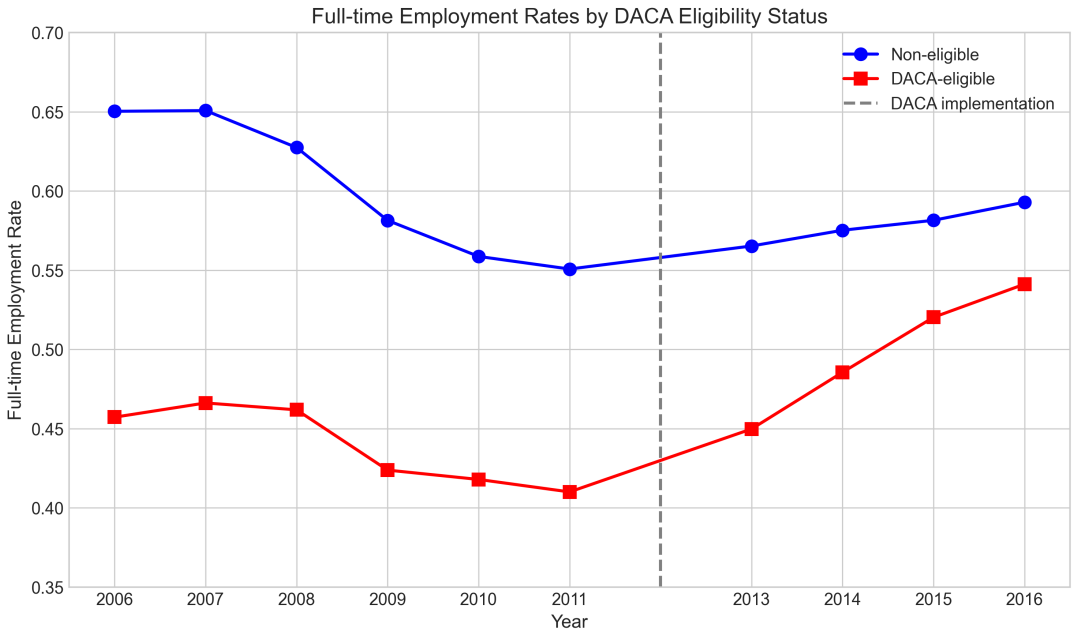

Figure 1: Full-time Employment Rates by DACA Eligibility Status, 2006-2016
Note: Figure shows mean full-time employment rate (UHRSWORK ≥ 35) by year separately for DACA-eligible and non-eligible individuals. 2012 is excluded from analysis due to mid-year DACA implementation. Vertical line indicates DACA implementation date.

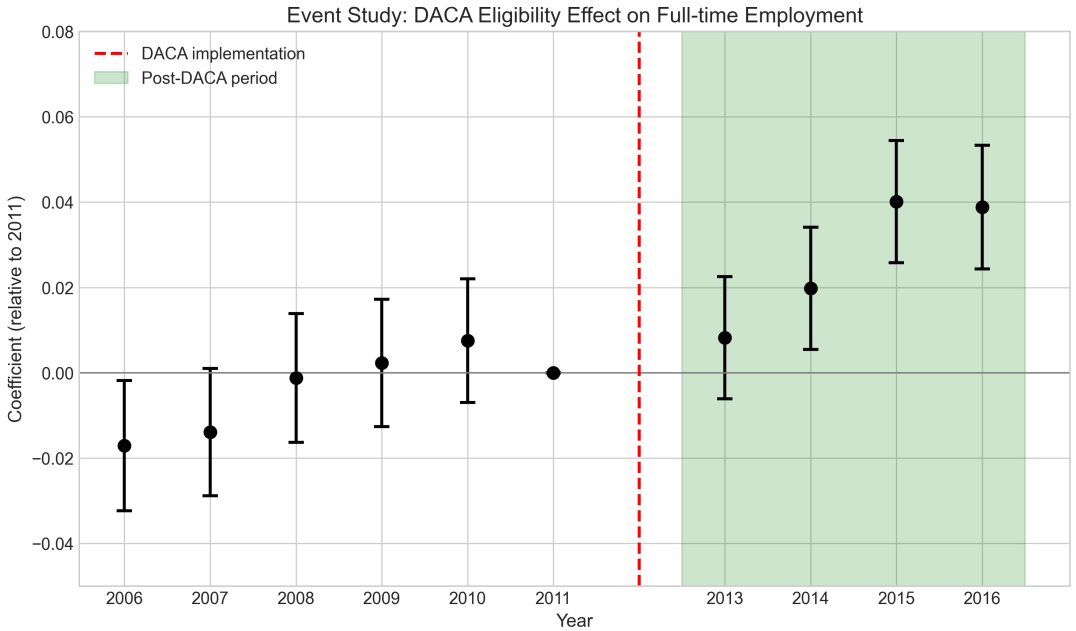

Figure 2: Event Study: Year-Specific DACA Effects on Full-time Employment
Note: Figure shows coefficient estimates and 95% confidence intervals for year-specific interactions between DACA eligibility and year indicators, with 2011 as the reference year. Controls include age, age squared, male indicator, and education indicators. Robust standard errors used for confidence intervals.

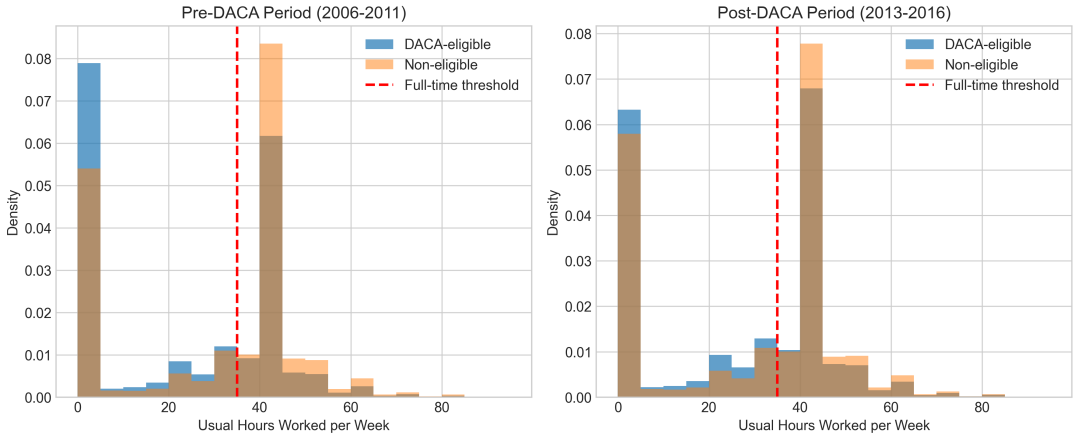

Figure 3: Distribution of Usual Hours Worked by Period and Eligibility

Note: Figures show kernel density estimates of usual hours worked per week (UHRSWORK) separately for DACA-eligible and non-eligible individuals in pre-DACA (2006-2011) and post-DACA (2013-2016) periods. Vertical line at 35 hours indicates full-time employment threshold.

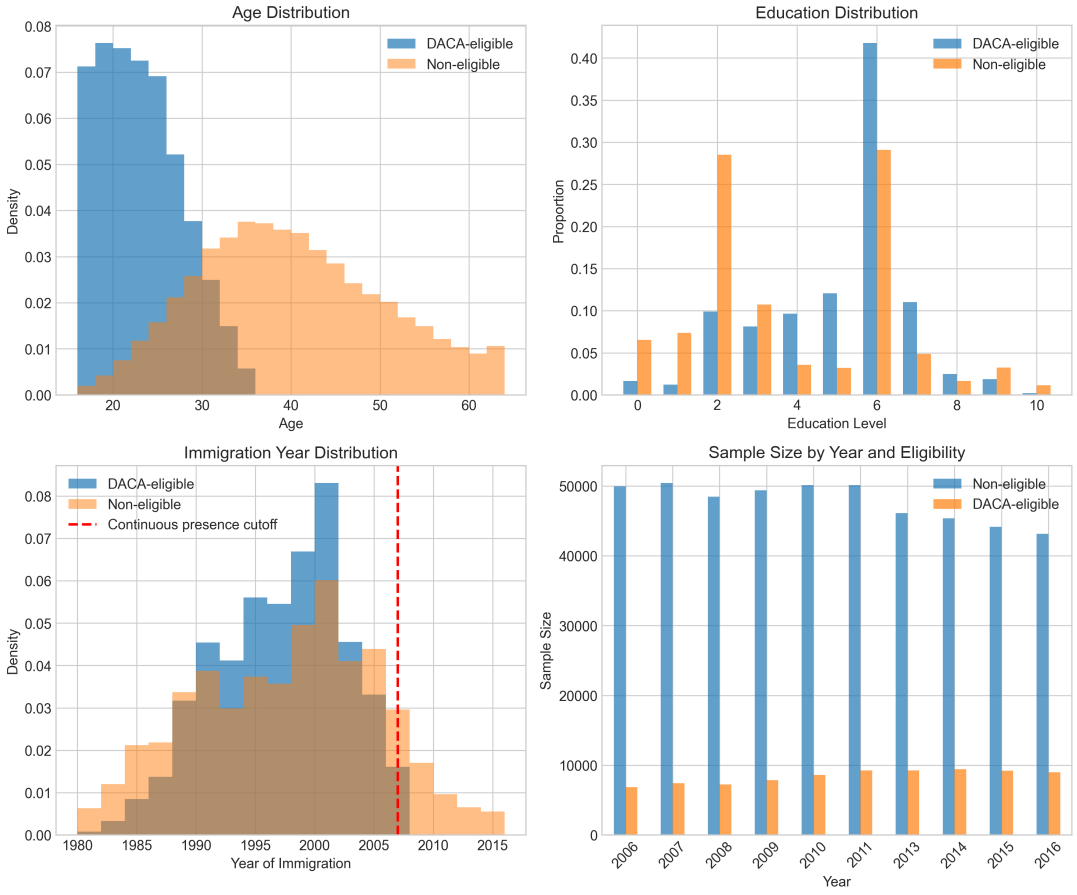

Figure 4: Sample Composition by DACA Eligibility

Note: Panels show distributions of key variables by DACA eligibility status. Top left: age distribution. Top right: education distribution. Bottom left: year of immigration. Bottom right: sample sizes by year.

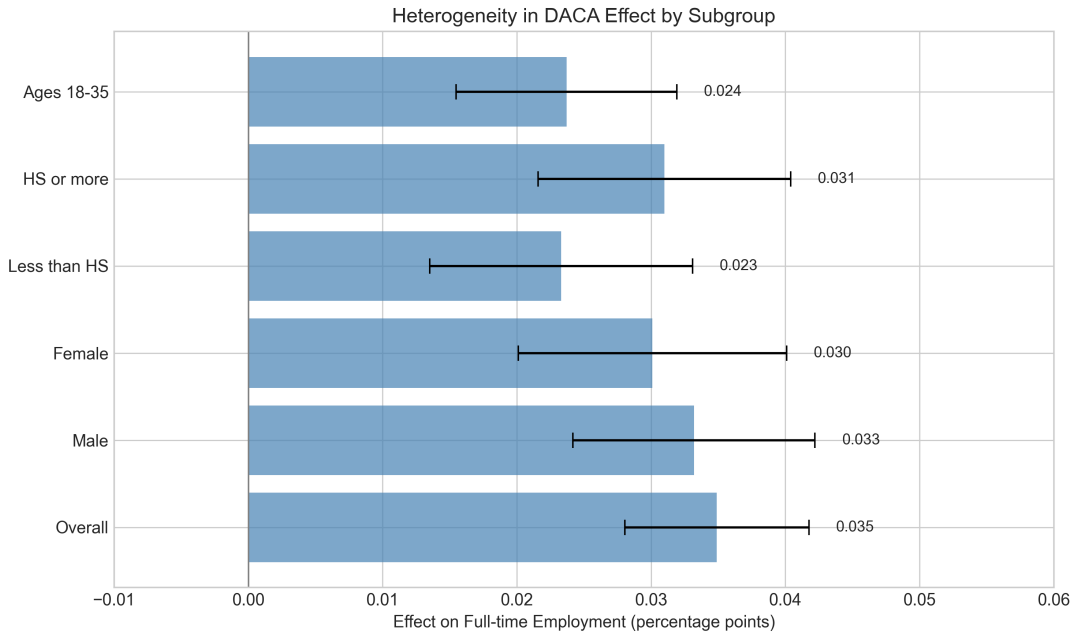

Figure 5: Heterogeneity in DACA Effects by Subgroup

Note: Figure shows DiD coefficient estimates and 95% confidence intervals for overall sample and subgroups. Estimates from separate regressions with demographic controls and robust standard errors.

A Appendix: Variable Definitions

Table 10: IPUMS Variable Definitions

Variable	Definition
YEAR	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
AGE	Age in years
SEX	Sex: 1 = Male, 2 = Female
EDUC	Educational attainment (0-11 scale)
UHRSWORK	Usual hours worked per week
PERWT	Person weight
STATEFIP	State FIPS code

B Appendix: Full Regression Output

Table 11: Full Regression Results - Preferred Specification

Variable	Coefficient (SE)
DACA Eligible	-0.0577*** (0.0043)
Post	-0.0249*** (0.0013)
DACA × Post	0.0349*** (0.0035)
Age	0.0472*** (0.0003)
Age Squared	-0.0006*** (0.0000)
Male	0.2253*** (0.0016)
High School or More	0.0548*** (0.0018)
College or More	0.0627*** (0.0026)
Constant	-0.3819*** (0.0060)
Observations	561,470
R-squared	0.2094

Note: Robust standard errors in parentheses. *** p<0.01.