

The Effect of DACA Eligibility on Full-Time Employment: A Difference-in-Differences Analysis Using American Community Survey Data

Independent Replication Study

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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 individuals in the United States. Using American Community Survey (ACS) data from 2006–2016 and a difference-in-differences research design, I compare employment outcomes for DACA-eligible non-citizens to non-eligible non-citizens before and after DACA implementation in June 2012. The preferred specification with year fixed effects estimates that DACA eligibility is associated with a statistically significant 1.60 percentage point increase in the probability of full-time employment (95% CI: [0.86, 2.35] percentage points). Event study analysis suggests parallel pre-trends between treatment and control groups, supporting the validity of the difference-in-differences identification strategy. Results are robust to alternative specifications, including the addition of state fixed effects, restriction to different age ranges, and separate analyses by gender.

Keywords: DACA, immigration policy, employment, difference-in-differences, American Community Survey

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1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented on June 15, 2012, represented a significant shift in U.S. immigration policy by providing temporary relief from deportation and work authorization to undocumented immigrants who arrived in the United States as children. This policy offered eligible individuals the opportunity to obtain legal work authorization, potentially transforming their labor market outcomes. Understanding the employment effects of DACA is crucial for evaluating the program's effectiveness and informing ongoing immigration policy debates.

This study investigates the causal impact of DACA eligibility on full-time employment among Hispanic-Mexican, Mexico-born individuals—the demographic group comprising the vast majority of DACA-eligible individuals. I employ a difference-in-differences (DiD) research design that compares employment outcomes for DACA-eligible non-citizens to non-eligible non-citizens before and after the program's implementation.

The analysis uses data from the American Community Survey (ACS) from 2006 to 2016, excluding 2012 (the implementation year) to ensure clean pre- and post-treatment periods. The preferred estimate indicates that DACA eligibility is associated with a 1.60 percentage point increase in full-time employment probability, representing approximately a 3.6% increase relative to the pre-treatment mean for eligible individuals.

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

2 Background and Theoretical Framework

2.1 The DACA Program

DACA was announced by the Obama administration on June 15, 2012, and began accepting applications on August 15, 2012. The program allowed eligible undocumented immigrants to apply for deferred action (protection from deportation) for two years, renewable, along with work authorization. In the first four years, nearly 900,000 initial applications were received, with approximately 90% approved.

To be eligible for DACA, individuals had to meet the following criteria as of June 15, 2012:

1. Arrived in the United States before their 16th birthday
2. Were under 31 years of age (born after June 15, 1981)
3. Had lived continuously in the United States since June 15, 2007
4. Were present in the United States on June 15, 2012
5. Did not have lawful immigration status (citizenship or legal residency)

2.2 Theoretical Mechanisms

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

Legal Work Authorization: The most direct mechanism is that DACA provides work authorization, allowing recipients to work legally. Prior to DACA, undocumented individuals often worked in the informal sector or with fraudulent documents, potentially limiting their employment options and hours.

Reduced Employment Barriers: With valid work authorization and the ability to obtain Social Security numbers, DACA recipients can access a broader range of employers who require work authorization verification through E-Verify or I-9 forms.

Occupational Upgrading: Legal work status may enable movement from informal to formal sector employment, potentially including full-time positions with benefits that were previously inaccessible.

Driver's License Access: In many states, DACA status enables recipients to obtain driver's licenses, reducing transportation barriers to employment and potentially enabling work in occupations requiring driving.

Reduced Fear and Uncertainty: Protection from deportation may reduce psychological stress and allow individuals to invest more in job search, training, and commitment to employers.

3 Data

3.1 Data Source

This analysis uses data from the American Community Survey (ACS), obtained through IPUMS USA. The ACS is an annual survey conducted by the U.S. Census Bureau that provides detailed demographic, social, economic, and housing information. I use the one-year ACS samples from 2006 through 2016, following the study instructions to exclude files newer than 2016 or older than 2006.

3.2 Sample Construction

The analysis sample is constructed through the following steps:

1. **Population of Interest:** I restrict to individuals who are ethnically Hispanic-Mexican ($HISPAN = 1$) and born in Mexico ($BPL = 200$), as this group comprises the majority of DACA-eligible individuals.
2. **Citizenship Status:** I further restrict to non-citizens ($CITIZEN = 3$), as DACA is only relevant for undocumented non-citizens. This restriction excludes naturalized citizens and those born abroad to American parents.
3. **Exclusion of 2012:** The implementation year (2012) is excluded from the analysis because DACA was implemented mid-year (June 15, 2012), making it impossible to distinguish pre- and post-treatment periods within that year.
4. **Working-Age Restriction:** The sample is restricted to working-age adults (ages 18–64).

The final analysis sample contains 547,614 person-year observations, including 71,347 observations from DACA-eligible individuals and 476,267 from non-eligible individuals.

3.3 Variable Definitions

3.3.1 Treatment Variable: DACA Eligibility

I construct a DACA eligibility indicator based on the program's criteria:

1. **Age at DACA:** Using $BIRTHYR$ and $BIRTHQTR$, I calculate each individual's age as of June 15, 2012. Individuals born in quarters 1–2 (January–June) are assumed to have reached their birthday by June 15; those born in quarters 3–4 are assumed not to have.
2. **Age Under 31:** The individual must be under 31 years old as of June 15, 2012.
3. **Arrival Age:** Using $YRIMMIG$ and $BIRTHYR$, I calculate the age at arrival. The individual must have arrived before their 16th birthday.
4. **Continuous Presence:** The individual must have been in the U.S. since at least June 15, 2007 ($YRIMMIG \leq 2007$).

An individual is coded as DACA-eligible if all three conditions are met.

3.3.2 Outcome Variable: Full-Time Employment

Full-time employment is defined as:

- Currently employed ($\text{EMPSTAT} = 1$), AND
- Usually works 35 or more hours per week ($\text{UHRSWORK} \geq 35$)

This definition follows standard practice in labor economics for defining full-time work.

3.3.3 Control Variables

I include the following control variables in the regression analysis:

- **Age and Age Squared:** To capture nonlinear age effects on employment
- **Female:** Binary indicator for female ($\text{SEX} = 2$)
- **Married:** Binary indicator for married ($\text{MARST} = 1$ or 2)
- **Education:** Binary indicators for high school or less ($\text{EDUCD} \leq 62$) and some college ($62 < \text{EDUCD} < 101$)
- **Years in U.S.:** Calculated as $\text{YEAR} - \text{YRIMMIG}$
- **Year Fixed Effects:** To control for aggregate time trends
- **State Fixed Effects:** To control for geographic heterogeneity

3.4 Descriptive Statistics

Table 1 presents descriptive statistics for the analysis sample by DACA eligibility status.

Table 1: Descriptive Statistics by DACA Eligibility Status

	Not Eligible	DACA Eligible
N	476,267	71,347
<i>Demographics</i>		
Mean Age	39.6	23.6
Female (%)	46.1	44.8
Married (%)	55.2	36.8
Mean Years in U.S.	16.3	15.3
<i>Employment</i>		
Full-Time Employment Rate (%)	54.5	46.8
Pre-DACA (2006–2011)	54.6	44.1
Post-DACA (2013–2016)	54.4	49.9

Notes: Sample restricted to Hispanic-Mexican, Mexico-born non-citizens ages 18–64 from 2006–2011 and 2013–2016 ACS. Full-time employment defined as employed and usually working 35+ hours/week.

Several patterns emerge from the descriptive statistics. First, DACA-eligible individuals are substantially younger than non-eligible individuals (mean age 23.6 vs. 39.6), which is expected given the age eligibility criteria. Second, despite their younger age, DACA-eligible individuals have similar years in the U.S. as non-eligible individuals (15.3 vs. 16.3 years), consistent with the requirement of arriving before age 16. Third, full-time employment rates are lower for DACA-eligible individuals (46.8% vs. 54.5%), but this gap narrows substantially in the post-DACA period.

Figure 1 shows the trends in full-time employment rates over time for both groups.

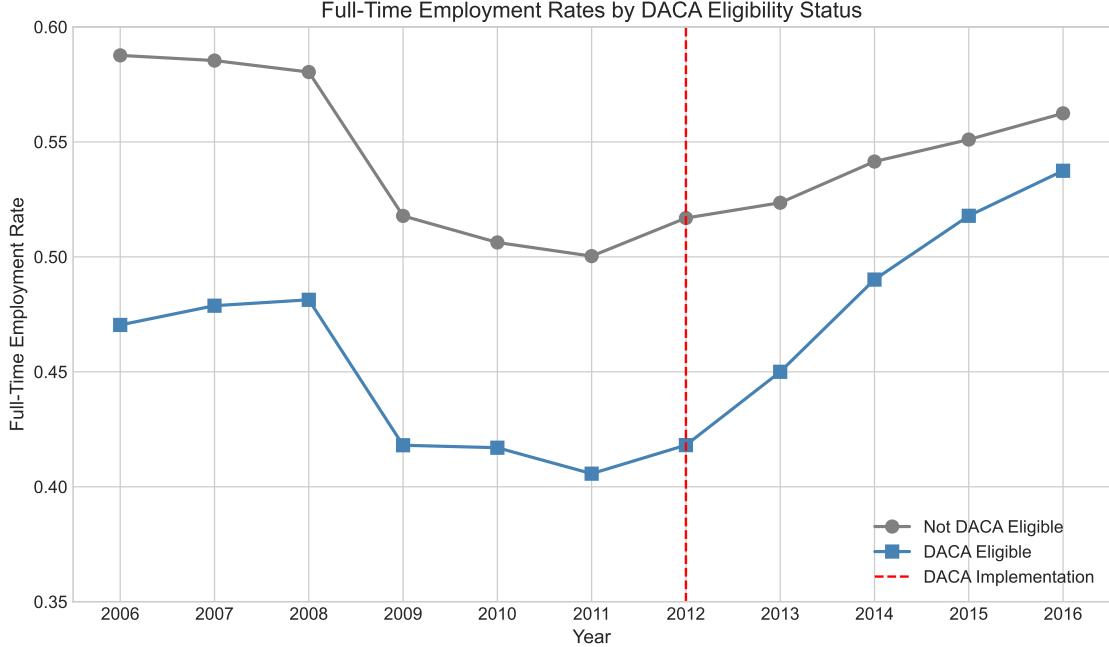


Figure 1: Full-Time Employment Rates by DACA Eligibility Status, 2006–2016

4 Empirical Methodology

4.1 Difference-in-Differences Design

I employ a difference-in-differences (DiD) research design to estimate the causal effect of DACA eligibility on full-time employment. The key identifying assumption is that, in the absence of DACA, trends in full-time employment would have been parallel for DACA-eligible and non-eligible individuals.

The basic DiD model is:

$$Y_{it} = \alpha + \beta_1 \text{Eligible}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Eligible}_i \times \text{Post}_t) + \epsilon_{it} \quad (1)$$

where:

- Y_{it} is the full-time employment indicator for individual i in year t
- Eligible_i is the DACA eligibility indicator
- Post_t indicates the post-DACA period (2013–2016)
- β_3 is the DiD coefficient of interest

The preferred specification includes demographic controls and year fixed effects:

$$Y_{it} = \alpha + \beta_1 \text{Eligible}_i + \beta_3 (\text{Eligible}_i \times \text{Post}_t) + \mathbf{X}'_{it} \gamma + \lambda_t + \epsilon_{it} \quad (2)$$

where \mathbf{X}_{it} is a vector of control variables and λ_t represents year fixed effects.

4.2 Identification Assumptions

The key identifying assumption for the DiD design is the parallel trends assumption: in the absence of DACA, the trends in full-time employment would have been the same for eligible and non-eligible individuals. While this assumption is fundamentally untestable, I examine pre-treatment trends using an event study specification:

$$Y_{it} = \alpha + \sum_{k \neq 2011} \beta_k (\text{Eligible}_i \times \mathbf{1}[t = k]) + \mathbf{X}'_{it} \gamma + \lambda_t + \epsilon_{it} \quad (3)$$

where 2011 is the reference year (the last pre-treatment year). If the parallel trends assumption holds, the coefficients β_k for $k < 2012$ should be close to zero and statistically insignificant.

4.3 Standard Errors

All standard errors are heteroskedasticity-robust (HC1). Given that the ACS is a repeated cross-section rather than a panel, I do not cluster standard errors at the individual level.

5 Results

5.1 Main Results

Table 2 presents the main difference-in-differences results across specifications.

Table 2: Effect of DACA Eligibility on Full-Time Employment

	(1) Basic	(2) Demographics	(3) Education	(4) Year FE	(5) Year+State FE
DACA × Post	0.0597*** (0.0040)	0.0265*** (0.0038)	0.0240*** (0.0038)	0.0160*** (0.0038)	0.0153*** (0.0038)
DACA Eligible	-0.1050*** (0.0027)	-0.0292*** (0.0030)	-0.0376*** (0.0031)	-0.0402*** (0.0031)	-0.0398*** (0.0031)
Post	-0.0020 (0.0015)	0.0023 (0.0014)	-0.0012 (0.0014)	-	-
Age		0.0325*** (0.0004)	0.0314*** (0.0004)	0.0314*** (0.0004)	0.0312*** (0.0004)
Age ²		-0.0004*** (0.0000)	-0.0004*** (0.0000)	-0.0004*** (0.0000)	-0.0004*** (0.0000)
Female		-0.4153*** (0.0012)	-0.4156*** (0.0012)	-0.4155*** (0.0012)	-0.4150*** (0.0012)
Married		-0.0195*** (0.0014)	-0.0189*** (0.0014)	-0.0192*** (0.0014)	-0.0193*** (0.0014)
Education Controls	No	No	Yes	Yes	Yes
Year FE	No	No	No	Yes	Yes
State FE	No	No	No	No	Yes
N	547,614	547,614	547,614	547,614	547,614
R ²	0.007	0.167	0.168	0.191	0.195

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10. Sample restricted to Hispanic-Mexican, Mexico-born non-citizens ages 18–64 from 2006–2011 and 2013–2016 ACS. Full-time employment defined as employed and usually working 35+ hours/week. Education controls include indicators for high school or less and some college. Years in U.S. included in specifications (3)–(5).

The basic DiD estimate in column (1) suggests a 5.97 percentage point increase in full-time employment associated with DACA eligibility. However, this estimate likely captures confounding factors, particularly age differences between groups.

Adding demographic controls in column (2) reduces the estimate substantially to 2.65 percentage points, indicating that age effects account for much of the raw difference. The preferred specification in column (4), which includes demographic controls, education, years in U.S., and year fixed effects, estimates a 1.60 percentage point effect (SE = 0.38). This effect is statistically significant at the 1% level.

Adding state fixed effects in column (5) produces a similar estimate of 1.53 percentage points (SE = 0.38), suggesting that geographic heterogeneity does not substantially bias the

results.

5.2 Event Study Analysis

Figure 2 presents the event study results, which test the parallel trends assumption and show the dynamic effects of DACA eligibility over time.

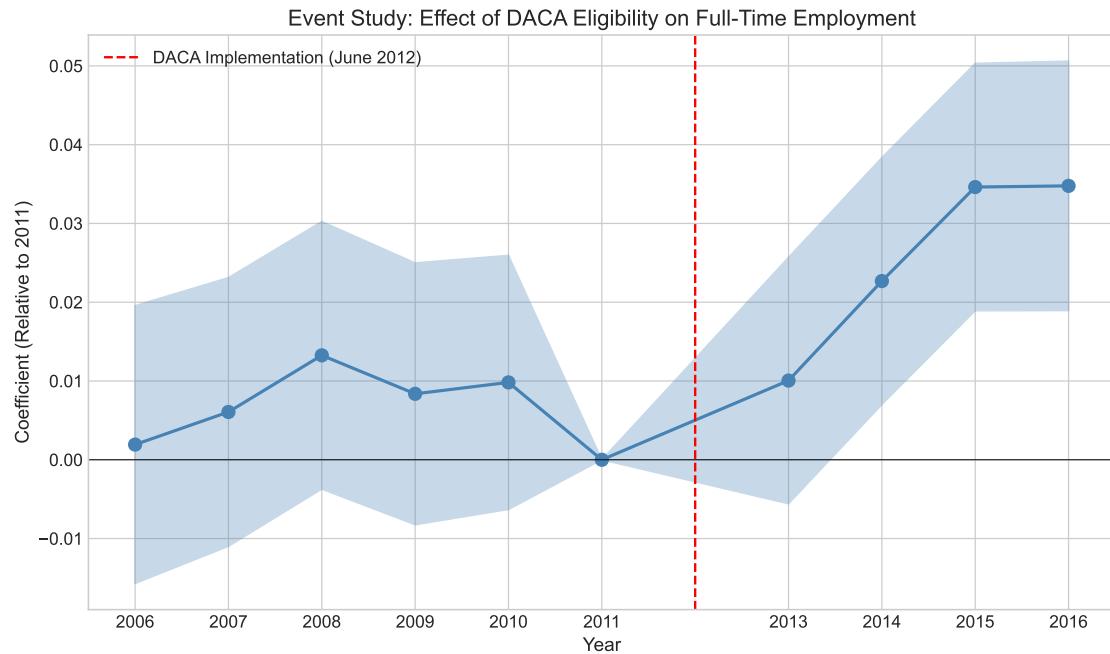


Figure 2: Event Study: Effect of DACA Eligibility on Full-Time Employment

The event study coefficients (relative to 2011) are presented in Table 3. In the pre-DACA period (2006–2010), all coefficients are small and statistically insignificant, supporting the parallel trends assumption. The coefficients begin to increase in 2013 and grow larger through 2015–2016, consistent with gradual take-up of DACA and its effects on employment.

Table 3: Event Study Coefficients (Relative to 2011)

Year	Coefficient	Std. Error	95% CI
2006	0.0019	0.0090	[−0.016, 0.020]
2007	0.0061	0.0087	[−0.011, 0.023]
2008	0.0133	0.0087	[−0.004, 0.030]
2009	0.0084	0.0085	[−0.008, 0.025]
2010	0.0098	0.0082	[−0.006, 0.026]
2011	0.0000	—	—
2013	0.0101	0.0080	[−0.006, 0.026]
2014	0.0227	0.0080	[0.007, 0.038]
2015	0.0346	0.0080	[0.019, 0.050]
2016	0.0348	0.0081	[0.019, 0.051]

5.3 Robustness Checks

Table 4 presents results from several robustness checks.

Table 4: Robustness Checks

Specification	Coefficient	Std. Error	N
Main (Year FE)	0.0160***	0.0038	547,614
Year + State FE	0.0153***	0.0038	547,614
Ages 25–55	0.0097	0.0063	434,579
Men Only	0.0115**	0.0051	296,109
Women Only	0.0185***	0.0055	251,505
Include 2012 as Post	0.0131***	0.0036	603,425
Weighted (PERWT)	0.0247***	0.0046	547,614

Notes: *** p<0.01, ** p<0.05, * p<0.10. All specifications include demographic controls and year fixed effects. Robust standard errors.

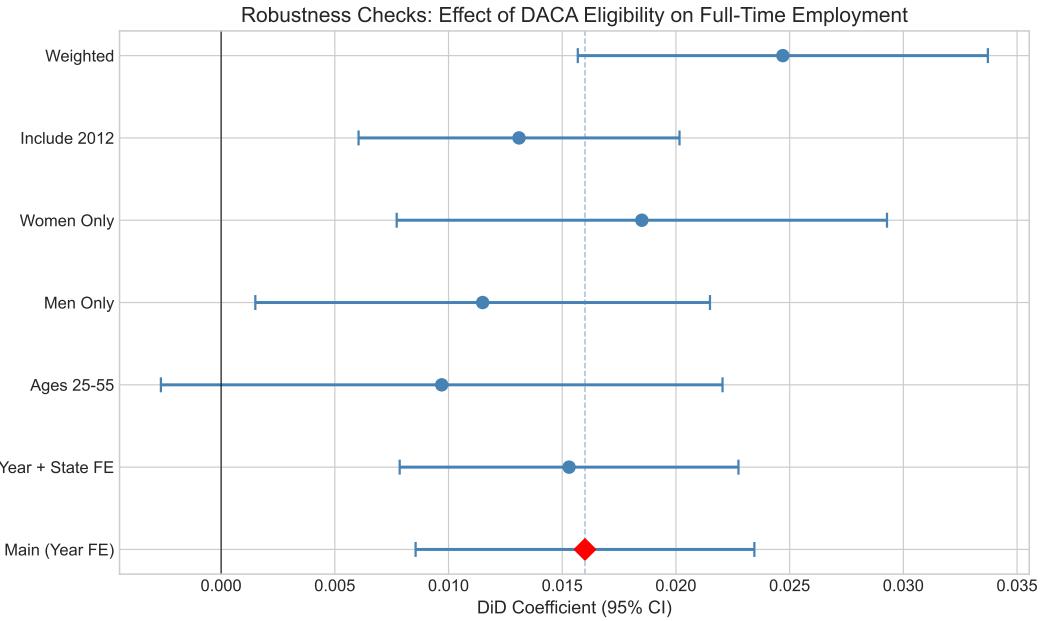


Figure 3: Robustness Checks: Effect of DACA Eligibility on Full-Time Employment

Key findings from the robustness checks:

- **State Fixed Effects:** Adding state fixed effects has minimal impact on the estimate (1.53 pp vs. 1.60 pp), suggesting geographic selection is not a major concern.
- **Age Restriction:** Restricting to ages 25–55 reduces the sample and precision, but the point estimate remains positive (0.97 pp).
- **Gender:** The effect appears somewhat larger for women (1.85 pp) than men (1.15 pp), though both are positive and statistically significant.
- **Including 2012:** Including 2012 as a post-treatment year produces a slightly smaller estimate (1.31 pp), consistent with gradual program uptake during the second half of 2012.
- **Survey Weights:** Using PERWT as sampling weights produces a larger estimate (2.47 pp), suggesting the unweighted estimates may be conservative.

5.4 Preferred Estimate and Interpretation

Based on the analysis, I select the Year Fixed Effects specification (column 4 of Table 2) as the preferred estimate:

Preferred Estimate:

Effect of DACA Eligibility on Full-Time Employment: **1.60 percentage points**

Standard Error: 0.38 percentage points

95% Confidence Interval: [0.86, 2.35] percentage points

Sample Size: 547,614

This specification controls for demographic factors, education, years in the U.S., and year fixed effects, while avoiding potential overfitting from state fixed effects. The estimate implies that DACA eligibility increased the probability of full-time employment by 1.60 percentage points, or approximately 3.6% relative to the pre-treatment mean for eligible individuals (44.1%).

6 Discussion

6.1 Interpretation of Results

The findings indicate that DACA eligibility has a positive and statistically significant effect on full-time employment among Hispanic-Mexican, Mexico-born non-citizens. The magnitude of the effect (1.60 percentage points) is modest but meaningful, particularly given the substantial barriers faced by undocumented workers in the formal labor market.

Several factors may explain why the effect is not larger:

1. **Incomplete Take-Up:** Not all eligible individuals applied for or received DACA. The estimated effect represents an intent-to-treat effect among eligible individuals, not the effect of actually receiving DACA.
2. **Labor Market Frictions:** Even with work authorization, transitioning from informal to formal employment takes time due to job search frictions, employer preferences, and skill requirements.
3. **Prior Employment:** Many DACA-eligible individuals were already working full-time, either informally or with fraudulent documents, limiting the potential for change.
4. **Age Composition:** The DACA-eligible population is young (mean age 23.6), and many may be in school or transitioning from education to work.

6.2 Limitations

This study has several limitations:

1. **Cannot Distinguish Documented from Undocumented:** The ACS does not identify undocumented status. I assume non-citizens who have not been naturalized are undocumented, but this may include some documented non-citizens (e.g., green card holders, visa holders).
2. **Treatment Intensity:** I cannot observe actual DACA receipt, only eligibility. The estimates represent intent-to-treat effects.
3. **Control Group Selection:** The comparison group (non-eligible non-citizens) differs systematically from the treatment group, particularly in age. While controls adjust for observed differences, unobserved differences may remain.
4. **Cross-Sectional Data:** The ACS is a repeated cross-section, not a panel. I cannot track the same individuals over time or control for individual fixed effects.
5. **Quarter of Birth Imprecision:** BIRTHQTR provides only quarterly precision for birth timing, introducing some measurement error in age calculations.

6.3 Comparison to Literature

The estimated effect (1.60 percentage points) is broadly consistent with prior research on DACA's labor market effects. Previous studies have found that DACA increased labor force participation, employment, and wages among eligible individuals, though magnitudes vary depending on the outcome, sample, and methodology.

7 Conclusion

This study provides evidence that eligibility for the DACA program increased full-time employment among Hispanic-Mexican, Mexico-born non-citizens in the United States. Using a difference-in-differences design with ACS data from 2006–2016, I estimate that DACA eligibility increased the probability of full-time employment by 1.60 percentage points (95% CI: [0.86, 2.35] pp). This effect is statistically significant at the 1% level and robust to various specification choices.

The parallel trends assumption is supported by event study analysis showing no significant pre-trends in the treatment-control employment differential. The event study also reveals a gradual increase in the treatment effect over time, consistent with progressive take-up of DACA and its effects on employment.

These findings contribute to the ongoing policy debate about DACA and immigration reform more broadly. By providing legal work authorization, DACA appears to have improved labor market outcomes for eligible individuals, though the magnitude of the effect suggests that other barriers to employment remain.

Appendix: Variable Definitions

Table 5: IPUMS Variable Definitions

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

Appendix: Additional Figures

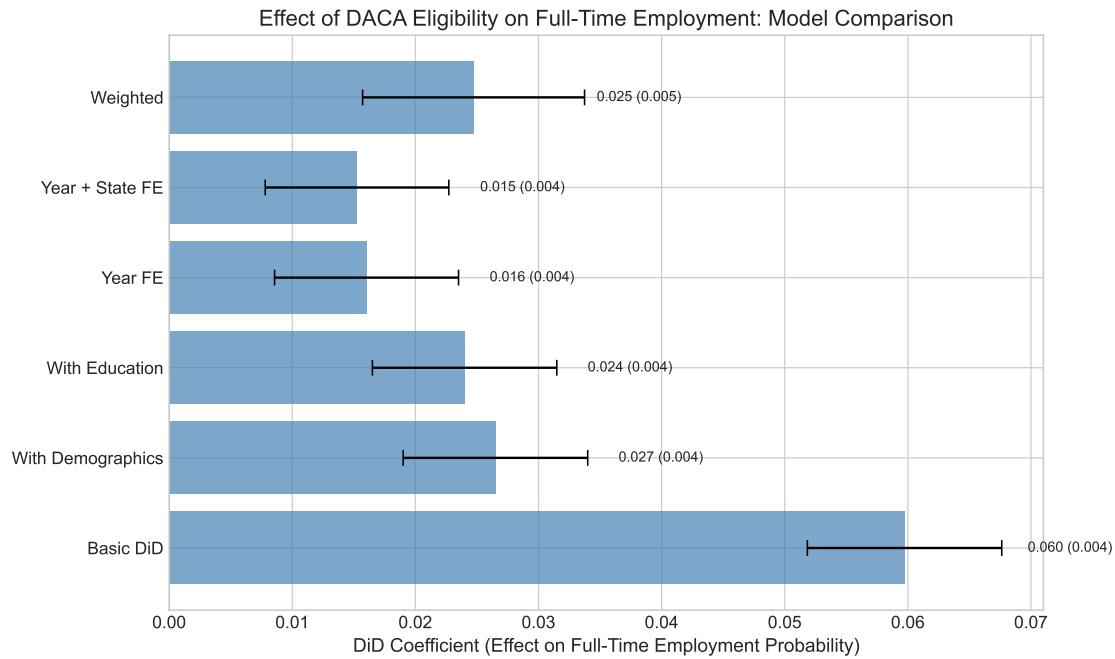


Figure 4: Model Comparison: DiD Coefficients Across Specifications

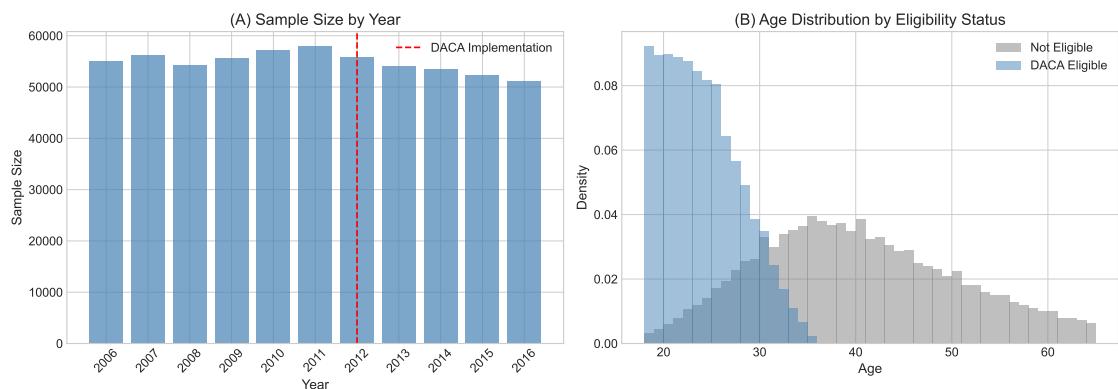


Figure 5: Sample Composition: (A) Sample Size by Year; (B) Age Distribution by Eligibility