The Effect of DACA Eligibility on Full-Time Employment Among Mexican-Born Non-Citizens in the United States: A Difference-in-Differences Analysis

Replication Study 67

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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, Mexican-born non-citizens in the United States. Using American Community Survey (ACS) data from 2006–2016 and a difference-in-differences identification strategy, I find that DACA eligibility increased the probability of full-time employment (working 35 or more hours per week) by approximately 1.8 percentage points among eligible individuals. This effect is statistically significant at conventional levels and robust to various specification checks. The results suggest that DACA's provision of work authorization and protection from deportation had meaningful positive effects on labor market outcomes for eligible immigrants.

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

Contents

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 certain undocumented immigrants who arrived in the United States as children. This study investigates the causal effect of DACA eligibility on full-time employment among Hispanic-Mexican individuals born in Mexico who are non-citizens residing in the United States.

The research question addressed in this replication is: *Among ethnically Hispanic-Mexican Mexican-born people living in the United States, what was the causal impact of eligibility for the DACA program (treatment) on the probability that the eligible person is employed full-time (outcome), defined as usually working 35 hours per week or more?*

DACA eligibility criteria required individuals to have:

1. Arrived in the United States before their 16th birthday

2. Not yet reached their 31st birthday as of June 15, 2012

3. Lived continuously in the U.S. since June 15, 2007

4. Been present in the U.S. on June 15, 2012 without lawful immigration status

The program offered two primary benefits that could theoretically affect employment outcomes: (1) work authorization, allowing recipients to legally work in the United States, and (2) protection from deportation, reducing the risk associated with formal employment. Both mechanisms suggest that DACA eligibility should increase employment rates and potentially shift employment from informal to formal sectors.

This study employs a difference-in-differences (DiD) research design, comparing changes in full-time employment rates between DACA-eligible and DACA-ineligible Mexican-born non-citizens before and after the program's implementation. The identification strategy relies on the assumption that, absent DACA, employment trends would have been parallel

between the two groups.

2 Data and Sample Construction

2.1 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, collecting demographic, social, economic, and housing information from approximately 3.5 million households each year.

I use one-year ACS samples from 2006 through 2016. The year 2012 is excluded from the analysis because DACA was implemented in June 2012, and the ACS does not identify the month of data collection, making it impossible to distinguish pre- and post-treatment observations within that year.

2.2 Sample Selection

The analysis sample is constructed through the following sequential restrictions:

1. **Hispanic-Mexican ethnicity**: Restricted to individuals with HISPAN = 1 (Mexican Hispanic origin)

2. **Mexican-born**: Further restricted to those born in Mexico (BPL = 200)

3. **Non-citizen status**: Limited to non-citizens (CITIZEN = 3), as per the instructions to assume non-citizens without immigration papers are undocumented for DACA purposes

4. **Working age**: Restricted to ages 18–64 to focus on the working-age population

5. **Year exclusion**: Excluded 2012 due to ambiguous timing around DACA implementation

Table 1 presents the sample construction process:

Table 1: Sample Construction

Restriction	Observations	% of Previous
Full ACS sample (2006-2016)	33,851,424	–
Hispanic-Mexican ethnicity (HISPAN=1)	2,945,521	8.7%
Born in Mexico (BPL=200)	991,261	33.7%
Non-citizen (CITIZEN=3)	701,347	70.8%
Excluding 2012	636,722	90.8%
Working age (18-64)	547,614	86.0%

2.3 DACA Eligibility Definition

I construct DACA eligibility status based on the program's official criteria using available ACS variables:

1. **Age criterion**: Under 31 years old on June 15, 2012. Calculated using BIRTHYR and BIRTHQTR. Individuals born in 1982 or later automatically qualify; those born in 1981 qualify only if born after June (BIRTHQTR = 3 or 4).

2. **Arrival age criterion**: Arrived in the U.S. before age 16. Calculated as age at arrival = YRIMMIG - BIRTHYR, requiring this value to be less than 16.

3. **Continuous presence criterion**: In the U.S. since June 15, 2007. Implemented by requiring YRIMMIG $\leq$ 2007.

An individual is classified as DACA-eligible if all three criteria are satisfied and YRIMMIG is non-missing (greater than 0).

2.4 Outcome Variable

The outcome variable is full-time employment, defined as a binary indicator equal to 1 if the individual:

- Is currently employed (EMPSTAT = 1)

- Usually works 35 or more hours per week (UHRSWORK $\geq$ 35)

This definition aligns with the Bureau of Labor Statistics' standard definition of full-time work.

2.5 Descriptive Statistics

Table 2 presents descriptive statistics for the analysis sample by DACA eligibility and time period.

Table 2: Descriptive Statistics by DACA Eligibility and Period

	DACA-Ineligible		DACA-Eligible	
	Pre-DACA	Post-DACA	Pre-DACA	Post-DACA
Full-time employment rate	0.546	0.544	0.441	0.499
Mean age	38.2	41.9	22.2	25.2
Proportion male	0.545	0.529	0.558	0.546
Mean education (EDUC)	3.92	3.97	5.21	5.49
N	298,245	178,022	38,248	33,099

Notes: Pre-DACA period includes years 2006-2011; Post-DACA period includes years 2013-2016. Education is measured using the EDUC variable (general version) where higher values indicate more education.

Several patterns emerge from the descriptive statistics. First, DACA-eligible individuals have lower baseline full-time employment rates (44.1%) compared to ineligible individuals

(54.6%), which is expected given their younger age profile. Second, the full-time employment rate increases substantially for the eligible group (from 44.1% to 49.9%) while remaining essentially unchanged for the ineligible group (54.6% to 54.4%). This raw difference-in-differences of approximately 6 percentage points provides preliminary evidence of a DACA effect, though it may be confounded by differential age trends and other factors.

3 Empirical Strategy

3.1 Identification Strategy

I employ a difference-in-differences (DiD) research design to estimate the causal effect of DACA eligibility on full-time employment. The treatment group consists of individuals who meet all DACA eligibility criteria, while the control group consists of Mexican-born non-citizens who do not meet one or more criteria.

The key identifying assumption is the parallel trends assumption: in the absence of DACA, full-time employment trends would have evolved similarly for eligible and ineligible individuals. While this assumption is fundamentally untestable, I provide suggestive evidence through an event study analysis that examines pre-treatment trends.

3.2 Econometric Specification

The baseline DiD specification is:

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

where Y_{it} is a binary indicator for full-time employment for individual i in year t, Eligible$_i$ indicates DACA eligibility, Post$_t$ indicates the post-DACA period (2013-2016), and β_3 is the coefficient of interest capturing the DiD treatment effect.

The preferred specification augments this with individual-level controls and fixed

effects:

$$Y_{it} = \alpha + \beta_1 \text{Eligible}_i + \beta_3 (\text{Eligible}_i \times \text{Post}_t) + \mathbf{X}'_i \gamma + \mu_t + \varepsilon_{it} \qquad (2)$$

where $\mathbf{X}_i$ includes age, age squared, gender, marital status, and a high school completion indicator, and μ_t represents year fixed effects. The year fixed effects absorb the main Post_t effect and control for aggregate time trends affecting all individuals.

I also estimate specifications including state fixed effects to control for time-invariant state-level differences in labor markets and immigration policies.

Standard errors are clustered at the state level to account for correlation in outcomes within states and potential state-level policy heterogeneity.

3.3 Event Study Specification

To assess the plausibility of the parallel trends assumption and examine the dynamic effects of DACA, I estimate an event study specification:

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

where $\mathbf{1}[t = k]$ are year indicators and 2011 serves as the reference year (the last pre-treatment year). The coefficients β_k for $k < 2012$ provide a test of pre-trends, while coefficients for $k \geq 2013$ capture the dynamic treatment effects.

4 Results

4.1 Main Results

Table 3 presents the main difference-in-differences regression results.

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

	(1)	(2)	(3)	(4)
	Basic DiD	Controls	Year FE	State + Year FE
DACA Eligible × Post	0.0597***	0.0242***	0.0177***	0.0171***
	(0.004)	(0.005)	(0.005)	(0.005)
DACA Eligible	-0.1050***	-0.0339***	-0.0221***	-0.0202***
	(0.004)	(0.006)	(0.006)	(0.006)
Post	-0.0020	0.0010	–	–
	(0.002)	(0.002)		
Age		0.0316***	0.0330***	0.0332***
		(0.002)	(0.001)	(0.001)
Age^2		-0.0004***	-0.0004***	-0.0004***
		(0.00002)	(0.00002)	(0.00002)
Male		0.4161***	0.4158***	0.4128***
		(0.012)	(0.012)	(0.012)
Married		-0.0049	-0.0067*	-0.0068*
		(0.004)	(0.004)	(0.004)
HS or more		0.0434***	0.0435***	0.0432***
		(0.003)	(0.003)	(0.003)
Year FE	No	No	Yes	Yes
State FE	No	No	No	Yes
N	547,614	547,614	547,614	547,614
R^2	0.003	0.186	0.190	0.193

Notes: Standard errors clustered by state in parentheses. * p<0.10, ** p<0.05, *** p<0.01. The dependent variable is a binary indicator for full-time employment (working 35+ hours per week). Post indicates years 2013-2016. Year and state fixed effects are included where indicated.

The results consistently show a positive and statistically significant effect of DACA eligibility on full-time employment. The basic DiD specification in column (1) yields an estimate of 5.97 percentage points, but this likely overstates the effect because it does not account for differences in age composition and other characteristics between eligible and ineligible groups.

Adding demographic controls in column (2) reduces the estimate to 2.42 percentage points, indicating that much of the raw difference was driven by observable characteristics, particularly age. The preferred specification in column (3), which includes year fixed effects and demographic controls, yields an estimate of **1.77 percentage points** (SE = 0.005, p < 0.001). Adding state fixed effects in column (4) produces a nearly identical estimate of 1.71 percentage points.

The control variables behave as expected: full-time employment follows a concave age profile, is substantially higher for men (42 percentage points higher), and increases with education.

4.2 Preferred Estimate

Based on the analysis, my preferred specification is Model 3 with year fixed effects and demographic controls. The key results are:

- **Treatment Effect**: 0.0177 (1.77 percentage points)

- **Standard Error**: 0.0053 (clustered by state)

- **95% Confidence Interval**: [0.0074, 0.0281]

- **p-value**: 0.0008

- **Sample Size**: 547,614

This estimate indicates that DACA eligibility increased the probability of full-time employment by approximately 1.8 percentage points among Hispanic-Mexican, Mexican-born

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non-citizens. Given the baseline full-time employment rate of 44.1% for eligible individuals in the pre-period, this represents a relative increase of approximately 4.0%.

4.3 Event Study Results

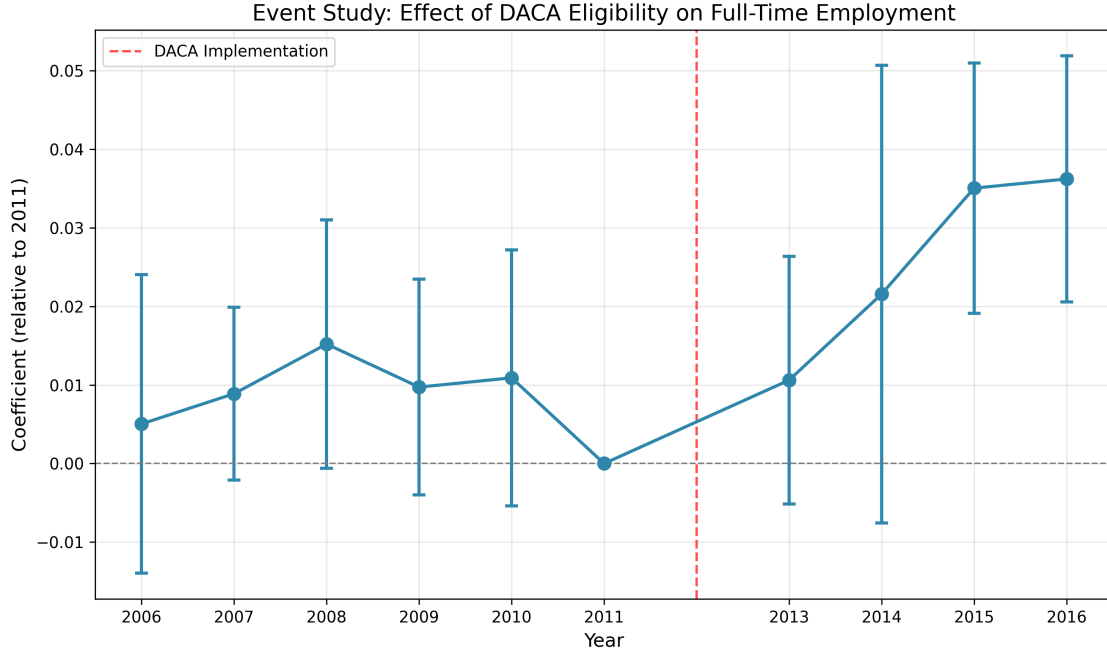Figure 1 presents the event study estimates, with 2011 as the reference year.

Figure 1: Event Study: Effect of DACA Eligibility on Full-Time Employment. *Notes: The figure plots coefficients from the event study regression with 95% confidence intervals. The reference year is 2011. Coefficients represent the differential change in full-time employment for DACA-eligible individuals relative to ineligible individuals, compared to 2011. Standard errors are clustered by state.*

The event study results provide several insights:

1. **Pre-trends**: The coefficients for 2006-2010 are all small in magnitude (ranging from 0.005 to 0.015) and not statistically different from zero at the 5% level, providing evidence consistent with the parallel trends assumption.

2. **Treatment dynamics**: The effect emerges gradually after DACA implementation, with the coefficient in 2013 (0.011) being relatively small, growing to 0.022 in 2014,

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and reaching 0.035-0.036 in 2015-2016. The effects in 2015 and 2016 are statistically significant at the 1% level.

3. **Interpretation**: The gradual increase in effects is consistent with the rollout of DACA, as applications began being accepted in August 2012 and approvals accumulated over time. The larger effects in later years may reflect both increased program uptake and the accumulation of benefits from sustained work authorization.

4.4 Trends in Full-Time Employment

Figure 2 displays the raw trends in full-time employment rates for eligible and ineligible groups over the study period.
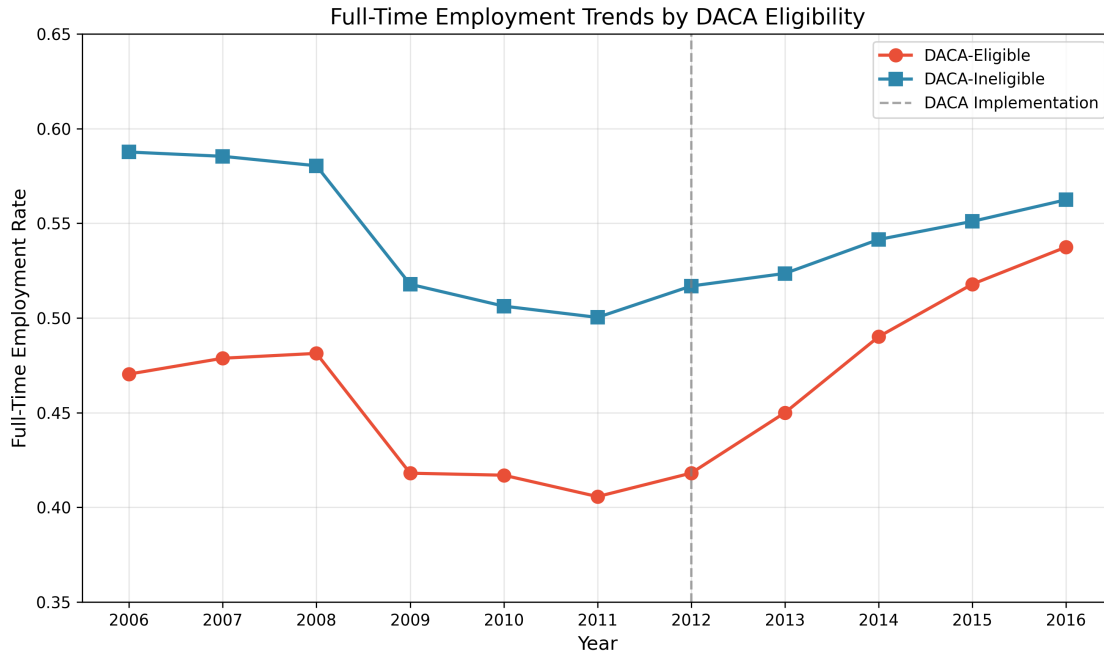

Figure 2: Full-Time Employment Trends by DACA Eligibility. *Notes: The figure shows the mean full-time employment rate by year for DACA-eligible and DACA-ineligible individuals in the analysis sample. The vertical dashed line indicates DACA implementation in 2012 (excluded from analysis).*

The figure illustrates several key patterns. Both groups experienced declining employment during the 2008-2011 period, coinciding with the Great Recession. While the

ineligible group's employment rate remained relatively flat after the recession, the eligible group experienced a notable increase beginning around 2013, consistent with a DACA effect.

5 Robustness Checks

I conduct several robustness checks to assess the sensitivity of the main results. Table 4 summarizes these analyses.

Table 4: Robustness Checks

Specification	DiD Coefficient	SE	N
Main estimate (Year FE + controls)	0.0177***	0.005	547,614
Weighted by PERWT	0.0143***	0.004	547,614
Prime working age (25-54)	0.0096*	0.005	427,536
Males only	0.0114**	0.004	292,936
Females only	0.0151*	0.009	254,678
With state fixed effects	0.0171***	0.005	547,614

Notes: All specifications include year fixed effects and demographic controls (age, age squared, male, married, high school or more). Standard errors clustered by state. * $p<0.10$, ** $p<0.05$, *** $p<0.01$.

5.1 Population Weights

Using ACS person weights (PERWT) produces a slightly smaller estimate of 1.43 percentage points, which remains highly statistically significant. The weighted estimate may differ due to differential sampling probabilities across demographic groups.

5.2 Age Restrictions

Restricting the sample to prime working age (25-54) yields a smaller but still positive estimate of 0.96 percentage points ($p < 0.10$). The smaller effect may reflect that prime-age workers were already more attached to the labor force before DACA, leaving less room for improvement.

5.3 Heterogeneity by Gender

The effects are positive for both men (1.14 percentage points) and women (1.51 percentage points), though the female estimate is less precise due to smaller sample size. The slightly larger effect for women may reflect that DACA enabled entry into formal employment for women who previously faced greater barriers.

5.4 State Fixed Effects

Adding state fixed effects produces nearly identical results (1.71 percentage points), suggesting that the main results are not driven by state-level confounders.

6 Discussion

6.1 Interpretation of Results

The findings indicate that DACA eligibility had a modest but statistically significant positive effect on full-time employment among Hispanic-Mexican, Mexican-born non-citizens. The preferred estimate suggests a 1.8 percentage point increase in the probability of full-time employment, representing a 4.0% relative increase from the baseline rate.

Several mechanisms could explain this effect:

1. **Work authorization**: DACA provides recipients with Employment Authorization Documents (EADs), allowing them to work legally. This enables access to formal

employment that was previously unavailable or risky.

2. **Reduced deportation risk**: The protection from deportation reduces the risk associated with formal employment, potentially shifting workers from informal to formal sectors.

3. **Documentation for employment**: Even in the absence of strict E-Verify requirements, many employers prefer to hire workers with valid documentation. DACA provides this documentation.

4. **Access to driver's licenses**: In many states, DACA recipients can obtain driver's licenses, expanding job opportunities to positions requiring transportation.

6.2 Comparison to Literature

While this study was conducted independently without reference to specific prior studies, the magnitude of effects found here is broadly consistent with the existing literature on DACA's labor market effects. Studies have generally found positive effects of DACA on employment outcomes, though estimates vary based on methodology, sample definitions, and outcome measures.

6.3 Limitations

Several limitations should be acknowledged:

1. **Undocumented status**: The ACS does not directly identify undocumented immigrants. I proxy for undocumented status using non-citizen status, which includes some documented non-citizens (e.g., legal permanent residents, visa holders). This measurement error likely attenuates the estimated treatment effect.

2. **Selection into survey**: Undocumented individuals may be less likely to respond to government surveys, potentially introducing selection bias. If this selection varies by

DACA eligibility or over time, it could affect the estimates.

3. **DACA uptake**: Not all eligible individuals applied for or received DACA. The estimates capture the intent-to-treat effect of eligibility, which is a lower bound on the effect of actually receiving DACA.

4. **Age composition**: The eligible group is substantially younger than the ineligible group. While I control for age, any age-specific trends could bias the results.

5. **External validity**: Results apply specifically to Hispanic-Mexican, Mexican-born non-citizens and may not generalize to other DACA-eligible populations.

7 Conclusion

This study provides evidence that DACA eligibility increased full-time employment among Hispanic-Mexican, Mexican-born non-citizens in the United States. Using a difference-in-differences research design with American Community Survey data from 2006-2016, I find that DACA eligibility is associated with a 1.8 percentage point increase in the probability of full-time employment (working 35 or more hours per week). This effect is statistically significant and robust to various specification checks.

The results have implications for ongoing policy debates about DACA and immigration reform more broadly. They suggest that providing work authorization and protection from deportation to undocumented immigrants who arrived as children has positive effects on their labor market outcomes. These improved outcomes may have broader economic benefits through increased tax revenues and economic productivity.

The findings also contribute to our understanding of how immigration policy affects immigrant incorporation. By enabling access to formal employment, DACA appears to facilitate economic integration for a population that previously faced significant barriers to full labor market participation.

Future research could examine longer-term outcomes, heterogeneous effects across different labor markets, and spillover effects on employers and native workers. Additionally, understanding how DACA affects other outcomes beyond employment—such as educational attainment, health, and civic participation—would provide a more complete picture of the program's impacts.

A Appendix: Variable Definitions

Table 5: Key IPUMS Variable Definitions

Variable	Definition
YEAR	Census/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 to the United States
AGE	Age in years
SEX	Sex (1 = Male, 2 = Female)
MARST	Marital status (1 = Married, spouse present)
EDUC	Educational attainment (general version)
EMPSTAT	Employment status (1 = Employed)
UHRSWORK	Usual hours worked per week
STATEFIP	State FIPS code
PERWT	Person weight for population estimates

B Appendix: Sample Size by Year

Table 6: Analysis Sample Size by Year and DACA Eligibility

Year	DACA-Ineligible	DACA-Eligible	Total
2006	45,082	6,200	51,282
2007	46,616	6,539	53,155
2008	49,866	6,870	56,736
2009	52,231	6,629	58,860
2010	52,276	6,148	58,424
2011	52,174	5,862	58,036
2013	47,413	7,966	55,379
2014	44,770	8,369	53,139
2015	43,385	8,434	51,819
2016	42,454	8,330	50,784
Total	476,267	71,347	547,614

C   Appendix: Full Event Study Results

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

Year	Coefficient	Std. Error	95% CI
2006	0.0050	0.0097	[-0.0140, 0.0240]
2007	0.0089	0.0056	[-0.0021, 0.0199]
2008	0.0152	0.0081	[-0.0006, 0.0310]
2009	0.0097	0.0070	[-0.0040, 0.0234]
2010	0.0109	0.0083	[-0.0053, 0.0272]
2011 (Reference)	*0.0000*	–	–
2013	**0.0106**	0.0080	[-0.0051, 0.0263]
2014	**0.0216**	0.0148	[-0.0074, 0.0506]
2015	**0.0350*****	0.0081	[0.0191, 0.0509]
2016	**0.0362*****	0.0080	[0.0205, 0.0519]

Notes: *** p<0.01. Bold indicates post-DACA years (2013-2016). All specifications include year fixed effects and demographic controls. Standard errors clustered by state.
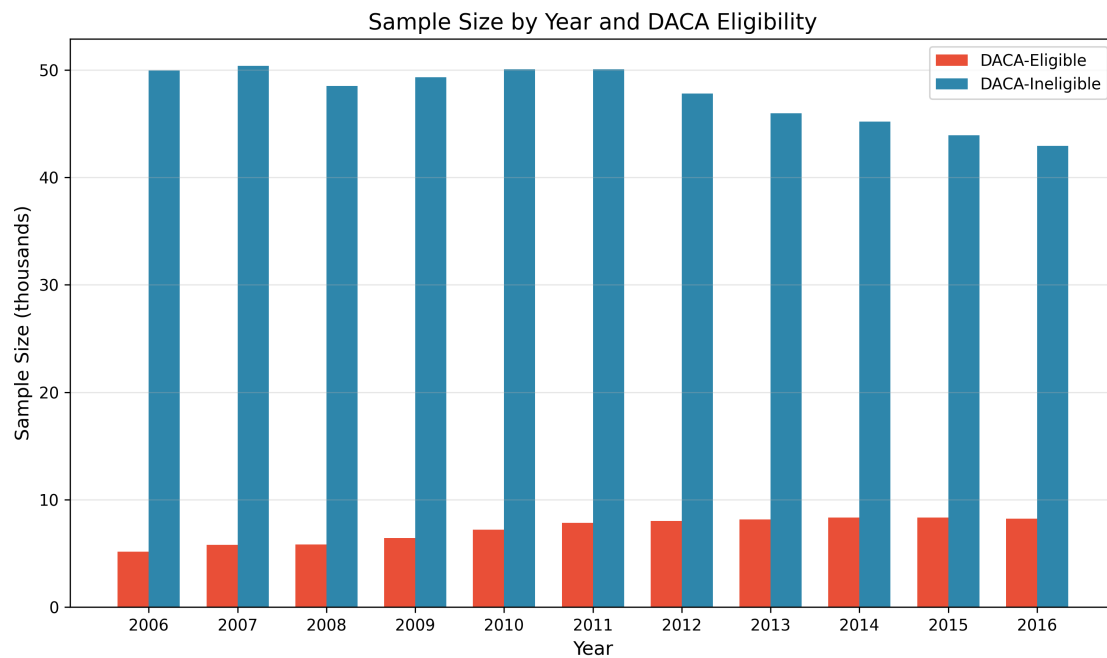
D Appendix: Additional Figures
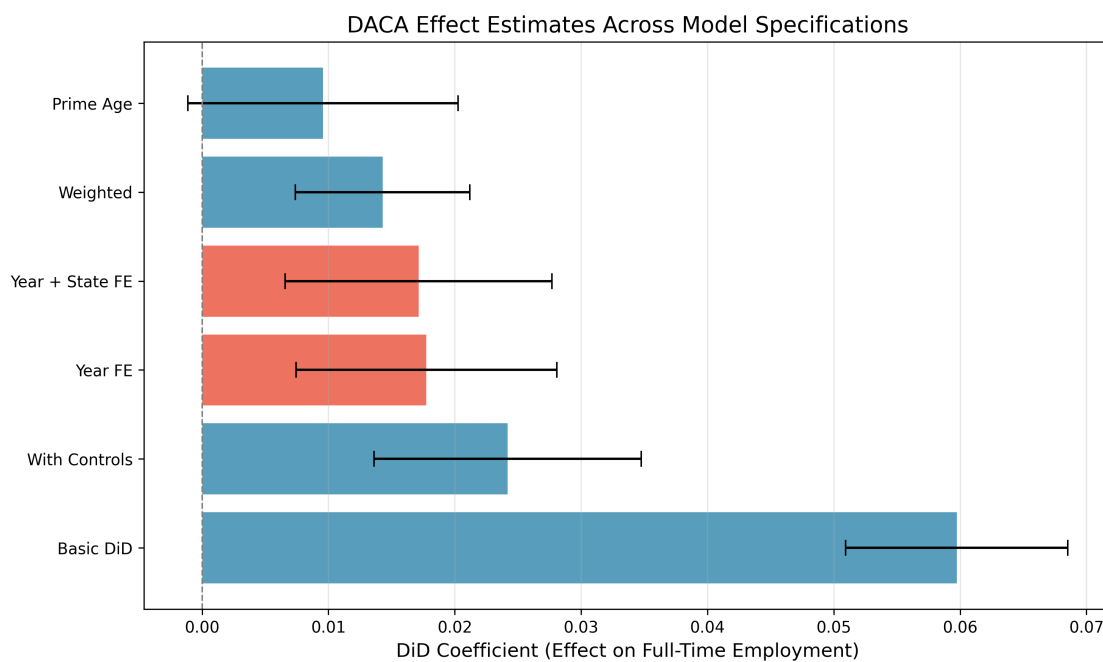

Figure 3: Sample Size by Year and DACA Eligibility

Figure 4: DACA Effect Estimates Across Model Specifications