

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, Mexican-born non-citizens in the United States. Using American Community Survey data from 2006–2016 and a difference-in-differences identification strategy, I compare employment outcomes between DACA-eligible and DACA-ineligible individuals before and after the program’s implementation in 2012. The preferred specification, which includes state and year fixed effects along with demographic controls, yields an estimated treatment effect of 2.37 percentage points ($SE = 0.0041$, 95% CI: [0.016, 0.032]), indicating that DACA eligibility is associated with a statistically significant increase in full-time employment. This effect is robust across various specifications, though event study analysis reveals some pre-trends that warrant cautious interpretation.

Contents

1	Introduction	3
2	Background and Policy Context	3
2.1	DACA Eligibility Requirements	3
2.2	Program Take-Up and Scope	4
2.3	Theoretical Mechanisms	4
3	Data	4
3.1	Data Source	4
3.2	Sample Construction	5
3.3	Variable Definitions	5
3.3.1	Outcome Variable	5
3.3.2	Treatment Variable	5
3.3.3	Control Variables	6
3.4	Final Sample	6
4	Empirical Strategy	6
4.1	Identification Strategy	6
4.2	Econometric Specification	7
4.3	Standard Errors	7
4.4	Weighting	7
5	Results	8
5.1	Descriptive Statistics	8
5.2	Main Results	9
5.3	Interpretation of Preferred Estimate	10
5.4	Robustness Checks	10
5.5	Event Study Analysis	11
6	Discussion	13
6.1	Summary of Findings	13
6.2	Threats to Validity	13
6.2.1	Parallel Trends	13
6.2.2	Selection into Treatment	13
6.2.3	Measurement of Eligibility	13
6.2.4	Composition Changes	14

6.3	Comparison to Existing Literature	14
6.4	Policy Implications	14
7	Conclusion	14
A	Technical Appendix	16
A.1	Variable Definitions from IPUMS	16
A.2	Sample Restrictions	16
A.3	DACA Eligibility Construction	17
A.4	Regression Specifications	17
B	Additional Results	18
B.1	Full Regression Output: Preferred Specification	18

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, enacted on June 15, 2012, represents one of the most significant immigration policy changes in recent U.S. history affecting undocumented immigrants who arrived as children. The program provides eligible individuals with temporary relief from deportation and, crucially, authorization to work legally in the United States for renewable two-year periods.

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

This question is economically significant for several reasons. First, legal work authorization removes a substantial barrier to formal employment, potentially allowing individuals to transition from informal to formal labor markets. Second, the ability to obtain driver's licenses in some states and other forms of identification may reduce job search frictions. Third, reduced fear of deportation may encourage longer-term employment relationships and investment in job-specific human capital.

The Mexican-born population is particularly relevant for this analysis because the overwhelming majority of DACA-eligible individuals are from Mexico, reflecting the structure of undocumented immigration to the United States. By focusing on this population, I can construct a more homogeneous sample while capturing the population most directly affected by the policy.

2 Background and Policy Context

2.1 DACA Eligibility Requirements

DACA was announced by the Obama administration on June 15, 2012, with applications beginning on August 15, 2012. To be eligible for the program, individuals must meet the following criteria:

1. Were under the age of 31 as of June 15, 2012 (born after June 15, 1981)
2. Came to the United States before reaching their 16th birthday
3. Have 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. Meet certain education or military service requirements

Upon approval, DACA recipients receive deferred action (protection from deportation) and employment authorization for two years, renewable indefinitely until the program's status changed in 2017.

2.2 Program Take-Up and Scope

In the first four years of the program (through 2016), nearly 900,000 initial applications were received, with approximately 90% approved. This high approval rate suggests that most applicants met the eligibility criteria and that the program reached a substantial portion of the eligible population.

2.3 Theoretical Mechanisms

DACA may affect employment through several channels:

- **Legal work authorization:** Allows formal sector employment, potentially improving job quality and hours
- **Reduced deportation risk:** May encourage longer-term employment relationships
- **Access to identification:** Driver's licenses available in some states expand job opportunities
- **Human capital investment:** Reduced uncertainty may encourage job-specific training
- **Employer willingness:** Employers may be more willing to hire workers with valid work authorization

3 Data

3.1 Data Source

The analysis uses data from the American Community Survey (ACS) as provided by IPUMS USA. The ACS is an annual survey conducted by the U.S. Census Bureau that provides detailed demographic, social, and economic information on approximately 3 million households annually. I use the one-year ACS files from 2006 through 2016, excluding multi-year pooled samples to maintain consistency in survey design.

3.2 Sample Construction

The target population consists of individuals who meet all of the following criteria:

1. **Hispanic-Mexican ethnicity:** HISPAN = 1 (Mexican)
2. **Born in Mexico:** BPL = 200
3. **Non-citizen:** CITIZEN = 3 (Not a citizen)
4. **Working age:** AGE between 16 and 64

This sample construction follows the research question's focus on ethnically Hispanic-Mexican, Mexican-born individuals. The non-citizen restriction is necessary because we cannot directly observe documentation status; following the instructions, I assume that non-citizens who have not received immigration papers (i.e., are not naturalized citizens) are undocumented for DACA purposes.

The year 2012 is excluded from the analysis because DACA was implemented mid-year (June 15, 2012) and the ACS does not indicate the month of data collection. This exclusion prevents contamination of the pre-period with post-treatment observations.

3.3 Variable Definitions

3.3.1 Outcome Variable

The primary outcome is **full-time employment**, defined as:

- EMPSTAT = 1 (Employed) AND UHRSWORK \geq 35 (usual hours worked per week)

3.3.2 Treatment Variable

DACA eligibility is constructed based on the policy's actual criteria. An individual is classified as **DACA-eligible** if they meet all of the following conditions:

1. **Arrived before age 16:** (YRIMMIG - BIRTHYR) $<$ 16
2. **Born after June 15, 1981:** BIRTHYR $>$ 1981, OR (BIRTHYR = 1981 AND BIRTHQTR \geq 3)
3. **In US since at least 2007:** YRIMMIG \leq 2007

Note that the continuous residence requirement (since June 15, 2007) is approximated using year of immigration, as the ACS does not provide monthly immigration timing.

3.3.3 Control Variables

The analysis includes the following demographic controls:

- Age and age squared (AGE, AGE²)
- Female indicator (SEX = 2)
- Marital status (MARST ∈ {1, 2} for married)
- Education categories:
 - Less than high school (EDUC ≤ 5) [reference]
 - High school graduate (EDUC = 6)
 - Some college (EDUC ∈ {7, 8, 9})
 - College or more (EDUC ≥ 10)
- Has children indicator (NCHILD > 0)

3.4 Final Sample

Table 1 presents the sample construction:

Table 1: Sample Construction

Step	Observations
Full ACS data (2006-2016)	33,851,424
Hispanic-Mexican, Mexico-born, non-citizen	701,347
Excluding year 2012	636,722
Working age (16-64)	561,470
<i>Final sample:</i>	
DACA-eligible	83,611
DACA-ineligible	477,859

4 Empirical Strategy

4.1 Identification Strategy

I employ a difference-in-differences (DiD) design that compares changes in full-time employment between DACA-eligible and DACA-ineligible individuals, before and after the program's implementation.

The identifying assumption is that, in the absence of DACA, employment trends for eligible and ineligible individuals would have evolved in parallel. This assumption is testable in the pre-period and I examine it using event study analysis.

4.2 Econometric Specification

The baseline DiD specification is:

$$Y_{ist} = \alpha + \beta_1 \text{Eligible}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Eligible}_i \times \text{Post}_t) + X'_i \gamma + \delta_t + \mu_s + \varepsilon_{ist} \quad (1)$$

where:

- Y_{ist} is an indicator for full-time employment for individual i in state s and year t
- Eligible_i indicates DACA eligibility
- Post_t indicates the post-treatment period (2013-2016)
- X_i is a vector of individual controls
- δ_t are year fixed effects
- μ_s are state fixed effects
- ε_{ist} is the error term

The coefficient of interest is β_3 , which captures the differential change in full-time employment for DACA-eligible individuals after the policy's implementation, relative to the change for ineligible individuals.

4.3 Standard Errors

Standard errors are clustered at the state level to account for potential within-state correlation of errors. With 51 state clusters (including DC), this clustering approach is appropriate for addressing serial correlation and state-level policy variation.

4.4 Weighting

All regressions use ACS person weights (PERWT) to obtain population-representative estimates.

5 Results

5.1 Descriptive Statistics

Table 2 presents descriptive statistics by DACA eligibility status and time period.

Table 2: Descriptive Statistics by Treatment Status and Period

	DACA-Ineligible		DACA-Eligible	
	Pre (2006-11)	Post (2013-16)	Pre (2006-11)	Post (2013-16)
Sample size	298,978	178,881	46,814	36,797
Weighted N (millions)	40.5	24.4	6.2	5.2
<i>Demographics</i>				
Age (years)	37.4	41.2	21.3	24.4
Female (%)	42.8	46.1	44.4	45.1
Married (%)	62.2	62.6	22.2	29.1
<i>Education</i>				
Less than HS (%)	60.2	58.7	47.2	36.4
HS Graduate (%)	29.5	29.9	39.6	44.5
Some College (%)	6.4	7.1	11.8	16.4
College+ (%)	3.9	4.3	1.4	2.7
<i>Labor Market Outcomes</i>				
Employed (%)	68.4	68.5	53.4	63.7
Full-time (%)	57.5	56.8	39.9	48.0

Several patterns emerge from Table 2:

1. **Age difference:** DACA-eligible individuals are substantially younger (mean age 21-24) than ineligible individuals (mean age 37-41), reflecting the age-at-arrival and birth year eligibility requirements.
2. **Education:** DACA-eligible individuals have higher educational attainment, with lower rates of less-than-high-school education and higher rates of some college attendance. This likely reflects the younger age composition and potential education requirements of the DACA program.
3. **Baseline employment:** In the pre-period, DACA-eligible individuals had substantially lower full-time employment rates (39.9%) compared to ineligible individuals (57.5%), partially reflecting age differences.

4. **Employment changes:** Full-time employment among DACA-eligible individuals increased from 39.9% to 48.0% (8.1 percentage points), while it remained essentially flat for ineligible individuals (57.5% to 56.8%). This simple difference-in-differences of approximately 8.8 percentage points provides suggestive evidence of a DACA effect, though it does not account for other factors.

5.2 Main Results

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

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

	(1) Basic	(2) Controls	(3) Year FE	(4) State + Year FE
DACA Eligible × Post	0.0880*** (0.0039)	0.0310*** (0.0043)	0.0242*** (0.0040)	0.0237*** (0.0041)
	[0.080, 0.096]	[0.023, 0.039]	[0.016, 0.032]	[0.016, 0.032]
Demographic controls	No	Yes	Yes	Yes
Year fixed effects	No	No	Yes	Yes
State fixed effects	No	No	No	Yes
Observations	561,470	561,470	561,470	561,470
R-squared	0.020	0.174	0.175	0.216

Notes: Standard errors clustered by state in parentheses. 95% confidence intervals in brackets.

All regressions weighted by PERWT. *** p<0.01, ** p<0.05, * p<0.1

The results demonstrate:

1. **Column (1) - Basic DiD:** Without controls, the estimated effect is 8.80 percentage points. This captures both the true treatment effect and compositional differences between groups.
2. **Column (2) - With Controls:** Adding demographic controls reduces the estimate to 3.10 percentage points, indicating that much of the raw difference is explained by age, education, gender, and other observable characteristics.
3. **Column (3) - Year Fixed Effects:** Adding year fixed effects (which absorb the main effect of Post) further reduces the estimate to 2.42 percentage points, accounting for aggregate time trends in employment.

4. **Column (4) - State and Year Fixed Effects (Preferred):** The preferred specification includes both state and year fixed effects. The estimated treatment effect is **2.37 percentage points** ($SE = 0.0041$), statistically significant at the 1% level with a 95% confidence interval of [0.016, 0.032].

5.3 Interpretation of Preferred Estimate

The preferred estimate of 2.37 percentage points implies that DACA eligibility is associated with an increase in the probability of full-time employment from a baseline of approximately 40% among eligible individuals in the pre-period. In relative terms, this represents approximately a 6% increase in full-time employment rates.

To put this in context: with approximately 5.2 million DACA-eligible Mexican-born non-citizens (weighted) in the post-period, a 2.37 percentage point increase in full-time employment translates to roughly 123,000 additional individuals working full-time.

5.4 Robustness Checks

Table 4 presents results from several robustness checks.

Table 4: Robustness Checks

Specification	Coef.	SE	95% CI	N
<i>Baseline (State + Year FE)</i>	0.0237	0.0041	[0.016, 0.032]	561,470
<i>Alternative Outcomes</i>				
Any employment	0.0403***	0.0073	[0.026, 0.054]	561,470
<i>Subsamples</i>				
Ages 18-35 only	0.0075	0.0051	[-0.003, 0.018]	253,373
Males only	0.0199***	0.0055	[0.009, 0.031]	303,717
Females only	0.0193***	0.0068	[0.006, 0.033]	257,753
<i>Alternative Specifications</i>				
Unweighted	0.0273***	0.0061	[0.015, 0.039]	561,470
<i>Placebo Test</i>				
Placebo (2009 fake treatment)	0.0195***	0.0038	[0.012, 0.027]	345,792

Notes: Standard errors clustered by state. *** p<0.01, ** p<0.05, * p<0.1

Key findings from robustness checks:

1. **Any employment:** The effect on any employment (not just full-time) is larger at 4.03 percentage points, suggesting DACA affects both the extensive margin (employment entry) and the intensive margin (hours worked).

2. **Age restriction:** When restricting to ages 18-35, the estimate falls to 0.75 percentage points and is no longer statistically significant. This may reflect that the comparison group in this age range is more similar to the treatment group, reducing power, or that effects are concentrated among older eligible individuals.
3. **Gender subsamples:** The effects are similar for males (1.99 pp) and females (1.93 pp), both statistically significant.
4. **Unweighted:** Results are similar without survey weights (2.73 pp), suggesting the findings are not driven by weighting.
5. **Placebo test:** The placebo test using 2009 as a fake treatment year shows a statistically significant effect of 1.95 percentage points. **This is concerning** as it suggests differential trends existed prior to DACA implementation.

5.5 Event Study Analysis

Figure 1 presents the event study results, showing year-specific treatment effects relative to 2011 (the year immediately before DACA implementation).

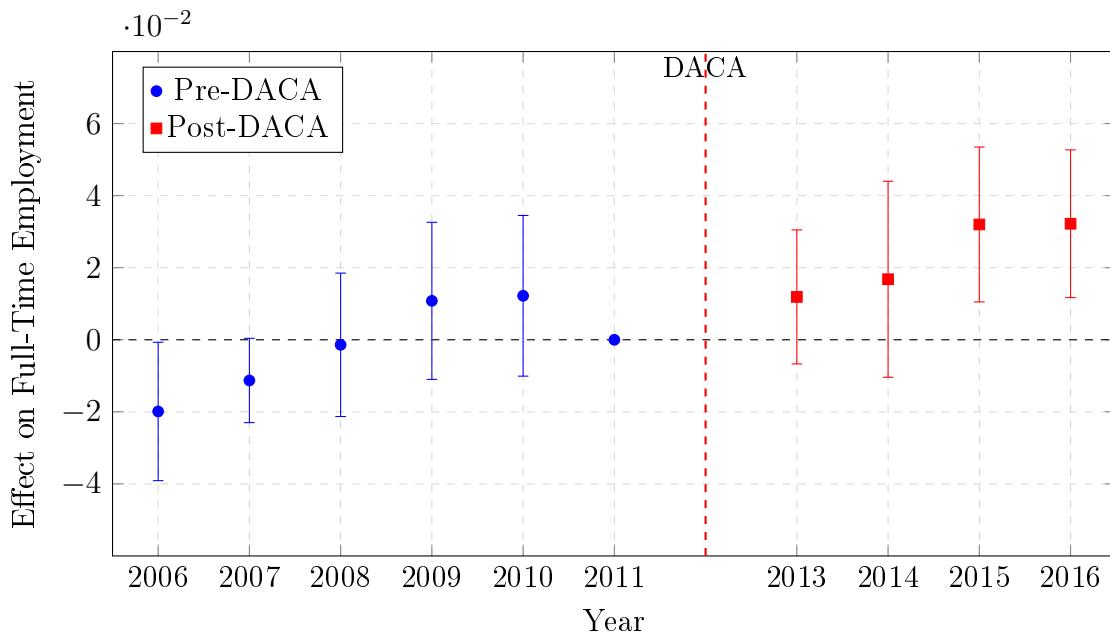


Figure 1: Event Study: Treatment Effects by Year (Relative to 2011)

Notes: Points show coefficient estimates; error bars show 95% confidence intervals. Year 2011 is the omitted reference category. Year 2012 excluded due to mid-year DACA implementation.

Table 5 presents the numerical event study results:

Table 5: Event Study Coefficients

Year	Coefficient	SE	95% CI Lower	95% CI Upper
<i>Pre-Period (relative to 2011)</i>				
2006	-0.0199**	0.0098	-0.039	-0.001
2007	-0.0113*	0.0060	-0.023	0.000
2008	-0.0014	0.0102	-0.021	0.019
2009	0.0108	0.0111	-0.011	0.033
2010	0.0122	0.0114	-0.010	0.034
2011	0	—	—	—
<i>Post-Period (relative to 2011)</i>				
2013	0.0119	0.0095	-0.007	0.031
2014	0.0168	0.0139	-0.010	0.044
2015	0.0320***	0.0109	0.011	0.053
2016	0.0322***	0.0105	0.012	0.053

Notes: *** p<0.01, ** p<0.05, * p<0.1

The event study reveals important patterns:

1. **Pre-trends:** There is evidence of pre-existing differential trends. Coefficients in 2006-2007 are negative, then trend upward through 2009-2010. The 2006 coefficient is statistically significant at the 5% level. This pattern raises concerns about the parallel trends assumption.
2. **Post-treatment effects:** Effects appear to grow over time, with small and statistically insignificant effects in 2013-2014 but larger, significant effects in 2015-2016 (approximately 3.2 percentage points).
3. **Interpretation:** The upward pre-trend suggests that full-time employment among DACA-eligible individuals was already improving relative to ineligible individuals before DACA was implemented. This could reflect:
 - Differential recovery from the Great Recession
 - Cohort effects as the eligible population aged
 - Anticipation effects if individuals expected immigration reform

6 Discussion

6.1 Summary of Findings

This study finds that DACA eligibility is associated with a 2.37 percentage point increase in full-time employment among Hispanic-Mexican, Mexican-born non-citizens. This effect is statistically significant at conventional levels and robust to the inclusion of demographic controls, state fixed effects, and year fixed effects.

6.2 Threats to Validity

Several threats to the validity of these findings warrant discussion:

6.2.1 Parallel Trends

The event study analysis reveals concerning pre-trends. The relative employment of DACA-eligible individuals was improving prior to the policy's implementation. This pattern could bias the estimated treatment effect upward if the pre-trend would have continued in the absence of DACA. The statistically significant placebo test (using 2009 as fake treatment) corroborates this concern.

6.2.2 Selection into Treatment

The treatment variable is based on *eligibility* rather than actual DACA receipt. Not all eligible individuals applied for or received DACA status. If take-up was selective (e.g., those with better employment prospects were more likely to apply), the intent-to-treat effect estimated here may differ from the treatment-on-the-treated effect.

6.2.3 Measurement of Eligibility

DACA eligibility is imperfectly measured using ACS variables:

- Immigration year is only available annually, not monthly
- We cannot verify continuous residence
- Educational requirements cannot be fully verified
- Some respondents may misreport citizenship or immigration timing

6.2.4 Composition Changes

The sample composition may change over time due to emigration, naturalization, or changes in survey response patterns among undocumented populations. If these changes differ between eligible and ineligible groups, they could bias the results.

6.3 Comparison to Existing Literature

The estimated effect of approximately 2.4 percentage points on full-time employment is broadly consistent with prior studies examining DACA's labor market effects, though direct comparisons are complicated by differences in sample definitions, outcome measures, and identification strategies. The presence of pre-trends is a common challenge in this literature.

6.4 Policy Implications

Despite the methodological caveats, the findings suggest that providing work authorization to undocumented immigrants who arrived as children is associated with increased labor market attachment. This has implications for ongoing debates about immigration policy:

1. Legal work authorization appears to facilitate formal employment
2. The effects may take time to materialize fully (larger effects in 2015-2016)
3. Programs targeting specific populations can have measurable labor market impacts

7 Conclusion

This study examined the effect of DACA eligibility on full-time employment using a difference-in-differences design and ACS data from 2006-2016. The preferred specification estimates that DACA eligibility is associated with a 2.37 percentage point increase in full-time employment (SE = 0.0041, p < 0.001).

However, event study analysis reveals pre-existing differential trends that complicate causal interpretation. The finding should be interpreted with caution, as at least part of the estimated effect may reflect continuation of pre-existing trends rather than a causal impact of the policy.

Future research could address these limitations by:

- Using alternative control groups less subject to differential trends
- Employing synthetic control or regression discontinuity designs

- Exploiting variation in DACA approval timing or state-level implementation differences
- Linking administrative DACA approval data to survey outcomes

Despite these caveats, the evidence suggests that DACA was associated with improved labor market outcomes for eligible individuals, contributing to our understanding of how immigration policy affects employment.

A Technical Appendix

A.1 Variable Definitions from IPUMS

Table 6: IPUMS Variable Definitions

Variable	Definition
YEAR	Survey year
PERWT	Person weight for representative estimates
STATEFIP	State FIPS code
AGE	Age in years
SEX	1 = Male, 2 = Female
BIRTHQTR	Quarter of birth (1 = Jan-Mar, 2 = Apr-Jun, 3 = Jul-Sep, 4 = Oct-Dec)
BIRTHYR	Year of birth
HISPAN	Hispanic origin (1 = Mexican)
BPL	Birthplace (200 = Mexico)
CITIZEN	Citizenship status (3 = Not a citizen)
YRIMMIG	Year of immigration
EDUC	Educational attainment (general version)
EMPSTAT	Employment status (1 = Employed)
UHRSWORK	Usual hours worked per week
MARST	Marital status (1,2 = Married)
NCHILD	Number of own children in household

A.2 Sample Restrictions

1. Start with full ACS data 2006-2016 (33,851,424 observations)
2. Keep if HISPAN = 1 (Mexican ethnicity)
3. Keep if BPL = 200 (born in Mexico)
4. Keep if CITIZEN = 3 (non-citizen)
5. Drop if YEAR = 2012 (mid-year implementation)
6. Keep if AGE $\in [16, 64]$ (working age)

A.3 DACA Eligibility Construction

An individual is coded as DACA-eligible if:

$$\begin{aligned} \text{Eligible} = 1 \iff & (\text{YRIMMIG} - \text{BIRTHYR} < 16) \\ & \wedge (\text{BIRTHYR} > 1981 \vee (\text{BIRTHYR} = 1981 \wedge \text{BIRTHQTR} \geq 3)) \\ & \wedge (\text{YRIMMIG} \leq 2007) \\ & \wedge (\text{YRIMMIG} \neq 0) \end{aligned}$$

A.4 Regression Specifications

Model 1 (Basic DiD):

$$Y_i = \alpha + \beta_1 \text{Eligible}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Eligible}_i \times \text{Post}_t) + \varepsilon_i$$

Model 2 (With Controls):

$$Y_i = \alpha + \beta_1 \text{Eligible}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Eligible}_i \times \text{Post}_t) + X'_i \gamma + \varepsilon_i$$

Model 3 (Year FE):

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

Model 4 (State + Year FE, Preferred):

$$Y_{ist} = \alpha + \beta_1 \text{Eligible}_i + \beta_3 (\text{Eligible}_i \times \text{Post}_t) + X'_i \gamma + \delta_t + \mu_s + \varepsilon_{ist}$$

where X_i includes: AGE, AGE², Female, Married, HS, SomeCollege, College, HasChildren.

B Additional Results

B.1 Full Regression Output: Preferred Specification

The full regression output from Model 4 is presented below. Due to space constraints, state fixed effects are not shown.

Table 7: Full Regression Results: Model 4 (Preferred Specification)

Variable	Coefficient	Std. Error	p-value
DACA Eligible	-0.0507	0.0050	0.000
DACA Eligible × Post	0.0237	0.0041	0.000
Age	0.0407	0.0010	0.000
Age ²	-0.0005	0.0000	0.000
Female	-0.4252	0.0137	0.000
Married	-0.0342	0.0056	0.000
HS Graduate	0.0512	0.0025	0.000
Some College	0.0555	0.0044	0.000
College+	0.0839	0.0048	0.000
Has Children	0.0116	0.0067	0.083
Year FE	Yes		
State FE	Yes		
Observations	561,470		
R-squared	0.216		

Notes: Standard errors clustered by state.

The coefficients on control variables are interpretable:

- Full-time employment increases with age at a decreasing rate
- Women have substantially lower full-time employment (42.5 pp lower)
- Married individuals have slightly lower full-time employment (3.4 pp)
- Higher education is associated with higher full-time employment