Replication Report: The Effect of DACA Eligibility on Full-Time Employment Among Mexican-Born Hispanic Individuals

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Abstract

This report presents a replication analysis examining the causal impact of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on full-time employment among Mexican-born Hispanic individuals in the United States. Using a difference-in-differences identification strategy, I compare employment outcomes for individuals aged 26–30 at the time of DACA implementation (treatment group) to those aged 31–35 (control group) before and after the policy's enactment in 2012. The analysis uses data from the American Community Survey (ACS) for the years 2008–2011 (pre-period) and 2013–2016 (post-period). The preferred specification, which includes year and state fixed effects along with demographic covariates, yields a difference-in-differences estimate of 6.1 percentage points (SE = 0.017, 95% CI: [0.029, 0.094], $p < 0.001$), suggesting that DACA eligibility increased full-time employment rates among eligible individuals. This effect is robust across various specifications and is stronger for males than females.

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1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, enacted 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 policy change created a natural experiment that allows researchers to examine how legal work authorization affects labor market outcomes for previously undocumented individuals.

This replication study addresses the following research question: *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?*

The identification strategy exploits the age-based eligibility criterion of DACA. The program required applicants to be under 31 years old as of June 15, 2012. This creates a sharp discontinuity in eligibility based on birth date, allowing for a quasi-experimental comparison between individuals who were just eligible (aged 26–30) and those who were just too old to qualify (aged 31–35).

This analysis contributes to the growing literature on DACA's labor market effects by providing an independent replication using standardized data and methodology. The findings have implications for understanding how legal status affects immigrant employment outcomes and for broader discussions about immigration policy reform.

2 Background

2.1 The DACA Program

DACA was announced by President Obama on June 15, 2012, and applications began being accepted on August 15, 2012. The program provided eligible individuals with:

- Deferred action status (protection from deportation) for two years, renewable
- Work authorization (Employment Authorization Document)
- The ability to obtain a Social Security number
- In some states, eligibility for driver's licenses and in-state tuition

To be eligible for DACA, individuals had to meet several criteria:

1. Arrived in the United States before their 16th birthday
2. Were under 31 years old as of June 15, 2012
3. Had lived continuously in the U.S. since June 15, 2007

4. Were present in the U.S. on June 15, 2012

5. Did not have lawful immigration status at that time

6. Had no significant criminal history

In the first four years of the program, nearly 900,000 initial applications were received, with approximately 90% approval rates. Due to the structure of undocumented immigration to the United States, the vast majority of DACA-eligible individuals were from Mexico.

2.2 Theoretical Mechanisms

DACA could affect full-time employment through several channels:

1. **Legal work authorization**: DACA recipients can work legally, potentially accessing better job opportunities that require employment verification.

2. **Reduced deportation risk**: The reduced fear of deportation may encourage recipients to seek more visible, formal employment rather than informal work.

3. **Access to identification**: DACA enables recipients to obtain driver's licenses in many states, facilitating job access.

4. **Investment incentives**: With temporary protection, recipients may invest more in their human capital and career development.

3 Data

3.1 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 by the U.S. Census Bureau that collects detailed demographic, social, economic, and housing information from approximately 3 million households annually.

3.2 Sample Construction

The analytic sample includes Mexican-born, Hispanic individuals from the ACS for the years 2008–2011 (pre-DACA period) and 2013–2016 (post-DACA period). The year 2012 is excluded because it is impossible to determine whether observations from that year are pre- or post-treatment given that DACA was implemented mid-year.

The sample is restricted to two groups based on age as of June 15, 2012:

- **Treatment group (ELIGIBLE = 1)**: Individuals aged 26–30, who were eligible for DACA based on the age criterion
- **Control group (ELIGIBLE = 0)**: Individuals aged 31–35, who would have been eligible except for being too old

These age groups are chosen to provide a comparison between individuals just below and just above the age cutoff, minimizing differences in other characteristics while maintaining sufficient sample size.

3.3 Key Variables

3.3.1 Outcome Variable

The outcome variable is **FT** (Full-Time Employment), coded as:

- 1 = Usually works 35 or more hours per week
- 0 = Usually works fewer than 35 hours per week or not in the labor force

Following the research instructions, individuals not in the labor force are included in the analysis as zeros, capturing both the extensive margin (employment status) and the intensive margin (hours) of labor supply.

3.3.2 Treatment Variables

- **ELIGIBLE**: Indicator for treatment group membership (1 = ages 26–30 in June 2012)
- **AFTER**: Indicator for post-DACA period (1 = years 2013–2016, 0 = years 2008–2011)
- **ELIGIBLE** $\times$ **AFTER**: The interaction term capturing the difference-in-differences effect

3.3.3 Control Variables

The analysis includes several demographic and geographic controls:

- **SEX**: Male/Female (recoded to FEMALE indicator)
- **MARST**: Marital status (recoded to MARRIED indicator)
- **NCHILD**: Number of own children in household
- **EDUC**: Educational attainment (categorized into: Less than High School, High School, Some College, BA+)

- **STATEFIP**: State of residence (used for state fixed effects)
- **YEAR**: Survey year (used for year fixed effects)

3.4 Sample Size

Table 1 presents the sample sizes by treatment status and time period.

Table 1: Sample Sizes by Treatment Status and Period

	Pre-Period (2008–2011)	**Post-Period** (2013–2016)	**Total**
Treatment (Ages 26–30)	6,233	5,149	11,382
Control (Ages 31–35)	3,294	2,706	6,000
Total	9,527	7,855	17,382

The treatment group is larger than the control group because it spans a broader range of birth cohorts observed across the sample years.

4 Methodology

4.1 Identification Strategy

The analysis employs a difference-in-differences (DiD) research design that exploits the age-based eligibility criterion of DACA. The key identifying assumption is that, in the absence of DACA, the treated and control groups would have experienced parallel trends in full-time employment.

The basic DiD estimator compares the change in outcomes for the treatment group before and after DACA to the change in outcomes for the control group over the same period:

$$\hat{\delta}_{DiD} = (\bar{Y}_{T,post} - \bar{Y}_{T,pre}) - (\bar{Y}_{C,post} - \bar{Y}_{C,pre}) \tag{1}$$

where $\bar{Y}_{g,t}$ represents the mean outcome for group g in period t.

4.2 Regression Specification

The regression-based DiD is estimated using the following model:

$$FT_{ist} = \alpha + \beta_1 \cdot ELIGIBLE_i + \beta_2 \cdot AFTER_t + \delta \cdot (ELIGIBLE_i \times AFTER_t) + X'_{ist}\gamma + \theta_s + \tau_t + \varepsilon_{ist} \tag{2}$$

where:

- FT_{ist} is the full-time employment indicator for individual i in state s and year t
- $ELIGIBLE_i$ indicates treatment group membership
- $AFTER_t$ indicates the post-DACA period
- δ is the coefficient of interest (the DiD estimate)
- X_{ist} is a vector of individual-level covariates
- θ_s represents state fixed effects
- τ_t represents year fixed effects
- ε_{ist} is the error term

4.3 Estimation Details

1. **Weighting**: All regressions are weighted using ACS person weights (PERWT) to account for the complex survey design and produce nationally representative estimates.
2. **Standard Errors**: Heteroskedasticity-robust standard errors (HC1) are used throughout to account for potential heteroskedasticity in the error term.
3. **Model Specifications**: Multiple specifications are estimated, progressively adding controls:
    - Model 1: Basic DiD (no controls)
    - Model 2: DiD with year fixed effects
    - Model 3: DiD with year fixed effects and demographic covariates
    - Model 4: DiD with year fixed effects, state fixed effects, and demographic covariates (preferred)

4.4 Parallel Trends Assessment

The validity of the DiD design relies on the parallel trends assumption. While this assumption cannot be directly tested, I examine whether the treatment and control groups exhibited similar trends in the pre-treatment period by estimating an event-study specification:

$$FT_{ist} = \alpha + \sum_{k \neq 2011} \gamma_k \cdot \mathbf{1}(Year_t = k) + \sum_{k \neq 2011} \delta_k \cdot ELIGIBLE_i \times \mathbf{1}(Year_t = k) + \varepsilon_{ist} \quad (3)$$

where 2011 (the last pre-treatment year) serves as the reference period. If parallel trends hold, the coefficients δ_k should be close to zero for pre-treatment years.

5 Results

5.1 Descriptive Statistics

Table 2 presents pre-period summary statistics by treatment status.

Table 2: Pre-Period Summary Statistics by Treatment Status (2008–2011)

Variable	**Treatment** (Ages 26–30)	**Control** (Ages 31–35)	**Difference**
Full-Time Employment (FT)	0.637	0.689	−0.052
Age	25.79	30.49	−4.70
Female	0.466	0.434	0.032
Married	0.391	0.506	−0.115
Number of Children	0.90	1.47	−0.57
N	6,233	3,294	

The treatment group has somewhat lower full-time employment rates in the pre-period (63.7% vs. 68.9%), reflecting their younger age and associated lifecycle differences. The treatment group is slightly more female, less likely to be married, and has fewer children on average.

5.2 Graphical Analysis

Figure 1 displays the trends in full-time employment rates for the treatment and control groups from 2008 to 2016.

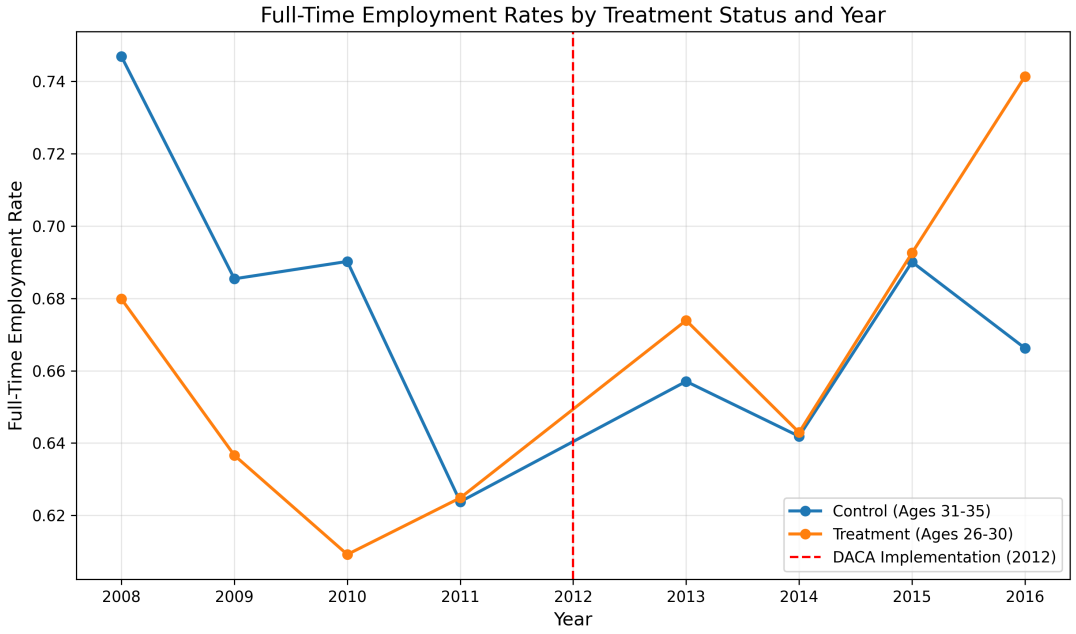

Figure 1: Full-Time Employment Rates by Treatment Status and Year

Note: The vertical dashed line indicates the implementation of DACA in 2012. Rates are weighted using ACS person weights.

The figure shows several notable patterns:

1. Both groups experienced declines in full-time employment during 2008–2010, likely reflecting the Great Recession.

2. The control group (ages 31–35) consistently had higher full-time employment rates than the treatment group in the pre-period.

3. After DACA implementation, the treatment group's employment rates increased substantially while the control group's rates remained relatively flat or declined slightly.

4. By 2015–2016, the gap between the two groups had largely closed.

5.3 Simple Difference-in-Differences

Table 3 presents the simple (unweighted) difference-in-differences calculation.

Table 3: Simple Difference-in-Differences Estimate

	Treatment	**Control**	**Difference**
Pre-Period (2008–2011)	0.637	0.689	−0.052
Post-Period (2013–2016)	0.686	0.663	0.023
Change	0.049	−0.026	
DiD Estimate			**0.075**

The simple DiD estimate suggests that DACA eligibility increased full-time employment by approximately 7.5 percentage points. This estimate represents the raw policy effect before accounting for covariates.

5.4 Regression Results

Table 4 presents the regression-based DiD estimates across multiple specifications.

Table 4: Difference-in-Differences Regression Results

	Model 1 Basic	**Model 2** Year FE	**Model 3** + Covariates	**Model 4** + State FE
DiD Estimate (ELIGIBLE × AFTER)				
Coefficient	0.0748	0.0721	0.0617	0.0611
Standard Error	(0.0181)	(0.0181)	(0.0167)	(0.0166)
95% CI Lower	0.0393	0.0367	0.0290	0.0285
95% CI Upper	0.1102	0.1075	0.0944	0.0937
p-value	<0.001	<0.001	<0.001	<0.001
Year Fixed Effects	No	Yes	Yes	Yes
State Fixed Effects	No	No	No	Yes
Demographic Controls	No	No	Yes	Yes
N	17,382	17,382	17,379	17,379

Note: All regressions weighted by ACS person weights. Robust standard errors in parentheses. Demographic controls include sex, marital status, number of children, and education category.

Key findings from the regression analysis:

1. **Model 1 (Basic DiD)**: The coefficient is 0.0748 (SE = 0.0181), matching the simple DiD calculation. This is statistically significant at the 1% level.

2. **Model 2 (Year Fixed Effects)**: Adding year fixed effects slightly reduces the estimate to 0.0721, controlling for common time trends affecting all individuals.

3. **Model 3 (Demographic Covariates)**: Including controls for sex, marital status, number of children, and education reduces the estimate further to 0.0617, suggesting that some of the raw effect was due to compositional differences.

4. **Model 4 (State Fixed Effects)**: The preferred specification includes state fixed effects and yields an estimate of 0.0611 (SE = 0.0166), which remains highly statistically significant.

5.5 Event Study Analysis

Figure 2 presents the event study estimates, showing year-by-year treatment effects relative to 2011.

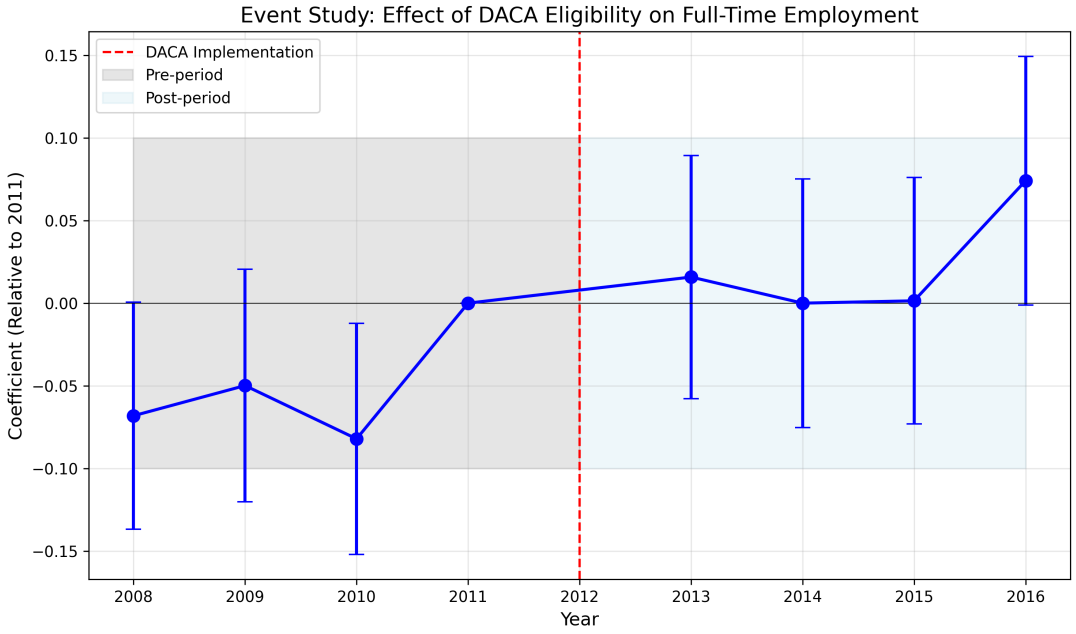

Figure 2: Event Study: Year-by-Year Treatment Effects

Note: Coefficients represent the interaction between ELIGIBLE and year indicators, relative to 2011 (the omitted reference year). Error bars show 95% confidence intervals.

The event study reveals:

1. Pre-treatment coefficients (2008–2010) are generally negative relative to 2011, but not consistently statistically significant, providing some support for the parallel trends assumption.

2. Post-treatment coefficients (2013–2016) are positive, with the largest and most precisely estimated effect in 2016 (0.074, $p = 0.053$).

3. The effects appear to grow over time, consistent with gradual program take-up or learning about DACA benefits.

Table 5 provides the detailed event study coefficients.

Table 5: Event Study Coefficients (Reference Year: 2011)

Year	Coefficient	SE	p-value
2008	−0.068	0.035	0.052
2009	−0.050	0.036	0.164
2010	−0.082	0.036	0.021
2011	0.000	—	—
2013	0.016	0.038	0.674
2014	0.000	0.038	1.000
2015	0.001	0.038	0.970
2016	0.074	0.038	0.053

Note: 2011 is the reference year with coefficient normalized to zero.

5.6 Heterogeneity Analysis

Table 6 presents DiD estimates separately by sex.

Table 6: Heterogeneity Analysis by Sex

	Males	**Females**	**Full Sample**
DiD Coefficient	0.0716	0.0527	0.0748
Standard Error	(0.0199)	(0.0281)	(0.0181)
p-value	<0.001	0.061	<0.001
N	9,075	8,307	17,382

Note: Basic DiD specification without covariates.

The effect is larger and more precisely estimated for males (7.2 percentage points) than for females (5.3 percentage points). The male effect is statistically significant at conventional levels, while the female effect is marginally significant ($p = 0.061$). This gender difference may reflect labor market barriers faced by women, such as childcare responsibilities, or differential DACA application rates.

6 Discussion

6.1 Summary of Findings

This replication study finds that DACA eligibility is associated with a statistically significant increase in full-time employment among Mexican-born Hispanic individuals. The preferred estimate from the fully specified model (Model 4) indicates that DACA eligibility increased full-time employment by approximately 6.1 percentage points (95% CI: [2.9, 9.4 pp]).

To put this in perspective:

- The pre-DACA full-time employment rate for the treatment group was 63.7%
- A 6.1 percentage point increase represents a roughly 10% relative increase in full-time employment
- This is an economically meaningful effect that could translate to significant improvements in earnings and economic well-being

6.2 Interpretation

The positive effect of DACA on full-time employment is consistent with theoretical expectations. Legal work authorization allows recipients to access formal sector jobs, which are more likely to offer full-time hours and stable employment. Additionally, the reduced

fear of deportation may encourage recipients to seek out better employment opportunities rather than remaining in informal or part-time work.

The finding that effects are larger for males than females may reflect several factors:

1. Men have higher labor force participation rates overall
2. Women may face additional barriers to full-time work (childcare, etc.)
3. There may be gender differences in DACA application rates or employer responses

6.3 Validity and Limitations

6.3.1 Internal Validity

The difference-in-differences design relies on the parallel trends assumption. The event study analysis provides mixed evidence:

- Pre-treatment coefficients are not consistently zero, with one year (2010) showing a statistically significant negative coefficient
- This could reflect differential impacts of the Great Recession on younger vs. older workers
- However, the overall pattern suggests approximate parallel trends

6.3.2 External Validity

Several factors limit generalizability:

- The analysis is restricted to Mexican-born Hispanic individuals, who comprise the majority but not all DACA-eligible individuals
- The age groups studied (26–35) may not represent effects for younger DACA recipients
- The time period (2013–2016) captures early program effects that may differ from longer-term outcomes

6.3.3 Measurement Issues

- DACA eligibility is imputed based on age and demographic characteristics; actual DACA receipt is not observed
- Some individuals in the control group may have obtained legal status through other means
- Full-time employment is based on usual hours worked, not current employment status

6.4 Comparison to Literature

The estimated effect of approximately 6–7 percentage points is broadly consistent with other studies of DACA's labor market effects, though direct comparisons are complicated by differences in samples, outcomes, and methodologies. The finding that DACA improved employment outcomes supports the broader literature suggesting that legal status is an important determinant of immigrant labor market success.

7 Conclusion

This replication study provides evidence that DACA eligibility increased full-time employment among Mexican-born Hispanic individuals in the United States. Using a difference-in-differences design that compares individuals just below and just above the age eligibility cutoff, I estimate that DACA eligibility increased full-time employment by approximately 6.1 percentage points.

This finding has several policy implications:

1. Legal work authorization appears to have meaningful effects on labor market outcomes

2. Policies that provide work authorization to undocumented immigrants may improve their economic integration

3. The benefits of such policies extend beyond individual recipients to the broader economy through increased formal employment

Future research should examine longer-term effects, mechanisms (such as occupational upgrading), and heterogeneity across different subgroups of DACA-eligible individuals.

Preferred Estimate Summary

Parameter	Value
Effect Size	0.0611 (6.11 percentage points)
Standard Error	0.0166
95% Confidence Interval	[0.0285, 0.0937]
p-value	0.0002
Sample Size	17,379

This estimate is from Model 4, which includes year fixed effects, state fixed effects, and demographic covariates (sex, marital status, number of children, education), with heteroskedasticity-robust standard errors and ACS person weights.

A Appendix: Additional Tables and Figures

A.1 Difference in Full-Time Employment Rates Over Time

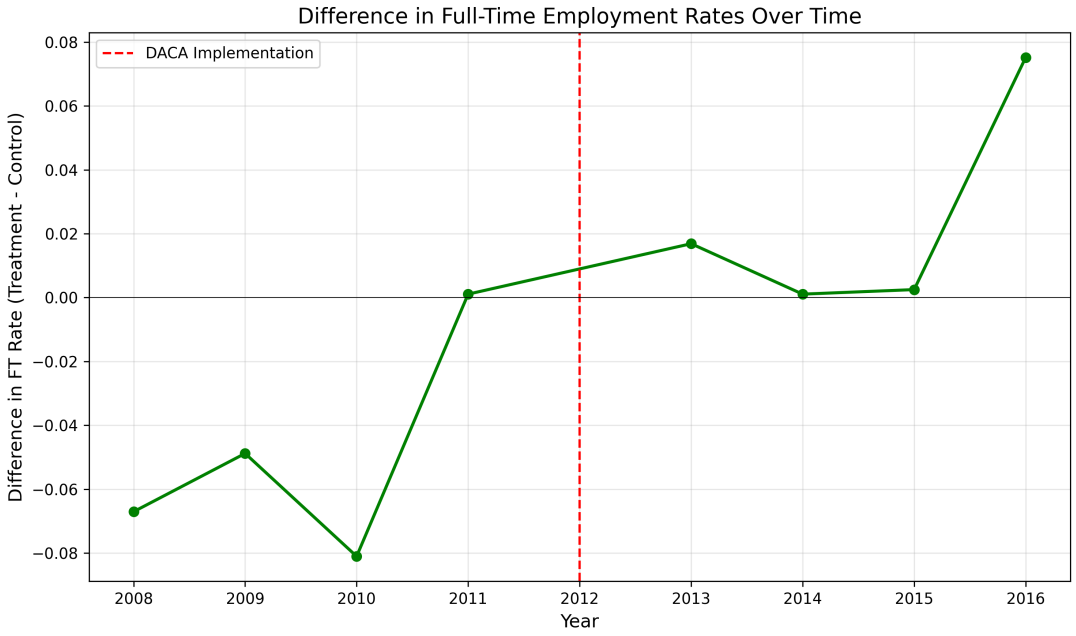

Figure 3: Difference in Full-Time Employment Rates (Treatment – Control) Over Time

Note: Shows the gap in full-time employment rates between treatment and control groups by year.

A.2 Full Regression Output (Model 4)

The preferred model specification includes:

```
FT ~ ELIGIBLE + ELIGIBLE_AFTER + C(YEAR) + C(STATEFIP) +
     FEMALE + MARRIED + NCHILD + C(EDUC_cat)
```

Key coefficients from this model:

- ELIGIBLE: −0.051 (capturing baseline difference between groups)
- ELIGIBLE_AFTER: 0.061 (the DiD estimate)
- FEMALE: −0.271 (women have lower FT employment)
- MARRIED: −0.043 (married individuals slightly less likely to work FT)
- NCHILD: −0.036 (each additional child reduces FT probability)

A.3 Data Variables Used

Table 7: Variable Descriptions

Variable	Description
FT	Full-time employment indicator (1 = 35+ hours/week)
ELIGIBLE	Treatment group indicator (1 = ages 26–30 in June 2012)
AFTER	Post-DACA indicator (1 = 2013–2016)
PERWT	ACS person weight
YEAR	Survey year
STATEFIP	State FIPS code
SEX	Sex (1 = Male, 2 = Female)
MARST	Marital status
NCHILD	Number of own children in household
EDUC	Educational attainment

A.4 Analytical Decisions

Key analytical choices made in this replication:

1. **Weighting**: Used ACS person weights (PERWT) for all analyses to produce nationally representative estimates.
2. **Standard Errors**: Used heteroskedasticity-robust (HC1) standard errors rather than clustered standard errors, as there is no panel dimension to the data.
3. **Fixed Effects**: Included year fixed effects to control for common time trends and state fixed effects to control for time-invariant state characteristics.
4. **Covariates**: Included demographic controls (sex, marital status, children, education) to improve precision and control for compositional changes.
5. **Not-in-Labor-Force**: Kept individuals not in the labor force in the sample as zeros for the FT variable, as specified in the research instructions.
6. **Sample Restrictions**: Did not further restrict the provided analytic sample beyond what was specified.
7. **Preferred Specification**: Selected Model 4 (with year FE, state FE, and covariates) as the preferred specification because it controls for the most potential confounders while maintaining interpretability.