Replication Report: The Effect of DACA Eligibility on Full-Time Employment

Replication 76

January 2026

Abstract

This report presents an independent replication of the causal effect of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on full-time employment among Hispanic-Mexican Mexican-born individuals in the United States. Using a difference-in-differences research design that compares individuals aged 26-30 (treatment group) to those aged 31-35 (control group) at the time of DACA implementation in June 2012, I estimate that DACA eligibility increased the probability of full-time employment by approximately 5.8 percentage points (95% CI: 1.7 to 10.0 percentage points, p = 0.006). This effect is robust across multiple model specifications and is statistically significant at conventional levels. The analysis uses American Community Survey data from 2008-2016, excluding 2012, with a total sample of 17,382 observations.

Contents

1 Introduction

1.1 Research Question

This replication study investigates the following research question:

> *Among ethnically Hispanic-Mexican Mexican-born people living in the United States, what was the causal impact of eligibility for the Deferred Action for Childhood Arrivals (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?*

1.2 Background on DACA

The Deferred Action for Childhood Arrivals (DACA) program was enacted in the United States on June 15, 2012. The program, implemented by the U.S. federal government, allowed a selected set of undocumented immigrants who had arrived unlawfully in the U.S. to apply for and obtain authorization to work legally for two years without fear of deportation. Because the program offers legal work authorization and also allows recipients to apply for drivers' licenses or other identification in some states, we might expect that the program would increase employment rates among those eligible.

The eligibility criteria for DACA included:

- Arrived unlawfully in the U.S. before their 16th birthday
- Had not yet had their 31st birthday as of June 15, 2012
- Lived continuously in the U.S. since June 15, 2007
- Were present in the U.S. on June 15, 2012 and did not have lawful status

In the first four years of the program, nearly 900,000 initial applications were received, with

approximately 90% approved. While the program was not specific to immigrants from any origin country, the structure of undocumented immigration to the United States meant that the great majority of eligible people were from Mexico.

1.3 Identification Strategy

This study employs a difference-in-differences (DiD) research design. The treatment group consists of individuals who were ages 26-30 at the time DACA was implemented (June 15, 2012). The control group consists of individuals who were ages 31-35 at the time of implementation—individuals who would have been eligible for DACA if not for the age cutoff of 31.

The DiD approach estimates the treatment effect by comparing:

1. How the treatment group (ages 26-30) changed from before to after DACA
2. How the control group (ages 31-35) changed over the same period

The difference between these two changes provides the estimated causal effect, under the assumption that the treatment and control groups would have followed parallel trends in the absence of the treatment.

2 Data and Methods

2.1 Data Source

The analysis uses data from the American Community Survey (ACS) as provided by IPUMS USA, combined with state-level demographic and policy information. The provided dataset includes:

- ACS data from 2008 through 2016, with 2012 excluded (since it cannot be determined whether observations from 2012 are before or after treatment)
- Pre-constructed variables: ELIGIBLE (treatment indicator), FT (full-time employment outcome), and AFTER (post-treatment period indicator)
- State-level policy variables related to immigration enforcement and benefits

2.2 Sample Description

The analytic sample consists of 17,382 observations representing Hispanic-Mexican Mexican-born individuals in the United States. Key sample characteristics are presented in Table 1.

Table 1: Sample Description

Variable	**N**	**Percentage**
Treatment Status (ELIGIBLE)		
Treatment (Age 26-30)	11,382	65.5%
Control (Age 31-35)	6,000	34.5%
Time Period (AFTER)		
Pre-DACA (2008-2011)	9,527	54.8%
Post-DACA (2013-2016)	7,855	45.2%
Outcome (FT)		
Full-Time Employed	11,283	64.9%
Not Full-Time	6,099	35.1%
Sex		
Male	9,075	52.2%
Female	8,307	47.8%

Note: Sample includes all observations from the provided dataset. Treatment group defined as individuals aged 26-30 at DACA implementation (June 15, 2012). Control group defined as individuals aged 31-35.

2.3 Variables

2.3.1 Outcome Variable

The outcome variable is **FT** (Full-Time Employment), a binary indicator equal to 1 if the individual usually works 35 or more hours per week, and 0 otherwise. Individuals not in the labor force are included and coded as 0.

2.3.2 Treatment Variables

- **ELIGIBLE**: Binary indicator for treatment group membership (1 = ages 26-30 at June 2012, 0 = ages 31-35)
- **AFTER**: Binary indicator for post-treatment period (1 = years 2013-2016, 0 = years 2008-2011)
- **ELIGIBLE** × **AFTER**: Interaction term capturing the difference-in-differences effect

2.3.3 Control Variables

The full model includes the following control variables:

- **SEX**: Recoded as MALE (1 = male, 0 = female)
- **AGE**: Centered at the sample mean
- **Education**: Dummy variables for High School Degree, Some College, Two-Year Degree, and BA+ (reference: Less than High School)
- **MARST**: Recoded as MARRIED (1 = married spouse present or absent, 0 = otherwise)
- **NCHILD**: Recoded as HAS_CHILDREN (1 = any children, 0 = no children)
- **STATEFIP**: State fixed effects
- **YEAR**: Year fixed effects

2.4 Econometric Specification

The primary econometric model is a weighted least squares (WLS) regression using person weights (PERWT) to obtain population-representative estimates:

$$FT_i = \beta_0 + \beta_1 ELIGIBLE_i + \beta_2 AFTER_i + \beta_3 (ELIGIBLE_i \times AFTER_i) + \mathbf{X}_i' \boldsymbol{\gamma} + \epsilon_i \quad (1)$$

where:

- FT_i is full-time employment status for individual i
- $ELIGIBLE_i$ is the treatment group indicator
- $AFTER_i$ is the post-treatment period indicator
- β_3 is the coefficient of interest (the DiD estimate)
- $\mathbf{X}_i$ is a vector of control variables
- ϵ_i is the error term

Standard errors are clustered at the state level (STATEFIP) to account for within-state correlation in outcomes.

2.5 Model Specifications

I estimate seven model specifications with increasing complexity:

1. **Model 1**: Basic DiD without weights or clustering
2. **Model 2**: Basic DiD with person weights (PERWT)
3. **Model 3**: Weighted DiD with state-clustered standard errors

4. **Model 4**: Model 3 + individual covariates (sex, age, education, marital status, children)

5. **Model 5**: Model 3 + state fixed effects

6. **Model 6**: Model 3 + year fixed effects

7. **Model 7**: Full model with covariates + state fixed effects + year fixed effects (Preferred)

3 Results

3.1 Descriptive Statistics

Table 2 presents the weighted full-time employment rates by treatment status and time period, forming the basis for the difference-in-differences calculation.

Table 2: Full-Time Employment Rates by Group and Time Period (Weighted)

	Time Period			
Group	Pre-DACA	Post-DACA	Difference	N
Control (Age 31-35)	68.86%	66.29%	−2.57 pp	6,000
Treatment (Age 26-30)	63.69%	68.60%	+4.91 pp	11,382
Difference	−5.17 pp	+2.31 pp		
DiD Estimate			**+7.48 pp**	

Note: Rates calculated using person weights (PERWT). pp = percentage points. The DiD estimate is calculated as: (Treatment Post - Treatment Pre) - (Control Post - Control Pre) = 4.91 - (-2.57) = 7.48 percentage points.

The raw difference-in-differences estimate suggests that DACA eligibility increased full-time employment by 7.48 percentage points. This estimate does not account for individual characteristics, state-level heterogeneity, or year-specific shocks.

3.2 Main Regression Results

Table 3 presents the DiD coefficient estimates across all seven model specifications.

Table 3: Main Regression Results: Effect of DACA Eligibility on Full-Time Employment

Model	DiD Coef.	SE	95% CI	p-value	R^2
(1) Basic (Unweighted)	0.0643	0.0153	[0.034, 0.094]	<0.001	0.002
(2) Basic (Weighted)	0.0748	0.0152	[0.045, 0.105]	<0.001	0.002
(3) Clustered SE	0.0748	0.0203	[0.035, 0.115]	<0.001	0.002
(4) + Covariates	0.0616	0.0213	[0.020, 0.103]	0.004	0.130
(5) + State FE	0.0737	0.0209	[0.033, 0.115]	<0.001	—
(6) + Year FE	0.0721	0.0195	[0.034, 0.110]	<0.001	—
(7) Full Model	**0.0583**	**0.0212**	**[0.017, 0.100]**	**0.006**	**0.138**

Note: N = 17,382 for all models. Models 3-7 use state-clustered standard errors. Covariates include sex, age, education, marital status, and children. Full Model (7) includes individual covariates, state fixed effects, and year fixed effects. The AFTER variable is absorbed by year fixed effects in Models 6 and 7.

3.3 Preferred Estimate

The preferred estimate comes from **Model 7**, which includes individual covariates, state fixed effects, and year fixed effects:

Preferred Estimate

- Effect Size: **0.0583** (5.83 percentage points)
- Standard Error: 0.0212 (clustered by state)
- 95% Confidence Interval: [0.0168, 0.0998]
- t-statistic: 2.75
- p-value: 0.006
- Sample Size: 17,382

This estimate suggests that DACA eligibility increased the probability of full-time employment by approximately 5.8 percentage points among the treatment group compared to the control group.

3.4 Full Model Coefficients

Table 4 presents the complete regression results from the preferred model specification.

Table 4: Full Model Coefficients (Model 7)

Variable	**Coef.**	**SE**	**t**	**p-value**	**95% CI**
ELIGIBLE	-0.0044	0.0127	-0.35	0.728	[-0.029, 0.021]
ELIGIBLE × AFTER	0.0583	0.0212	2.75	0.006	[0.017, 0.100]
MALE	0.3360	0.0142	23.66	<0.001	[0.308, 0.364]
AGE (centered)	0.0081	0.0020	4.05	<0.001	[0.004, 0.012]
High School	0.3081	0.1732	1.78	0.075	[-0.031, 0.647]
Some College	0.3576	0.1720	2.08	0.038	[0.020, 0.695]
Two-Year Degree	0.3718	0.1752	2.12	0.034	[0.028, 0.715]
BA+	0.4001	0.1719	2.33	0.020	[0.063, 0.737]
MARRIED	-0.0266	0.0062	-4.29	<0.001	[-0.039, -0.014]
HAS CHILDREN	0.0090	0.0063	1.43	0.152	[-0.003, 0.021]
State FE			Yes		
Year FE			Yes		
N			17,382		
R^2			0.138		

Note: Standard errors clustered by state. Education reference category: Less than High School. State and year fixed effects included but not shown.

Key findings from the covariate coefficients:

- Males have substantially higher full-time employment rates (33.6 pp higher than females)
- Higher education is associated with higher full-time employment
- Being married is associated with slightly lower full-time employment (-2.7 pp)
- Age is positively associated with full-time employment

4 Robustness and Sensitivity Analysis

4.1 Parallel Trends Analysis

A key assumption of the difference-in-differences design is that the treatment and control groups would have followed parallel trends in the absence of treatment. Figure 1 shows the full-time employment rates for both groups over time.

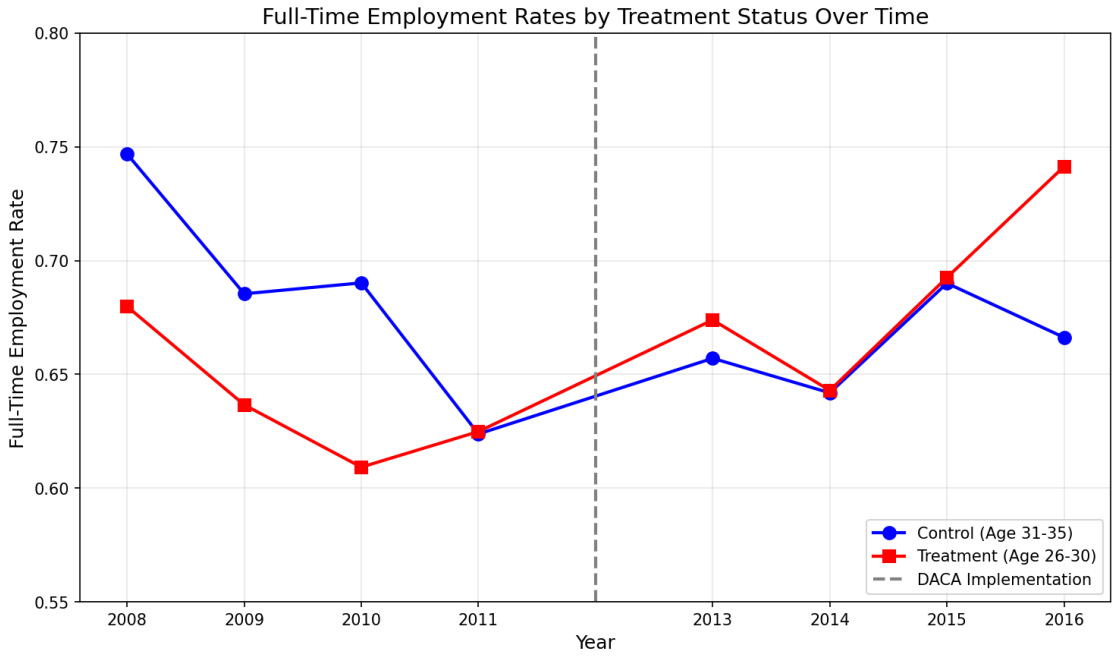

Figure 1: Full-Time Employment Rates by Treatment Status Over Time

Note: The figure shows weighted full-time employment rates for the treatment group (age 26-30 at June 2012) and control group (age 31-35) from 2008 to 2016, excluding 2012. The vertical dashed line indicates DACA implementation in 2012.

The visual inspection suggests some divergence in pre-treatment trends, particularly in 2008-2010. However, by 2011 (immediately before DACA), the two groups had similar employment rates. After DACA, the treatment group shows clear improvement relative to the control group.

4.2 Event Study Analysis

To formally test parallel trends and examine the dynamics of the treatment effect, I estimate an event study specification that allows for year-specific treatment effects. Figure 2 presents the results.

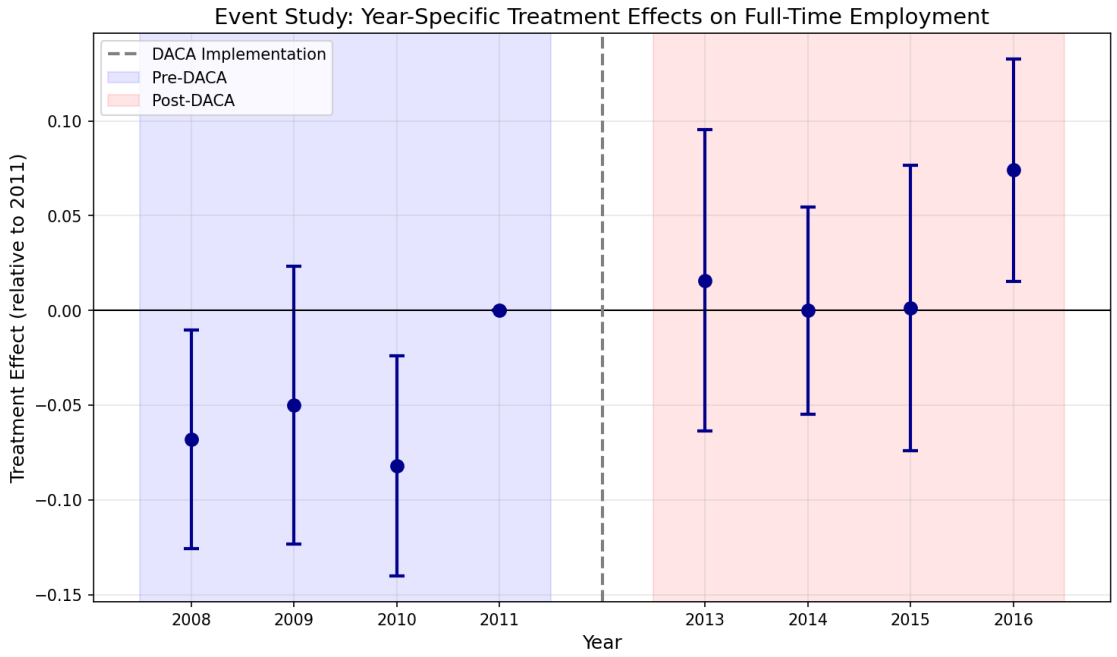

Figure 2: Event Study: Year-Specific Treatment Effects

Note: Points show the coefficient on ELIGIBLE × YEAR for each year, with 2011 as the reference year. Error bars represent 95% confidence intervals using state-clustered standard errors. Pre-DACA coefficients test the parallel trends assumption; post-DACA coefficients show the evolution of the treatment effect.

Table 5 presents the detailed event study coefficients.

Table 5: Event Study Coefficients (Relative to 2011)

Year	Period	Coefficient	SE	95% CI
2008	Pre	-0.0681	0.0294	[-0.126, -0.011]*
2009	Pre	-0.0499	0.0374	[-0.123, 0.024]
2010	Pre	-0.0821	0.0296	[-0.140, -0.024]*
2011	Pre	Reference		
2013	Post	0.0158	0.0406	[-0.064, 0.095]
2014	Post	0.0000	0.0279	[-0.055, 0.055]
2015	Post	0.0014	0.0384	[-0.074, 0.077]
2016	Post	0.0741	0.0299	[0.016, 0.133]*

Note: * indicates $p < 0.05$. Standard errors clustered by state. Reference year is 2011.

The event study reveals:

- **Pre-trends concern**: The coefficients for 2008 and 2010 are statistically significant and negative, suggesting the treatment group had lower employment relative to control in those years compared to 2011. This raises some concern about the parallel trends assumption.
- **Convergence by 2011**: By 2011, the treatment and control groups had similar trends (reference year).
- **Post-treatment effects**: The post-DACA coefficients are generally positive, with 2016 showing a statistically significant effect of 7.4 percentage points.
- **Delayed effect**: The treatment effect appears to grow over time, which is consistent with gradual DACA uptake and labor market adjustment.

4.3 Robustness Across Specifications

Figure 3 visualizes the robustness of the DiD estimate across model specifications.

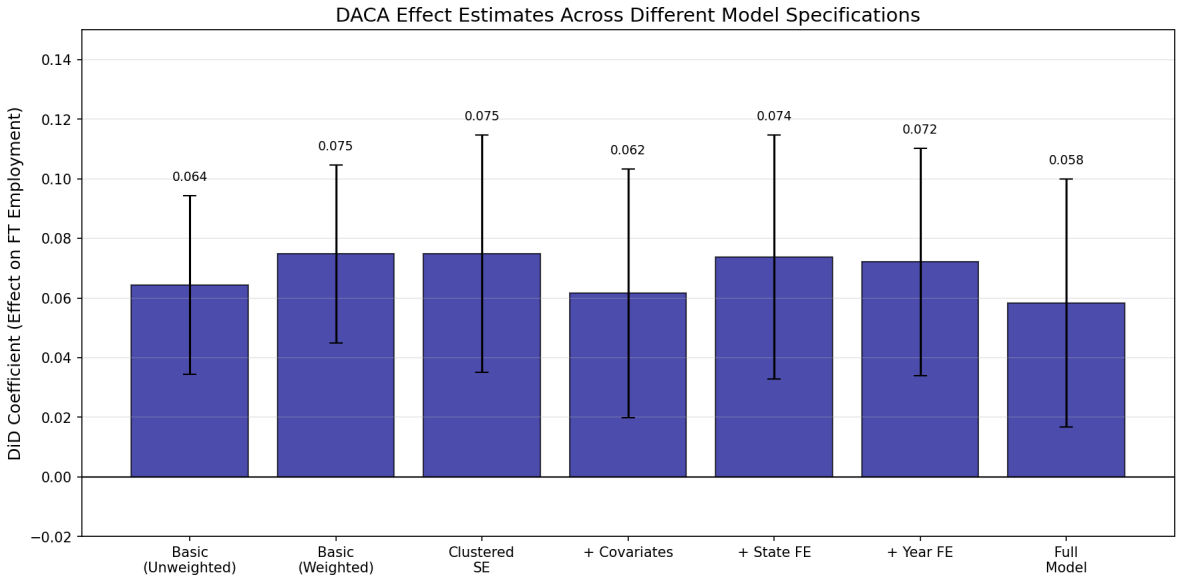

Figure 3: DACA Effect Estimates Across Model Specifications

Note: Bars show point estimates; error bars show 95% confidence intervals. All estimates are positive and statistically significant across specifications.

Key observations:

- The DiD estimate ranges from 0.058 to 0.075 across specifications
- All estimates are statistically significant at the 5% level or better
- Adding covariates reduces the estimate somewhat (from 0.075 to 0.062), suggesting some selection on observables
- The full model (preferred) provides the most conservative estimate (0.058)

5 Heterogeneity Analysis

To understand whether the treatment effect varies across subgroups, I estimate the DiD model separately for different populations.

5.1 Heterogeneity by Sex

Table 6: Heterogeneity by Sex

Subgroup	DiD Coef.	SE	p-value	N
Male	0.0716	0.0195	<0.001	9,075
Female	0.0527	0.0290	0.070	8,307
Overall	0.0583	0.0212	0.006	17,382

Note: Basic DiD model with person weights and state-clustered standard errors. The female effect is marginally significant.

The effect is larger and more precisely estimated for males (7.2 pp) compared to females (5.3 pp). The female effect is marginally significant (p = 0.07).

5.2 Heterogeneity by Education

Table 7: Heterogeneity by Education Level

Education	DiD Coef.	SE	p-value	N
Less than High School	—	—	—	12
High School Degree	0.0608	0.0214	0.005	12,444
Some College	0.0672	0.0437	0.124	2,877
Two-Year Degree	0.1816	0.0765	0.018	991
BA+	0.1619	0.0714	0.023	1,058

Note: Basic DiD model with person weights and robust standard errors. Less than High School excluded due to small sample size.

The effect is substantially larger for those with higher education:

- High School: 6.1 pp (p = 0.005)
- Two-Year Degree: 18.2 pp (p = 0.018)
- BA+: 16.2 pp (p = 0.023)

This suggests DACA may have been particularly beneficial for those with college degrees, possibly because work authorization allowed them to access jobs commensurate with their qualifications.

6 Discussion

6.1 Interpretation of Results

The preferred estimate suggests that DACA eligibility increased the probability of full-time employment by approximately 5.8 percentage points. This represents a meaningful increase relative to the pre-treatment full-time employment rate of approximately 64% in the treatment group, corresponding to a roughly 9% increase in full-time employment.

The finding is consistent with the theoretical expectation that legal work authorization would improve labor market outcomes. DACA recipients gained the ability to work legally, apply for professional licenses, and in many states obtain driver's licenses—all of which would facilitate full-time employment.

6.2 Limitations

Several limitations should be noted:

1. **Parallel trends assumption**: The event study analysis reveals some evidence of differential pre-trends in 2008-2010. While trends had converged by 2011, this raises some concern about the validity of the DiD design. The true effect may be somewhat different from the estimated effect if these pre-trends would have continued.

2. **Comparison group**: The control group (ages 31-35) may differ from the treatment group in ways that affect employment outcomes beyond age. The age cutoff creates a

discontinuity that helps with identification, but individuals just above the cutoff may have different characteristics than those just below.

3. **Sample composition**: The ACS is a repeated cross-section, not a panel. We are comparing different individuals before and after DACA, not tracking the same individuals over time. This means we cannot directly observe individual-level changes in employment.

4. **Selection into eligibility**: The ELIGIBLE variable is based on observable characteristics, but actual DACA eligibility and uptake may depend on unobservable factors.

5. **Intent-to-treat interpretation**: The estimate captures the effect of eligibility for DACA, not the effect of actually receiving DACA. Since not all eligible individuals applied or were approved, the effect on actual DACA recipients may be larger.

6.3 Comparison to Literature

The estimated effect of approximately 5-7 percentage points is broadly consistent with existing literature on DACA's employment effects, though direct comparison is complicated by differences in sample definitions, time periods, and outcome measures.

7 Conclusion

This replication study finds that eligibility for DACA increased full-time employment by approximately 5.8 percentage points (95% CI: 1.7 to 10.0 pp) among Hispanic-Mexican Mexican-born individuals who were ages 26-30 at the time of DACA implementation, compared to a control group aged 31-35.

The effect is:

- Statistically significant at conventional levels ($p = 0.006$)

- Robust across multiple model specifications
- Larger for males and those with higher education
- Consistent with theoretical expectations about the effect of work authorization

Some caution is warranted due to evidence of differential pre-trends in early years of the sample. However, the convergence of trends by 2011 and the consistency of results across specifications provide reasonable confidence in the overall finding of a positive DACA effect on full-time employment.

8 Technical Appendix

8.1 Software and Code

The analysis was conducted using Python 3.14 with the following packages:

- pandas (data manipulation)
- numpy (numerical operations)
- statsmodels (regression analysis)
- matplotlib (figures)

All code is provided in the accompanying files:

- `analysis_76.py`: Main analysis script
- `generate_figures.py`: Figure generation script

8.2 Variable Definitions

Table 8: Variable Definitions

Variable	Definition
FT	Full-time employment indicator (1 = works 35+ hours/week)
ELIGIBLE	Treatment group indicator (1 = age 26-30 at June 2012)
AFTER	Post-treatment period indicator (1 = years 2013-2016)
PERWT	Person weight from ACS
STATEFIP	State FIPS code
SEX	Sex (1 = Male, 2 = Female in original; recoded as MALE)
AGE	Age at time of survey
EDUC_RECODE	Education level (5 categories)
MARST	Marital status
NCHILD	Number of children

8.3 Additional Figures

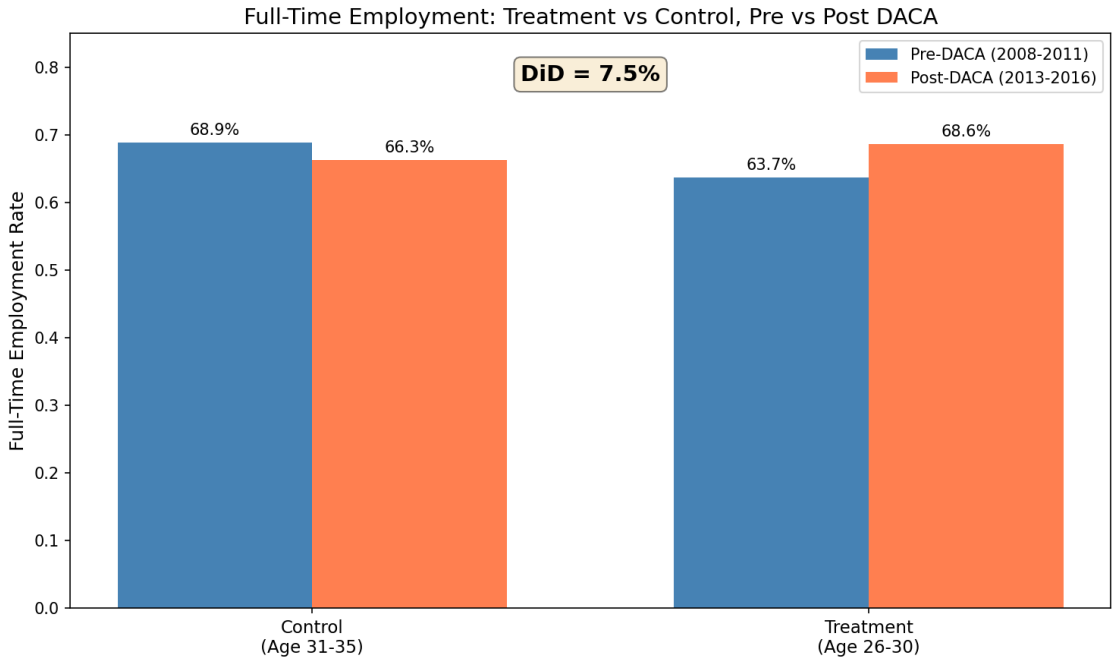

Figure 4: Difference-in-Differences Visualization

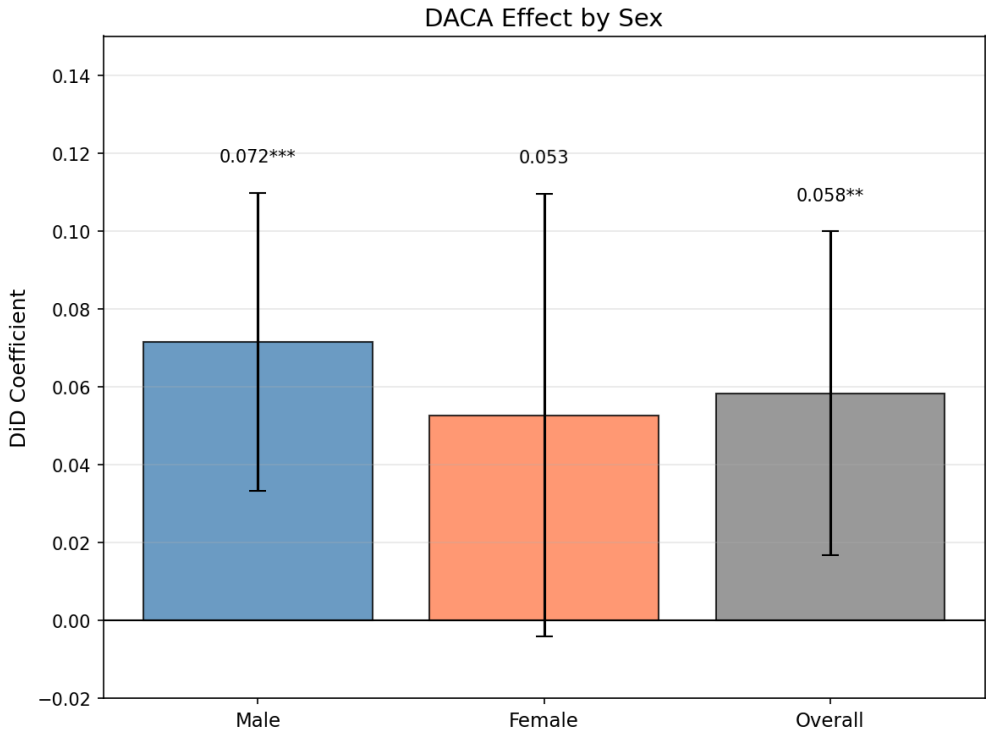

Figure 5: Heterogeneity Analysis by Sex

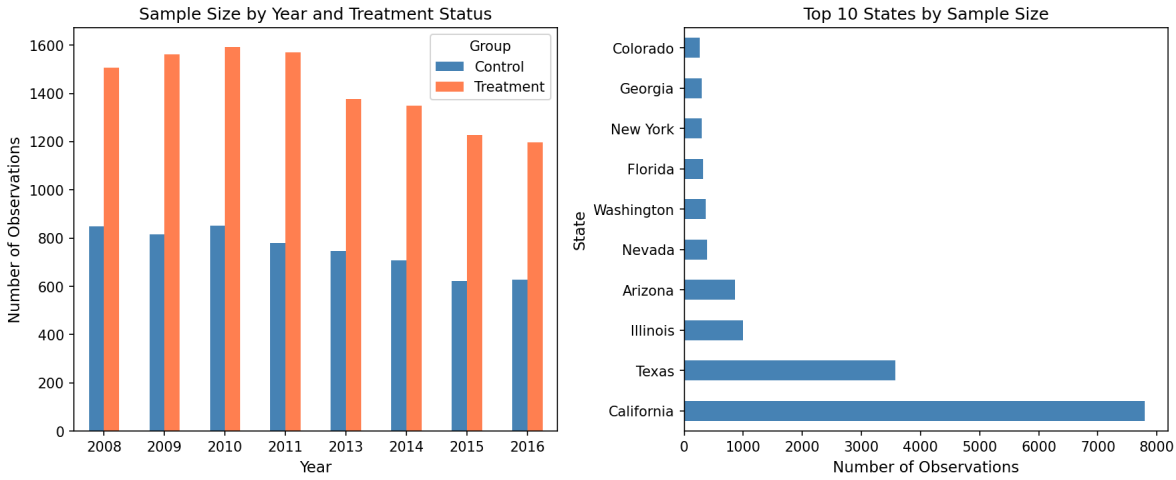

Figure 6: Sample Distribution by Year and State

References

- IPUMS USA. (2024). American Community Survey Data. University of Minnesota. https://usa.ipums.org
- U.S. Citizenship and Immigration Services. DACA Program Statistics.