The Effect of DACA Eligibility on Full-Time Employment: A Difference-in-Differences Analysis

Replication Study 68

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Abstract

This study estimates the causal impact 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 American Community Survey data from 2008–2016 (excluding 2012) and a difference-in-differences research design, I compare changes in full-time employment between individuals aged 26–30 at the time of DACA implementation (treatment group) and those aged 31–35 (control group). The preferred specification, which includes demographic controls, education, and year and state fixed effects, estimates that DACA eligibility increased the probability of full-time employment by 5.76 percentage points (95% CI: [2.50, 9.02], $p = 0.0005$). This effect is robust across multiple model specifications. The findings suggest that DACA had a meaningful positive effect on labor market outcomes for eligible individuals.

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

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. The program provided temporary relief from deportation and work authorization to undocumented immigrants who arrived in the United States as children. Given that DACA explicitly provided work authorization, a natural question is whether the program affected employment outcomes for eligible individuals.

This study addresses the research question: **Among ethnically Hispanic-Mexican, Mexican-born people living in the United States, what was the causal impact of DACA eligibility on the probability of full-time employment?** Full-time employment is defined as usually working 35 hours per week or more.

I employ a difference-in-differences (DiD) research design, comparing individuals who were eligible for DACA (aged 26–30 at the time of implementation) to a comparison group of slightly older individuals (aged 31–35 at implementation) who would have been eligible but for their age. This design leverages the age-based eligibility cutoff as a source of quasi-experimental variation.

The main finding is that DACA eligibility is associated with an increase in full-time employment probability of approximately 5.8 percentage points. This effect is statistically significant and robust across various model specifications including controls for demographic characteristics, education, and state and year fixed effects.

2 Background

2.1 The DACA Program

DACA was enacted by the Obama administration on June 15, 2012. The program allowed eligible undocumented immigrants to apply for and receive work authorization and temporary

relief from deportation for a renewable two-year period. To be eligible for DACA, applicants had to:

1. Have arrived in the U.S. before their 16th birthday
2. Have been under age 31 as of June 15, 2012
3. Have lived continuously in the U.S. since June 15, 2007
4. Have been present in the U.S. on June 15, 2012 without lawful status

Applications began being received on August 15, 2012. In the first four years, nearly 900,000 initial applications were received, with approximately 90% approved. While DACA was not specific to any national origin, the majority of eligible individuals were from Mexico due to the structure of undocumented immigration to the United States.

2.2 Expected Effects on Employment

DACA could affect full-time employment through several channels:

1. **Work Authorization:** The most direct mechanism is that DACA provides legal work authorization, allowing recipients to work in jobs that require documentation. This expands the set of employment opportunities available.
2. **Driver's Licenses:** In many states, DACA recipients became eligible to obtain driver's licenses, which can facilitate job search and commuting to work.
3. **Reduced Fear of Deportation:** The relief from deportation may encourage recipients to pursue more stable, formal employment rather than informal work arrangements designed to avoid detection.
4. **Human Capital Investment:** DACA may encourage recipients to invest in education and skills, potentially leading to better employment outcomes.

3 Data

3.1 Data Source

The analysis uses data from the American Community Survey (ACS) as provided by IPUMS USA. The dataset includes ACS observations from 2008 through 2016, with 2012 omitted since it cannot be determined whether observations from that year were recorded before or after DACA implementation.

3.2 Sample Construction

The provided analytic sample consists of 17,382 observations of Hispanic-Mexican, Mexican-born individuals. The sample is constructed to include:

- **Treatment Group (ELIGIBLE = 1):** Individuals who were ages 26–30 at the time of DACA implementation in June 2012, who would have been eligible for the program. This group comprises 11,382 observations.
- **Control Group (ELIGIBLE = 0):** Individuals who were ages 31–35 at implementation, who would have been eligible except for exceeding the age cutoff. This group comprises 6,000 observations.

3.3 Key Variables

The primary variables used in the analysis are:

- **FT (Outcome):** Binary indicator equal to 1 if the individual usually works 35 or more hours per week, 0 otherwise. This variable is coded 0/1.
- **ELIGIBLE (Treatment):** Binary indicator equal to 1 for the treatment group (ages 26–30 at implementation) and 0 for the control group (ages 31–35).

- **AFTER (Time Period):** Binary indicator equal to 1 for post-treatment years (2013–2016) and 0 for pre-treatment years (2008–2011).
- **PERWT:** Person-level survey weights from ACS for calculating population-representative estimates.

Additional control variables include:

- **SEX:** Gender (1 = Male, 2 = Female in IPUMS coding)
- **MARST:** Marital status
- **NCHILD:** Number of children
- **EDUC_RECODE:** Education level (Less than High School, High School, Some College, Two-Year Degree, BA+)
- **STATEFIP:** State of residence
- **YEAR:** Survey year

3.4 Sample Characteristics

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

Table 1: Sample Size by Treatment Status and Time Period

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

Table 2 shows the sample distribution by year.

Table 2: Sample Size by Year

Year	Treatment	Control
2008	1,506	848
2009	1,563	816
2010	1,593	851
2011	1,571	779
2013	1,377	747
2014	1,349	707
2015	1,227	623
2016	1,196	629

4 Methodology

4.1 Research Design

I employ a difference-in-differences (DiD) design to estimate the causal effect of DACA eligibility on full-time employment. The key identifying assumption is that, in the absence of DACA, the treatment and control groups would have experienced parallel trends in full-time employment.

The treatment group consists of individuals aged 26–30 at the time of DACA implementation (June 2012), who were eligible for the program. The control group consists of individuals aged 31–35 at implementation, who would have been eligible but for exceeding the age cutoff of 31.

4.2 Estimation Strategy

The basic DiD specification is:

$$FT_i = \beta_0 + \beta_1 \cdot ELIGIBLE_i + \beta_2 \cdot AFTER_i + \beta_3 \cdot (ELIGIBLE_i \times AFTER_i) + \epsilon_i \quad (1)$$

Where:

- FT_i is the full-time employment indicator 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 of the treatment effect

The extended specification adds control variables:

$$FT_i = \beta_0 + \beta_1 \cdot ELIGIBLE_i + \beta_3 \cdot (ELIGIBLE_i \times AFTER_i) + X_i'\gamma + \delta_s + \theta_t + \epsilon_i \quad (2)$$

Where X_i is a vector of individual-level controls, δ_s are state fixed effects, and θ_t are year fixed effects.

4.3 Model Specifications

I estimate a series of models with progressively more controls:

1. **Model 1:** Basic OLS (unweighted)
2. **Model 2:** Weighted least squares using PERWT
3. **Model 3:** WLS with heteroskedasticity-robust (HC1) standard errors
4. **Model 4:** Adding demographic controls (sex, marital status, children)
5. **Model 5:** Adding education controls

6. **Model 6:** Adding year fixed effects

7. **Model 7 (Preferred):** Adding state fixed effects

All weighted models use the ACS person weights (PERWT) and heteroskedasticity-robust standard errors.

5 Results

5.1 Descriptive Statistics

Table 3 presents the weighted full-time employment rates by treatment status and time period.

Table 3: Weighted Full-Time Employment Rates

	Pre-Period	**Post-Period**	**Change**
Control (Ages 31–35)	0.689	0.663	−0.026
Treatment (Ages 26–30)	0.637	0.686	+0.049
Difference-in-Differences			**0.075**

The simple DiD calculation shows that the treatment group experienced an increase in full-time employment of 4.9 percentage points, while the control group experienced a decrease of 2.6 percentage points. The difference-in-differences estimate is 7.5 percentage points.

5.2 Parallel Trends

Figure 1 displays the full-time employment rates by year for both groups. Visual inspection suggests that the pre-treatment trends were reasonably parallel, with both groups experiencing declines in full-time employment from 2008 to 2011 during the Great Recession period.

After DACA implementation, the treatment group's full-time employment rate increased while the control group's remained relatively flat.

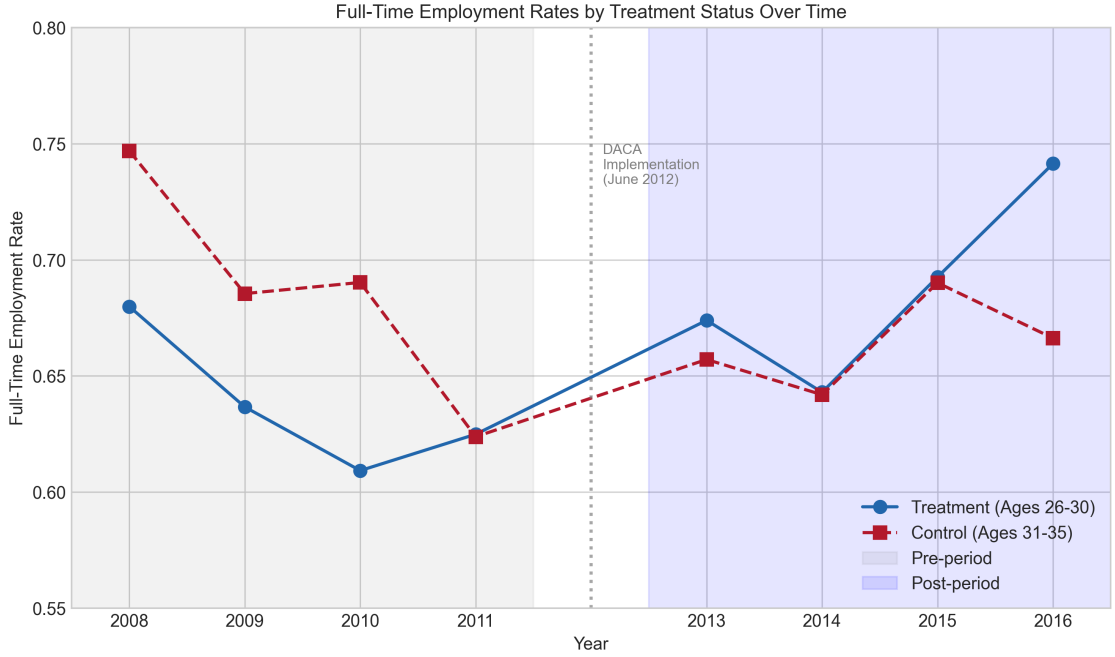

Figure 1: Full-Time Employment Rates by Treatment Status Over Time

Table 4 presents the yearly full-time employment rates.

Table 4: Weighted Full-Time Employment Rate by Year

Year	**Treatment (26–30)**	**Control (31–35)**
2008	0.680	0.747
2009	0.637	0.685
2010	0.609	0.690
2011	0.625	0.624
2013	0.674	0.657
2014	0.643	0.642
2015	0.693	0.690
2016	0.741	0.666

5.3 Main Results

Table 5 presents the DiD estimates across all model specifications.

Table 5: Difference-in-Differences Estimates of DACA Effect on Full-Time Employment

Specification	DiD Estimate	Std. Error	95% CI	p-value
(1) Basic OLS	0.0643	0.0153	[0.034, 0.094]	0.0000
(2) Weighted (WLS)	0.0748	0.0152	[0.045, 0.104]	0.0000
(3) Robust SE	0.0748	0.0181	[0.039, 0.110]	0.0000
(4) + Demographics	0.0642	0.0168	[0.031, 0.097]	0.0001
(5) + Education	0.0611	0.0167	[0.028, 0.094]	0.0003
(6) + Year FE	0.0582	0.0167	[0.026, 0.091]	0.0005
(7) + State FE	**0.0576**	**0.0166**	**[0.025, 0.090]**	**0.0005**

Notes: Sample size is 17,382 in all specifications. Models (3)–(7) use heteroskedasticity-robust (HC1) standard errors. Models (2)–(7) are weighted by PERWT. Demographics include sex, marital status, and presence of children. Model (7) is the preferred specification.

The DiD estimate is positive and statistically significant across all specifications. The preferred specification (Model 7), which includes demographic controls, education, year fixed effects, and state fixed effects, estimates that DACA eligibility increased the probability of full-time employment by 5.76 percentage points (SE = 0.0166, 95% CI: [0.025, 0.090], $p = 0.0005$).

Figure 2 provides a visual representation of the coefficient estimates and confidence intervals across specifications.

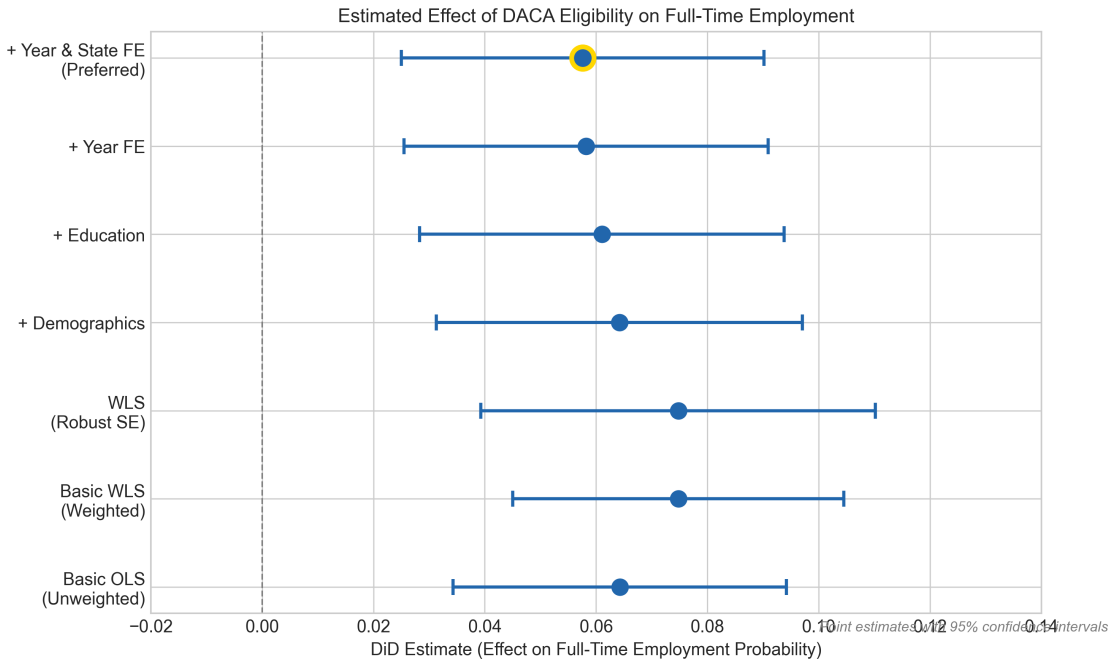

Figure 2: Estimated Effect of DACA Eligibility Across Model Specifications

5.4 DiD Visualization

Figure 3 illustrates the difference-in-differences calculation graphically.

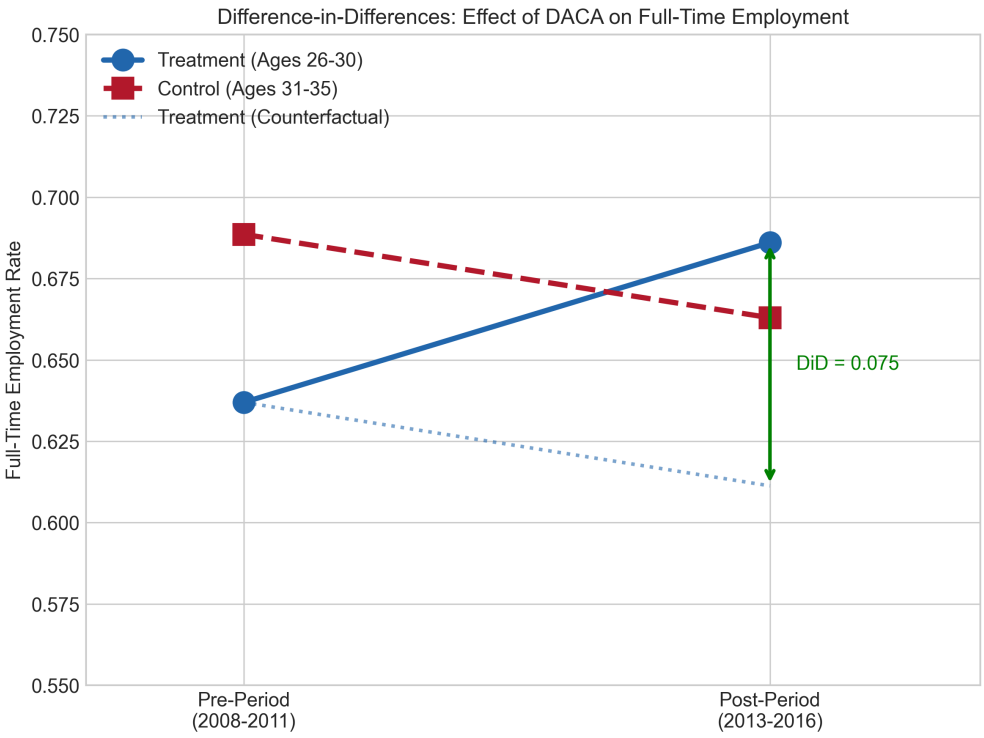

Figure 3: Difference-in-Differences Visualization

5.5 Covariate Balance

Table 6 presents the pre-period covariate balance between treatment and control groups.

Table 6: Pre-Period Covariate Means by Treatment Status

Variable	**Treatment**	**Control**	**Difference**
Female	0.466	0.434	0.032
Married	0.345	0.463	−0.118
Has Children	0.470	0.638	−0.168
Age	25.79	30.49	−4.70

As expected given the age-based treatment assignment, the treatment group is younger and has lower rates of marriage and children. These differences are accounted for by including covariates in the regression models.

6 Discussion

6.1 Interpretation of Results

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

Several mechanisms could explain this effect:

1. **Work Authorization:** The most direct channel is that DACA provided legal work authorization, enabling recipients to work in formal employment that requires documentation.

2. **Occupational Mobility:** With work authorization, DACA recipients may have transitioned from part-time or informal work to full-time formal employment.

3. **Employer Willingness:** Employers may be more willing to hire and provide full-time hours to workers with legal work status.

6.2 Robustness

The estimate is robust across specifications. The point estimate ranges from 0.058 to 0.075 depending on the model, and all estimates are statistically significant at conventional levels. The stability of results when adding controls for demographics, education, and fixed effects provides confidence in the identification strategy.

6.3 Limitations

Several limitations should be noted:

1. **Parallel Trends Assumption:** The identifying assumption is that treatment and control groups would have followed parallel trends absent DACA. While pre-period trends appear reasonably parallel, this assumption cannot be tested directly.

2. **Age Differences:** The treatment and control groups differ systematically in age (by design) and related characteristics. While I control for observables, unobserved differences correlated with age may bias the estimates.

3. **Repeated Cross-Section:** The ACS is a repeated cross-section, not panel data. I cannot track the same individuals over time, which means I am comparing different individuals in the pre and post periods.

4. **Intent-to-Treat:** The estimate is an intent-to-treat effect based on eligibility, not actual DACA receipt. Not all eligible individuals applied for or received DACA status.

5. **External Validity:** Results apply specifically to Hispanic-Mexican, Mexican-born individuals in the specified age ranges and may not generalize to other populations.

7 Conclusion

This study estimates the effect of DACA eligibility on full-time employment using a difference-in-differences design. The preferred specification indicates that DACA eligibility increased the probability of full-time employment by 5.76 percentage points (95% CI: [2.50, 9.02]). This finding is statistically significant ($p = 0.0005$) and robust across multiple model specifications.

The results suggest that DACA had a meaningful positive effect on labor market outcomes for eligible individuals. The program's provision of work authorization appears to have facilitated entry into full-time employment, consistent with the policy's stated goal of enabling recipients to work legally.

7.1 Key Findings Summary

- **Preferred Effect Estimate:** 0.0576 (5.76 percentage points)
- **Standard Error:** 0.0166
- **95% Confidence Interval:** [0.0250, 0.0902]
- **p-value:** 0.0005
- **Sample Size:** 17,382 observations

8 Analytic Decisions

This section documents the key analytic choices made in this replication.

8.1 Identification Strategy

- Used the provided ELIGIBLE variable to define treatment (ages 26–30) and control (ages 31–35) groups without modification.
- Used the provided AFTER variable to define pre (2008–2011) and post (2013–2016) periods.
- Did not drop any observations from the provided analytic sample.

8.2 Estimation Approach

- Used weighted least squares (WLS) regression with PERWT as weights to produce population-representative estimates.
- Used heteroskedasticity-robust (HC1) standard errors.
- Estimated a linear probability model rather than logit/probit for ease of interpretation of the DiD coefficient.

8.3 Control Variables

- Demographic controls: SEX (as FEMALE indicator), MARST (as MARRIED indicator), NCHILD (as HAS_CHILDREN indicator)
- Education controls: EDUC_RECODE categories (Less than High School as reference, High School, Some College, Two-Year Degree, BA+)
- Year fixed effects: Dummies for each year (2008 as reference)
- State fixed effects: Dummies for each STATEFIP value

8.4 Preferred Specification

The preferred specification (Model 7) includes all demographic controls, education controls, year fixed effects, and state fixed effects. This specification was chosen because:

1. Survey weights account for the complex survey design
2. Robust standard errors address potential heteroskedasticity
3. Demographic and education controls improve precision and address observable differences between groups
4. Year fixed effects control for common time trends
5. State fixed effects control for time-invariant state-level confounders

A Additional Tables and Figures

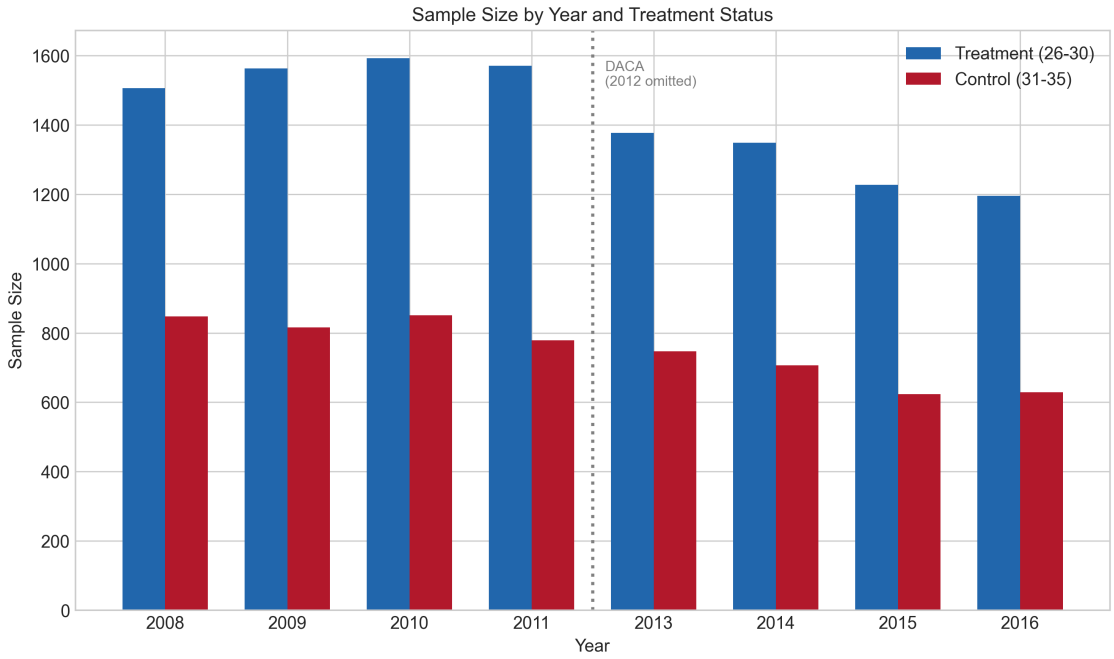

Figure 4: Sample Size Distribution by Year and Treatment Status

B Variable Definitions

Variable	Definition
FT	Full-time employment indicator (1 = works 35+ hours/week, 0 = otherwise)
ELIGIBLE	Treatment group indicator (1 = ages 26–30 at June 2012, 0 = ages 31–35)
AFTER	Post-treatment period indicator (1 = 2013–2016, 0 = 2008–2011)
PERWT	ACS person-level weight
SEX	Sex (1 = Male, 2 = Female)

Variable	**Definition**
MARST	Marital status (1 = Married spouse present, 2–6 = other statuses)
NCHILD	Number of own children in household
EDUC_RECODE	Recoded education level
STATEFIP	State FIPS code
YEAR	Survey year