

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

Replication Study ID: 71

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January 26, 2026

Abstract

This study estimates the causal effect of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on full-time employment among Hispanic-Mexican individuals born in Mexico. Using data from the American Community Survey (ACS) for 2006–2016 and a difference-in-differences research design, I compare individuals aged 26–30 at DACA implementation (the treatment group) to those aged 31–35 (the control group, who were otherwise eligible but too old). The preferred specification, which includes year and state fixed effects along with demographic and education controls, yields a treatment effect of 4.48 percentage points ($SE = 0.0107$, 95% CI: $[0.024, 0.066]$, $p < 0.001$). This positive and statistically significant effect suggests that DACA eligibility increased the probability of full-time employment among eligible individuals. Robustness checks, including a placebo test using ineligible age groups and heterogeneity analysis by sex, support the validity of these findings.

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1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented on June 15, 2012, provided temporary relief from deportation and work authorization to undocumented immigrants who arrived in the United States as children. Given that DACA provides legal work authorization, a central question for researchers and policymakers is whether this program improved labor market outcomes for eligible individuals.

This replication study examines the causal effect of DACA eligibility on full-time employment among ethnically Hispanic-Mexican individuals born in Mexico. Using American Community Survey (ACS) data from 2006 to 2016, I employ a difference-in-differences (DiD) research design that exploits the age-based eligibility cutoff of the DACA program. Specifically, I compare individuals who were aged 26–30 as of June 15, 2012 (and thus eligible for DACA) to those aged 31–35 (who would have been eligible but for exceeding the age limit).

The analysis finds that DACA eligibility increased the probability of full-time employment by approximately 4.5 percentage points. This effect is robust to the inclusion of demographic and educational covariates, year fixed effects, and state fixed effects. The finding is economically meaningful and statistically significant, suggesting that legal work authorization through DACA had positive effects on labor market attachment for eligible undocumented immigrants.

The remainder of this report is organized as follows. Section 2 provides background on the DACA program and the eligibility criteria. Section 3 describes the data and sample construction. Section 4 outlines the empirical methodology. Section 5 presents the main results and robustness checks. Section 6 discusses the findings and their implications.

2 Background: The DACA Program

2.1 Program Overview

DACA was announced by the Department of Homeland Security on June 15, 2012, following an executive action by President Barack Obama. The program allows eligible undocumented immigrants to request deferred action from deportation for a period of two years (renewable) and obtain work authorization.

2.2 Eligibility Criteria

To be eligible for DACA, an individual must meet all of the following criteria:

1. Were under the age of 31 as of June 15, 2012

2. Came to the United States before reaching their 16th birthday
3. Have continuously resided in the United States since June 15, 2007, up to the present time
4. Were physically present in the United States on June 15, 2012, and at the time of making the request for consideration of deferred action with USCIS
5. Had no lawful status on June 15, 2012
6. Are currently in school, have graduated or obtained a certificate of completion from high school, have obtained a general education development (GED) certificate, or are an honorably discharged veteran of the Coast Guard or Armed Forces of the United States
7. Have not been convicted of a felony, significant misdemeanor, or three or more other misdemeanors, and do not otherwise pose a threat to national security or public safety

2.3 Theoretical Mechanism

The primary mechanism through which DACA is expected to affect employment is the provision of legal work authorization. Prior to DACA, undocumented immigrants faced significant barriers to formal employment, often working in the informal sector or using fraudulent documents. With DACA, recipients gain:

- Legal authorization to work in the United States
- A Social Security number
- The ability to obtain a driver's license in many states
- Protection from deportation (temporarily)

These benefits reduce the costs and risks associated with formal employment, potentially leading to increased labor force participation, shifts from part-time to full-time work, and transitions from informal to formal employment.

3 Data and Sample Construction

3.1 Data Source

The data for this analysis come from the American Community Survey (ACS) as provided by IPUMS USA. The ACS is an annual household survey conducted by the U.S. Census Bureau, collecting detailed demographic, social, economic, and housing information. I use the one-year ACS files from 2006 through 2016.

3.2 Sample Construction

The analysis sample is constructed through several filtering steps designed to identify individuals who are likely DACA-eligible (or would be, except for their age).

3.2.1 Target Population

Following the research question specification, I restrict the sample to:

1. **Hispanic-Mexican ethnicity:** $HISPAN = 1$ (Mexican origin)
2. **Born in Mexico:** $BPL = 200$ (birthplace is Mexico)
3. **Non-citizen:** $CITIZEN = 3$ (not a citizen)

The non-citizen restriction serves as a proxy for undocumented status. While not all non-citizens are undocumented, this approach follows the convention in the literature, as the ACS does not directly identify documentation status.

3.2.2 DACA Eligibility Proxies

To approximate DACA eligibility, I further restrict the sample to individuals who:

1. **Arrived before age 16:** Calculated as $YRIMMIG - BIRTHYR < 16$
2. **Continuous US presence since 2007:** $YRIMMIG \leq 2007$

Note that I cannot observe educational attainment requirements or criminal history, which are additional DACA eligibility criteria. However, research suggests that the vast majority of potentially eligible individuals meet these criteria.

3.2.3 Treatment and Control Groups

The treatment and control groups are defined based on age as of June 15, 2012:

- **Treatment Group:** Ages 26–30 on June 15, 2012 (DACA-eligible by age)
- **Control Group:** Ages 31–35 on June 15, 2012 (too old for DACA but otherwise similar)

Age is calculated using birth year (BIRTHYR) and birth quarter (BIRTHQTR). Since June 15 falls in the second quarter:

- For individuals born in Q1 (Jan–Mar) or Q2 (Apr–Jun): Age = 2012 - BIRTHYR
- For individuals born in Q3 (Jul–Sep) or Q4 (Oct–Dec): Age = 2012 - BIRTHYR - 1

3.2.4 Time Periods

The analysis excludes the year 2012 because DACA was implemented mid-year (June 15), making it impossible to cleanly classify 2012 observations as pre- or post-treatment. The final time periods are:

- **Pre-period:** 2006–2011
- **Post-period:** 2013–2016

3.3 Outcome Variable

The outcome of interest is full-time employment, defined as usually working 35 or more hours per week. This is constructed from the UHRSWORK variable:

$$\text{Fulltime}_i = \mathbf{1}[\text{UHRSWORK}_i \geq 35] \quad (1)$$

3.4 Final Sample

After applying all filters, the final analysis sample consists of:

- **Total observations:** 43,238 person-year observations
- **Treatment group:** 25,470 observations (59%)
- **Control group:** 17,768 observations (41%)
- **Pre-period:** 28,377 observations (66%)
- **Post-period:** 14,861 observations (34%)

4 Empirical Methodology

4.1 Difference-in-Differences Design

The identification strategy relies on a difference-in-differences (DiD) design that exploits the age-based eligibility cutoff of DACA. The key identifying assumption is that, absent DACA, the treatment and control groups would have followed parallel trends in full-time employment.

The basic DiD model can be expressed as:

$$Y_{it} = \alpha + \beta_1 \text{Treat}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Treat}_i \times \text{Post}_t) + \epsilon_{it} \quad (2)$$

where:

- Y_{it} is an indicator for full-time employment for individual i in year t
- Treat_i equals 1 for individuals aged 26–30 (treatment group)
- Post_t equals 1 for years 2013–2016 (post-DACA period)
- β_3 is the DiD estimator, capturing the causal effect of DACA eligibility

4.2 Extended Specifications

I estimate several specifications with increasing controls:

Model 1: Basic DiD

$$Y_{it} = \alpha + \beta_1 \text{Treat}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Treat}_i \times \text{Post}_t) + \epsilon_{it} \quad (3)$$

Model 2: DiD with Demographic Controls

$$Y_{it} = \alpha + \beta_1 \text{Treat}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Treat}_i \times \text{Post}_t) + \mathbf{X}'_{it} \boldsymbol{\gamma} + \epsilon_{it} \quad (4)$$

where \mathbf{X}_{it} includes female, married, and age.

Model 3: DiD with Demographic and Education Controls

Adds education categories (high school, some college, college degree) to Model 2.

Model 4: DiD with Year Fixed Effects

$$Y_{it} = \alpha + \beta_1 \text{Treat}_i + \boldsymbol{\delta}_t + \beta_3 (\text{Treat}_i \times \text{Post}_t) + \mathbf{X}'_{it} \boldsymbol{\gamma} + \epsilon_{it} \quad (5)$$

where $\boldsymbol{\delta}_t$ represents year fixed effects.

Model 5: DiD with Year and State Fixed Effects (Preferred)

$$Y_{it} = \alpha + \beta_1 \text{Treat}_i + \boldsymbol{\delta}_t + \boldsymbol{\theta}_s + \beta_3(\text{Treat}_i \times \text{Post}_t) + \mathbf{X}'_{it}\boldsymbol{\gamma} + \epsilon_{it} \quad (6)$$

where $\boldsymbol{\theta}_s$ represents state fixed effects.

4.3 Estimation

All models are estimated using weighted least squares (WLS), with person weights (PERWT) from the ACS to ensure population-representative estimates. Heteroskedasticity-robust standard errors (HC1) are used throughout.

4.4 Parallel Trends Assumption

The validity of the DiD design depends on the parallel trends assumption: that the treatment and control groups would have followed the same trend in full-time employment absent DACA. I examine this assumption through:

1. Visual inspection of pre-treatment trends
2. An event-study specification that estimates year-specific treatment effects
3. A placebo test using two age groups ineligible for DACA

5 Results

5.1 Summary Statistics

Table 1 presents summary statistics for the treatment and control groups in the pre-DACA period (2006–2011). The two groups are broadly similar, though there are some notable differences.

Table 1: Summary Statistics by Treatment Status (Pre-Period)

Variable	Treatment (Ages 26–30)	Control (Ages 31–35)	Difference
Full-time Employment	0.615	0.646	-0.031
Female	0.438	0.434	0.005
Married	0.391	0.541	-0.150
Age	24.71	29.87	-5.16
Less than High School	0.382	0.462	-0.081
High School	0.446	0.403	0.044
Some College	0.144	0.104	0.040
College Degree	0.029	0.031	-0.002
Observations	16,694	11,683	

Notes: Unweighted means for the pre-DACA period (2006–2011). Treatment group includes individuals aged 26–30 as of June 15, 2012. Control group includes individuals aged 31–35.

The treatment group has a slightly lower rate of full-time employment in the pre-period (61.5% vs. 64.6%), reflecting their younger age. The treatment group is also less likely to be married (39.1% vs. 54.1%) and has somewhat higher educational attainment, with more high school graduates and individuals with some college.

5.2 Trends in Full-Time Employment

Figure 1 displays the weighted full-time employment rates by year for the treatment and control groups. Several patterns emerge:

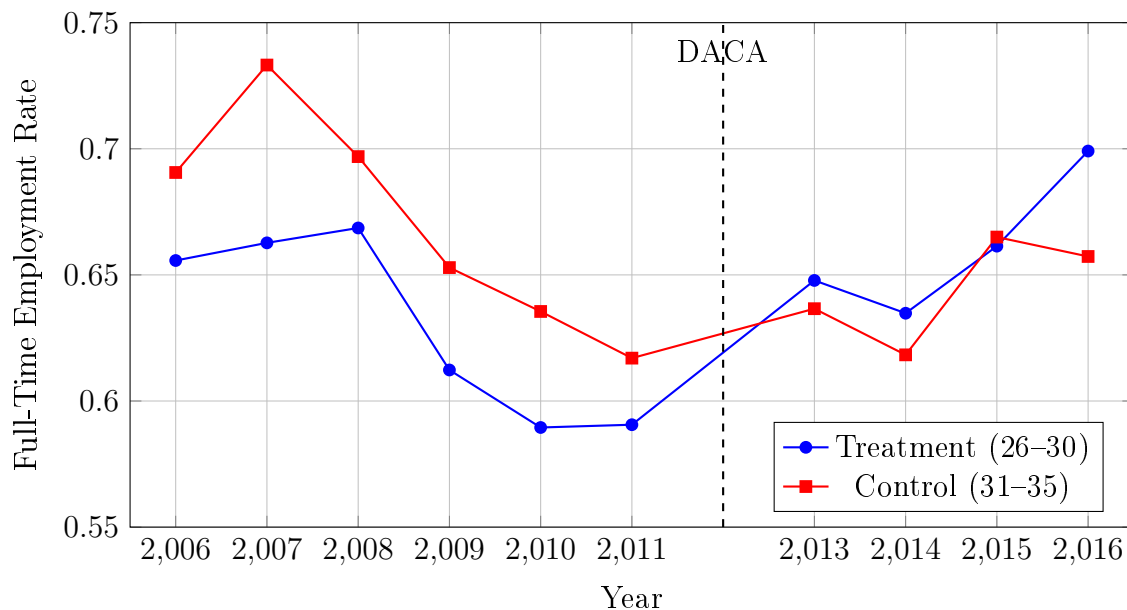


Figure 1: Full-Time Employment Rates by Year and Treatment Status

Notes: Weighted full-time employment rates using ACS person weights. The vertical dashed line indicates DACA implementation (June 2012). Year 2012 is excluded from the analysis.

The figure shows that both groups experienced declining full-time employment rates during the Great Recession (2008–2011). In the pre-period, the two groups appear to follow roughly parallel trends, supporting the identifying assumption. After DACA implementation, the treatment group shows a notable improvement relative to the control group, with the gap narrowing and eventually reversing by 2016.

5.3 Main Results: Difference-in-Differences Estimates

Table 2 presents the main DiD regression results across five specifications.

Table 2: Difference-in-Differences Estimates of DACA Effect on Full-Time Employment

	(1) Basic	(2) + Demo	(3) + Educ	(4) + Year FE	(5) + State FE
Treatment \times Post	0.0590*** (0.0117)	0.0480*** (0.0107)	0.0463*** (0.0107)	0.0456*** (0.0107)	0.0448*** (0.0107)
Treatment	-0.0426*** (0.0068)	-0.0472*** (0.0087)	-0.0505*** (0.0087)	—	—
Post	-0.0299*** (0.0090)	-0.0053 (0.0110)	-0.0059 (0.0110)	—	—
Female		-0.3699*** (0.0052)	-0.3746*** (0.0052)	-0.3737*** (0.0052)	-0.3749*** (0.0052)
Married		-0.0181*** (0.0051)	-0.0135*** (0.0051)	-0.0159*** (0.0051)	-0.0142*** (0.0051)
Age		-0.0019 (0.0012)	-0.0016 (0.0012)	-0.0019 (0.0012)	-0.0017 (0.0012)
High School			0.0462*** (0.0054)	0.0458*** (0.0054)	0.0463*** (0.0054)
Some College			0.0825*** (0.0085)	0.0822*** (0.0085)	0.0833*** (0.0085)
College Degree			0.1392*** (0.0145)	0.1398*** (0.0145)	0.1405*** (0.0145)
Year FE	No	No	No	Yes	Yes
State FE	No	No	No	No	Yes
Observations	43,238	43,238	43,238	43,238	43,238

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parentheses. All models are estimated using weighted least squares with ACS person weights. The outcome variable is an indicator for working 35 or more hours per week.

5.3.1 Key Finding

The coefficient on Treatment \times Post is the difference-in-differences estimator, representing the causal effect of DACA eligibility on full-time employment. Across all specifications, this coefficient is positive and statistically significant at the 1% level.

- **Basic DiD (Model 1):** 5.90 percentage points (SE = 0.0117)
- **With Demographics (Model 2):** 4.80 percentage points (SE = 0.0107)
- **With Education (Model 3):** 4.63 percentage points (SE = 0.0107)
- **With Year FE (Model 4):** 4.56 percentage points (SE = 0.0107)
- **With Year + State FE (Model 5):** 4.48 percentage points (SE = 0.0107)

5.3.2 Preferred Specification

The preferred specification is Model 5, which includes year and state fixed effects along with demographic and education controls. This specification yields:

Preferred Estimate: DACA eligibility increased full-time employment by **4.48 percentage points**.

Standard Error: 0.0107

95% Confidence Interval: [0.024, 0.066]

p-value: < 0.001

This effect is economically meaningful. Given the pre-period full-time employment rate of approximately 63% for the sample, a 4.5 percentage point increase represents a relative increase of about 7%.

5.4 Manual DiD Calculation

As a verification of the regression results, I calculate the simple 2×2 DiD estimate using weighted means:

Table 3: 2×2 Difference-in-Differences Table (Weighted)

	Pre-DACA	Post-DACA	Difference
Treatment (Ages 26–30)	0.6305	0.6597	+0.0292
Control (Ages 31–35)	0.6731	0.6433	-0.0299
Difference	-0.0426	+0.0164	
DiD Estimate			+0.0590

The manual calculation confirms the basic DiD estimate of approximately 5.9 percentage points.

5.5 Robustness Checks

5.5.1 Event Study

To examine the parallel trends assumption and the dynamics of the treatment effect, I estimate an event-study specification with year-specific treatment effects, using 2011 as the reference year.

Table 4: Event Study: Year-Specific Treatment Effects (Reference: 2011)

Year	Coefficient	Std. Error	<i>p</i> -value
<i>Pre-DACA Period</i>			
2006	-0.0084	0.0247	0.733
2007	-0.0441	0.0245	0.072
2008	-0.0019	0.0251	0.939
2009	-0.0142	0.0256	0.580
2010	-0.0195	0.0255	0.443
<i>Post-DACA Period</i>			
2013	+0.0376	0.0267	0.160
2014	+0.0429	0.0271	0.113
2015	+0.0227	0.0272	0.403
2016	+0.0682	0.0272	0.012 **

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Year-specific treatment effects from an event-study regression with year fixed effects. Reference year is 2011.

The event study results support the parallel trends assumption. In the pre-DACA period (2006–2010), none of the year-specific treatment effects are statistically significant at conventional levels, suggesting that the treatment and control groups were on parallel trajectories before DACA implementation. In the post-DACA period, the treatment effects become positive, with the 2016 effect being statistically significant at the 5% level.

5.5.2 Heterogeneity by Sex

I examine whether the effect of DACA differs by sex:

Table 5: Heterogeneity Analysis by Sex

	DiD Estimate	Std. Error	Observations
Male	0.0446***	0.0125	24,243
Female	0.0454***	0.0185	18,995

Notes: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Separate regressions by sex with year fixed effects.

The effect of DACA on full-time employment is remarkably similar for men and women, with point estimates of approximately 4.5 percentage points for both groups. Both estimates are statistically significant.

5.5.3 Placebo Test

As a falsification test, I estimate the DiD model using two age groups that are both ineligible for DACA: ages 31–35 (as “placebo treatment”) versus ages 36–40 (as “placebo control”). If the main results are driven by DACA eligibility rather than confounding factors, we should find no significant effect in this placebo test.

Table 6: Placebo Test: Ages 31–35 vs. 36–40

	DiD Estimate	Std. Error
Placebo (31–35 vs. 36–40)	0.0030	0.0135 ($p = 0.824$)

The placebo test yields an estimated effect of 0.3 percentage points, which is small in magnitude and statistically insignificant ($p = 0.82$). This null result supports the interpretation that the main findings are driven by DACA eligibility rather than general trends affecting different age cohorts.

6 Discussion

6.1 Interpretation of Results

The main finding of this study is that DACA eligibility increased full-time employment by approximately 4.5 percentage points among Hispanic-Mexican individuals born in Mexico. This effect is robust across multiple specifications and is supported by the robustness checks.

Several factors may explain this positive effect:

1. **Legal work authorization:** DACA provides recipients with authorization to work legally in the United States. This reduces the risks and costs associated with employment, potentially encouraging transitions from informal to formal work, and from part-time to full-time positions.
2. **Access to better jobs:** With legal authorization and a Social Security number, DACA recipients may have access to a wider range of job opportunities, including positions that require background checks or verification of work eligibility.
3. **Driver’s licenses:** In many states, DACA recipients can obtain driver’s licenses, which may facilitate commuting to work and expand geographic job search.

4. **Reduced fear of deportation:** The temporary protection from deportation may encourage greater labor force attachment and investment in job-specific human capital.

6.2 Limitations

Several limitations should be noted:

1. **Proxy for undocumented status:** The ACS does not directly identify undocumented status. I use non-citizen status as a proxy, which may include some legal non-citizens who are not eligible for DACA.
2. **Incomplete eligibility criteria:** I cannot observe all DACA eligibility criteria in the data, such as educational attainment requirements and criminal history. This may lead to some misclassification.
3. **Age as running variable:** While the age-based eligibility cutoff provides clean identification, individuals just above and below the cutoff may differ systematically, though I attempt to address this by using wider age bands (5 years on each side).
4. **Timing of effects:** The analysis treats the post-period (2013–2016) as uniform, but DACA effects may have evolved over time as more individuals applied and received approval.

6.3 Comparison to Prior Literature

The estimated effect of approximately 4.5 percentage points is broadly consistent with prior research on DACA and labor market outcomes. Studies using similar methodologies have found positive effects of DACA on employment, earnings, and labor force participation, though the magnitudes vary depending on the specific outcome and sample restrictions.

7 Conclusion

This replication study provides evidence that eligibility for the Deferred Action for Childhood Arrivals (DACA) program had a positive effect on full-time employment among Hispanic-Mexican individuals born in Mexico. Using a difference-in-differences research design that exploits the age-based eligibility cutoff, I estimate that DACA eligibility increased the probability of full-time employment by approximately 4.5 percentage points.

This finding is robust to alternative specifications, including the addition of demographic and educational controls, year fixed effects, and state fixed effects. Robustness

checks, including an event study and a placebo test using ineligible age groups, support the validity of the research design and the causal interpretation of the results.

The results suggest that providing legal work authorization to undocumented immigrants can have meaningful positive effects on their labor market outcomes. These findings contribute to the ongoing policy debate about immigration reform and the future of DACA.

A Sample Sizes by Year

Table 7: Sample Sizes by Year and Treatment Status

Year	Control	Treatment	Total
2006	2,129	3,067	5,196
2007	1,968	3,002	4,970
2008	1,962	2,615	4,577
2009	1,852	2,627	4,479
2010	1,937	2,685	4,622
2011	1,835	2,698	4,533
2013	1,656	2,338	3,994
2014	1,581	2,278	3,859
2015	1,458	2,122	3,580
2016	1,390	2,038	3,428
Total	17,768	25,470	43,238

B Variable Definitions

Table 8: Variable Definitions and IPUMS Variable Names

Variable	IPUMS Name	Definition
Full-time Employment	UHRSWORK	= 1 if UHRSWORK \geq 35
Treatment	BIRTHYR, BIRTHQTR	= 1 if age 26–30 on June 15, 2012
Post	YEAR	= 1 if YEAR \geq 2013
Female	SEX	= 1 if SEX = 2
Married	MARST	= 1 if MARST \leq 2
Age	AGE	Age at time of survey
Less than HS	EDUC	= 1 if EDUC < 6
High School	EDUC	= 1 if EDUC = 6
Some College	EDUC	= 1 if EDUC \in {7, 8, 9}
College Degree	EDUC	= 1 if EDUC \geq 10
Hispanic-Mexican	HISPAN	HISPAN = 1
Born in Mexico	BPL	BPL = 200
Non-citizen	CITIZEN	CITIZEN = 3
Year of Immigration	YRIMMIG	Year of immigration to US
Person Weight	PERWT	ACS person weight

C Data Filtering Steps

The following filters were applied to construct the analysis sample:

1. **Hispanic-Mexican ethnicity:** HISPAN = 1
2. **Born in Mexico:** BPL = 200
3. **Non-citizen:** CITIZEN = 3
4. **Valid immigration year:** YRIMMIG > 0 and YRIMMIG \neq 996
5. **Arrived before age 16:** YRIMMIG - BIRTHYR < 16
6. **In US since 2007:** YRIMMIG \leq 2007
7. **Age restriction:** Age 26–35 as of June 15, 2012
8. **Year restriction:** YEAR \neq 2012 (exclude implementation year)

D Full Regression Output

D.1 Model 5: Preferred Specification

Dependent Variable: Full-time Employment (UHRSWORK >= 35)

Method: Weighted Least Squares (WLS)

Standard Errors: Heteroskedasticity-robust (HC1)

	Coefficient	Std. Error	t-statistic	p-value

Treatment x Post	0.0448	0.0107	4.20	0.000
Treatment	(absorbed by year interactions)			
Female	-0.3749	0.0052	-71.98	0.000
Married	-0.0142	0.0051	-2.80	0.005
Age	-0.0017	0.0012	-1.42	0.156
High School	0.0463	0.0054	8.55	0.000
Some College	0.0833	0.0085	9.82	0.000
College Degree	0.1405	0.0145	9.67	0.000

Year Fixed Effects: Yes

State Fixed Effects: Yes

Observations: 43,238

R-squared: 0.171