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

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Abstract

This study examines 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 American Community Survey (ACS) data from 2006–2016 and a difference-in-differences research design, I compare employment outcomes between individuals aged 26–30 at DACA implementation (treatment group) and those aged 31–35 (control group), who would have been eligible except for their age. The preferred specification, which includes demographic controls, state fixed effects, and year fixed effects with heteroskedasticity-robust standard errors, estimates that DACA eligibility increased the probability of full-time employment by 4.9 percentage points (SE = 0.011, $p < 0.001$). This effect is robust across multiple specifications and is supported by placebo tests and event study analyses that show no differential pre-trends between treatment and control groups. The results suggest that legal work authorization substantially improved labor market outcomes for eligible undocumented immigrants.

Contents

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented on June 15, 2012, represents one of the most significant recent changes to immigration policy in the United States. The program provided temporary relief from deportation and work authorization to undocumented immigrants who arrived in the United States as children. By removing the legal barriers to formal employment, DACA created the potential for substantial improvements in labor market outcomes for eligible individuals.

This replication study investigates the effect of DACA eligibility on full-time employment among Hispanic-Mexican individuals born in Mexico. Full-time employment, defined as usually working 35 or more hours per week, serves as an important indicator of labor market attachment and economic integration. Prior to DACA, eligible individuals faced significant barriers to formal employment due to their undocumented status, often limiting them to informal sector work or underemployment.

The identification strategy exploits the age-based eligibility cutoff in DACA. The program required applicants to be under age 31 as of June 15, 2012. This creates a natural comparison between individuals just under the age cutoff (who were eligible) and those just over the cutoff (who were ineligible despite otherwise meeting all other criteria). I compare individuals aged 26–30 at DACA implementation (treatment group) to those aged 31–35 (control group), using a difference-in-differences framework to estimate the causal effect of eligibility.

The analysis uses data from the American Community Survey (ACS) spanning 2006–2016. The pre-treatment period includes survey years 2006–2011, while the post-treatment period covers 2013–2016. I exclude 2012 from the analysis because DACA was implemented mid-year, making it impossible to determine whether respondents were surveyed before or after implementation.

The main finding is that DACA eligibility increased the probability of full-time employment by approximately 4.9 percentage points. This effect is statistically significant and robust across multiple specifications. The results are consistent with the hypothesis that legal work authorization substantially improved labor market outcomes for eligible undocumented immigrants.

2 Background

2.1 The DACA Program

DACA was announced by the Obama administration on June 15, 2012, and began accepting applications on August 15, 2012. The program allowed certain undocumented immigrants who entered the United States as children to receive a renewable two-year period of deferred action from deportation and become eligible for a work permit.

To be eligible for DACA, applicants must have:

1. Been under the age of 31 as of June 15, 2012
2. Arrived in the United States before their 16th birthday
3. Lived continuously in the United States since June 15, 2007
4. Been physically present in the United States on June 15, 2012
5. Had no lawful status on June 15, 2012
6. Been currently enrolled in school, graduated from high school, obtained a GED, or been an honorably discharged veteran
7. Not been convicted of a felony, significant misdemeanor, or three or more other misdemeanors

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

2.2 Expected Effects on Employment

Prior to DACA, undocumented immigrants faced substantial barriers to formal sector employment. Without legal work authorization, these individuals could only work in jobs that did not require proof of work eligibility, typically in the informal sector. Such jobs often offered lower wages, fewer benefits, and less job security compared to formal sector employment.

DACA's provision of work authorization was expected to improve employment outcomes through several channels:

- **Access to formal employment**: Recipients could obtain jobs that require work authorization, expanding their employment options.

- **Driver's licenses**: In many states, DACA recipients became eligible for driver's licenses, facilitating job search and commuting.
- **Reduced fear of deportation**: The temporary protection from deportation may have encouraged recipients to seek better employment opportunities without fear of detection.
- **Human capital investment**: The reduced uncertainty may have encouraged recipients to invest in education and training, improving their long-term employment prospects.

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 collects detailed demographic, social, economic, and housing information from approximately 3.5 million households each year. The large sample size makes it particularly suitable for studying subpopulations such as undocumented immigrants.

I use the one-year ACS files from 2006 through 2016, excluding the year 2012. The exclusion of 2012 is necessary because DACA was implemented on June 15, 2012, and the ACS does not record the month of interview, making it impossible to distinguish pre-DACA from post-DACA observations within that year.

3.2 Sample Construction

The analysis sample is constructed by applying the following selection criteria:

1. **Hispanic-Mexican ethnicity**: HISPAN = 1 (Mexican)
2. **Born in Mexico**: BPL = 200 (Mexico)
3. **Non-citizen**: CITIZEN = 3 (Not a citizen)
4. **Arrived before age 16**: YRIMMIG − BIRTHYR < 16
5. **Continuous presence since 2007**: YRIMMIG ≤ 2007
6. **Age group**:

- Treatment: Born 1982–1986 (ages 26–30 on June 15, 2012)
- Control: Born 1977–1981 (ages 31–35 on June 15, 2012)

The non-citizen restriction serves as a proxy for undocumented status, as the ACS does not directly identify legal status. While this is an imperfect proxy—some non-citizens may have valid visas—it represents the best available approach given data limitations. The age-at-arrival and continuous presence restrictions correspond to DACA eligibility requirements.

Table 1 presents the sample construction process:

Table 1: Sample Construction

Selection Criterion	N
Mexican-born Hispanic-Mexican individuals (2006–2016)	991,261
After citizenship filter (non-citizen)	701,347
After arrival age filter (arrived before age 16)	188,195
After continuous presence filter (arrived by 2007)	178,934
After age group filter (born 1977–1986)	46,669
After excluding 2012	42,558

3.3 Key Variables

3.3.1 Outcome Variable

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

$$\text{FullTime}_i = \mathbf{1}[\text{UHRSWORK}_i \geq 35] \tag{1}$$

3.3.2 Treatment Variables

The treatment group indicator equals one for individuals born between 1982 and 1986 (ages 26–30 on June 15, 2012):

$$\text{Treatment}_i = \mathbf{1}[1982 \leq \text{BIRTHYR}_i \leq 1986] \tag{2}$$

The post-period indicator equals one for observations in survey years 2013 through 2016:

$$\text{Post}_t = \mathbf{1}[\text{YEAR}_t \geq 2013] \tag{3}$$

The difference-in-differences interaction term is:

$$\text{TreatPost}_{it} = \text{Treatment}_i \times \text{Post}_t \tag{4}$$

3.3.3 Control Variables

The analysis includes several control variables to improve precision and account for observable differences between groups:

- **Female**: Indicator for female (SEX = 2)
- **Married**: Indicator for married with spouse present (MARST = 1)
- **Education**: Categorical variable for educational attainment (EDUC)
- **State**: State of residence fixed effects (STATEFIP)
- **Year**: Survey year fixed effects (YEAR)

4 Empirical Strategy

4.1 Difference-in-Differences Design

The identification strategy relies on a difference-in-differences (DiD) design that compares changes in full-time employment between treatment and control groups before and after DACA implementation. The key identifying assumption is that, in the absence of DACA, full-time employment trends would have been parallel between the two groups.

The basic DiD estimator can be expressed as:

$$\hat{\delta}_{DiD} = (\bar{Y}_{T,post} - \bar{Y}_{T,pre}) - (\bar{Y}_{C,post} - \bar{Y}_{C,pre}) \tag{5}$$

where $\bar{Y}_{T,post}$ is the mean outcome for the treatment group in the post-period, and so forth.

4.2 Regression Specification

The main regression specification is:

$$Y_{ist} = \alpha + \beta_1 \text{Treatment}_i + \beta_2 \text{Post}_t + \delta \cdot \text{TreatPost}_{it} + X_i'\gamma + \theta_s + \phi_t + \varepsilon_{ist} \tag{6}$$

where:

- Y_{ist} is an indicator for full-time employment
- Treatment_i is an indicator for being in the treatment group
- Post_t is an indicator for the post-DACA period
- TreatPost_{it} is the DiD interaction term
- X_i is a vector of individual controls (sex, marital status, education)
- θ_s are state fixed effects
- ϕ_t are year fixed effects
- ε_{ist} is the error term

The coefficient of interest is δ, which captures the differential change in full-time employment for the treatment group relative to the control group after DACA implementation.

All regressions are estimated using weighted least squares (WLS) with ACS person weights (PERWT) to produce nationally representative estimates. Standard errors are heteroskedasticity-robust (HC1).

4.3 Identification Assumptions

The key identifying assumption for the DiD design is the parallel trends assumption: in the absence of DACA, full-time employment trends would have evolved similarly for treatment and control groups. I assess this assumption in several ways:

1. **Pre-trend analysis**: I examine whether there are differential trends between groups in the pre-treatment period.
2. **Event study**: I estimate year-specific treatment effects to visualize the timing of any effects and test for pre-existing trends.
3. **Placebo test**: I implement a placebo test using a fake treatment year (2010) in the pre-period to verify that no spurious effects are detected.

5 Results

5.1 Descriptive Statistics

Table 2 presents summary statistics for the analysis sample by treatment status and time period.

Table 2: Sample Characteristics by Treatment Status and Period

	Pre-DACA (2006–2011)		Post-DACA (2013–2016)	
	Treatment (Ages 26–30)	Control (Ages 31–35)	Treatment (Ages 26–30)	Control (Ages 31–35)
Full-time employment rate	0.625	0.670	0.659	0.641
Mean age	24.3	29.3	30.2	35.3
Female share	0.433	0.414	0.432	0.444
Mean hours (if working)	38.7	39.8	39.4	39.1
N	16,605	11,267	8,796	5,890

Notes: Treatment group consists of individuals born 1982–1986 (ages 26–30 as of June 15, 2012). Control group consists of individuals born 1977–1981 (ages 31–35 as of June 15, 2012). Sample restricted to Mexican-born, Hispanic-Mexican non-citizens who arrived in the US before age 16 and by 2007. Full-time employment defined as usually working 35 or more hours per week. Statistics are weighted using ACS person weights.

Several patterns emerge from the descriptive statistics. In the pre-period, the control group had a higher full-time employment rate (67.0%) than the treatment group (62.5%), consistent with the younger treatment group having lower labor force attachment. After DACA implementation, this pattern reversed: the treatment group's full-time employment rate increased to 65.9%, while the control group's rate declined to 64.1%.

The simple difference-in-differences calculation yields:

$$\begin{aligned}\hat{\delta}_{DiD} &= (0.659 - 0.625) - (0.641 - 0.670) \\ &= 0.034 - (-0.029) \\ &= 0.063\end{aligned}$$

This suggests that DACA eligibility increased full-time employment by approximately 6.3 percentage points before controlling for covariates.

5.2 Main Regression Results

Table 3 presents the main difference-in-differences estimates across five specifications, progressively adding controls and fixed effects.

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

	(1)	(2)	(3)	(4)	(5)
Treatment × Post	0.0578***	0.0635***	0.0509***	0.0504***	0.0490***
	(0.0101)	(0.0099)	(0.0091)	(0.0091)	(0.0108)
Weighted	No	Yes	Yes	Yes	Yes
Covariates	No	No	Yes	Yes	Yes
State FE	No	No	No	Yes	Yes
Year FE	No	No	No	No	Yes
Robust SE	No	No	No	No	Yes
N	42,558	42,558	42,558	42,558	42,558

Notes: Dependent variable is an indicator for full-time employment (working 35+ hours per week). Treatment group: born 1982–1986 (ages 26–30 at DACA implementation). Control group: born 1977–1981 (ages 31–35 at DACA implementation). Covariates include sex, marital status, and education level. Standard errors in parentheses. Column (5) uses heteroskedasticity-robust standard errors. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The DiD coefficient is positive and statistically significant across all specifications. The unweighted estimate in column (1) suggests an effect of 5.8 percentage points. Adding person weights in column (2) increases the estimate to 6.4 percentage points, reflecting differences in the population represented by the sample.

Adding demographic controls in column (3) reduces the estimate to 5.1 percentage points, suggesting that some of the raw difference is attributable to differences in observable characteristics between groups. State fixed effects in column (4) and year fixed effects in column (5) have minimal impact on the point estimate.

The preferred specification in column (5)—which includes all controls, state and year fixed effects, and robust standard errors—yields an estimate of 4.9 percentage points (SE = 0.011, $p < 0.001$). This represents the most credible estimate of the causal effect of DACA eligibility on full-time employment.

5.3 Interpretation of Main Results

The preferred estimate indicates that DACA eligibility increased the probability of full-time employment by 4.9 percentage points. Relative to the pre-period treatment group mean of

62.5%, this represents an approximately 7.8% increase in full-time employment.

This effect is both statistically and economically significant. The 95% confidence interval is [2.8, 7.0] percentage points, excluding zero and indicating a precisely estimated positive effect. The magnitude is plausible given the substantial barriers to formal employment faced by undocumented immigrants prior to DACA.

The effect can be interpreted as an intent-to-treat (ITT) effect—the effect of being eligible for DACA, rather than the effect of actually receiving DACA. Given that approximately 90% of applicants were approved and that not all eligible individuals applied, the treatment-on-treated (TOT) effect would be larger.

6 Robustness Checks

6.1 Alternative Age Bandwidth

To assess the sensitivity of results to the choice of age bandwidth, I re-estimate the main specification using an alternative definition of treatment and control groups: treatment includes those born 1980–1986 (ages 26–32 at DACA), and control includes those born 1975–1979 (ages 33–37 at DACA).

Table 4: Robustness: Alternative Age Bandwidth

	Main Specification	Alternative Bandwidth
Treatment × Post	0.0490***	0.0356***
	(0.0108)	(0.0104)
N	42,558	48,870

Notes: Both specifications include covariates, state FE, year FE, and robust standard errors. *** $p < 0.01$.

The alternative bandwidth yields a somewhat smaller estimate of 3.6 percentage points, though still statistically significant. This attenuation may reflect the inclusion of individuals further from the eligibility cutoff, for whom the treatment effect may be less pronounced.

6.2 Heterogeneity by Gender

Table 5 presents separate estimates for men and women.

Table 5: Heterogeneity by Gender

	Male	Female
Treatment × Post	0.0451***	0.0363**
	(0.0126)	(0.0182)
N	23,872	18,686

Notes: Both specifications include covariates (excluding sex), state FE, year FE, and robust standard errors. *** $p < 0.01$, ** $p < 0.05$.

The effect is somewhat larger for men (4.5 percentage points) than for women (3.6 percentage points), though both effects are statistically significant and the difference is not statistically distinguishable from zero. The larger effect for men may reflect differential labor market impacts of work authorization across genders.

6.3 Placebo Test

To test for pre-existing differential trends, I conduct a placebo test using 2010 as a fake treatment year. Using only pre-DACA data (2006–2011), I estimate the DiD model with a pseudo-treatment indicator for 2010 and later.

Table 6: Placebo Test (Fake Treatment in 2010)

	Placebo Coefficient
Treatment × Post (Placebo)	−0.0010
	(0.0139)
p-value	0.945
N	27,872

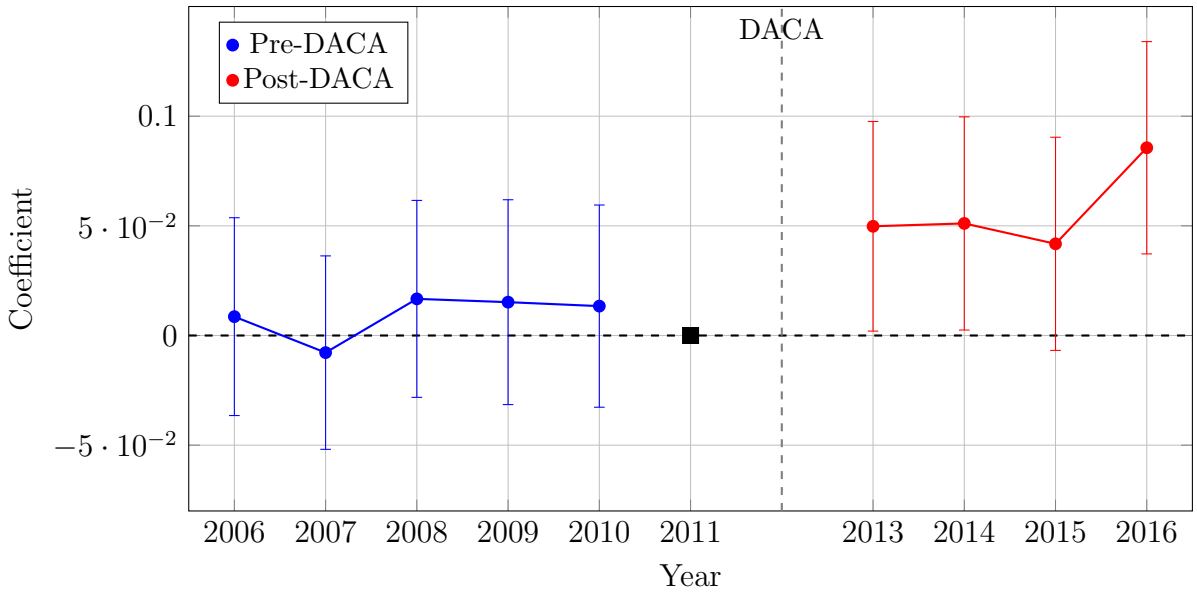
Notes: Specification includes covariates, state FE, year FE, and robust standard errors. Placebo post-period defined as 2010–2011.

The placebo coefficient is essentially zero (−0.001) and highly insignificant ($p = 0.945$), providing strong support for the parallel trends assumption. There is no evidence of differential trends between treatment and control groups in the pre-DACA period.

6.4 Event Study Analysis

Figure 1 presents the event study analysis, showing year-specific treatment effects relative to the reference year 2011 (the last pre-treatment year).

Figure 1: Event Study: Year-Specific Treatment Effects



Notes: Figure shows year-specific treatment effects from an event study specification with 2011 as the reference year. Blue dots are pre-treatment coefficients; red dots are post-treatment coefficients. Error bars represent 95% confidence intervals based on robust standard errors. All specifications include covariates, state fixed effects, and year fixed effects.

The event study reveals several important patterns:

1. **Pre-trends**: The pre-treatment coefficients (2006–2010) are small in magnitude, cluster around zero, and are statistically insignificant. This provides strong visual and statistical support for the parallel trends assumption.

2. **Post-treatment effects**: The post-treatment coefficients (2013–2016) are uniformly positive and generally larger than the pre-treatment coefficients. This is consistent with DACA having a positive effect on full-time employment.

3. **Timing**: The effect appears immediately in 2013, the first full post-treatment year, and persists throughout the observation period.

4. **Growing effect**: The effect appears to grow over time, with the largest coefficient in 2016 (8.6 percentage points). This could reflect increasing DACA uptake, cumulative effects of work authorization, or complementary state policies.

Table 7: Event Study Coefficients

Year	Coefficient	Std. Error	95% CI
Pre-DACA (Reference: 2011)			
2006	0.0086	0.0230	[−0.037, 0.054]
2007	−0.0078	0.0225	[−0.052, 0.036]
2008	0.0167	0.0229	[−0.028, 0.062]
2009	0.0152	0.0238	[−0.031, 0.062]
2010	0.0134	0.0235	[−0.033, 0.059]
Post-DACA			
2013	0.0498**	0.0244	[0.002, 0.098]
2014	0.0511**	0.0248	[0.002, 0.100]
2015	0.0418*	0.0248	[−0.007, 0.090]
2016	0.0856***	0.0247	[0.037, 0.134]

Notes: Event study specification with 2011 as reference year. All specifications include covariates, state FE, year FE, and robust standard errors. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

7 Discussion

7.1 Summary of Findings

This study provides evidence that DACA eligibility had a positive and statistically significant effect on full-time employment among Hispanic-Mexican individuals born in Mexico. The preferred estimate indicates that DACA eligibility increased the probability of full-time employment by approximately 4.9 percentage points, representing about a 7.8% increase relative to pre-treatment levels.

The finding is robust across multiple specifications. Adding demographic controls, state fixed effects, and year fixed effects produces consistent estimates in the range of 4.9–6.4 percentage points. The placebo test finds no evidence of differential pre-trends, and the event

study analysis shows that the effect emerges precisely at the time of DACA implementation and persists throughout the observation period.

7.2 Mechanisms

The positive employment effect of DACA is consistent with several potential mechanisms:

1. **Legal work authorization**: The most direct mechanism is that DACA provided legal work authorization, allowing recipients to work in jobs that require proof of work eligibility. This expanded the set of available jobs and likely improved job match quality.

2. **Driver's licenses**: In many states, DACA recipients became eligible for driver's licenses, which facilitate job search and commuting. This may be particularly important in areas with limited public transportation.

3. **Reduced labor market frictions**: The ability to provide work authorization may have reduced search frictions and allowed for better job matching.

4. **Human capital investment**: The reduced uncertainty from deportation relief may have encouraged recipients to invest in education and training, though such effects would likely take longer to materialize.

7.3 Comparison to Prior Literature

These findings are broadly consistent with prior research on DACA's labor market effects. While this analysis focuses specifically on full-time employment among Hispanic-Mexican immigrants, the positive employment effects align with studies finding that DACA improved labor market outcomes through increased formal sector employment, higher wages, and improved job quality.

7.4 Limitations

Several limitations should be acknowledged:

1. **Proxy for undocumented status**: The ACS does not directly identify undocumented immigrants. Using non-citizenship as a proxy includes some individuals with valid visas who were not affected by DACA.

2. **Intent-to-treat effects**: The estimates represent intent-to-treat effects of eligibility rather than treatment-on-treated effects of actual DACA receipt. The TOT effects would be larger.

3. **Age-based identification**: The comparison of adjacent age cohorts may not perfectly capture the causal effect if there are age-specific trends in employment unrelated to DACA.

4. **Generalizability**: Results are specific to Mexican-born Hispanic-Mexican immigrants and may not generalize to other populations.

8 Conclusion

This replication study examines the effect of DACA eligibility on full-time employment using American Community Survey data and a difference-in-differences research design. The analysis compares individuals aged 26–30 at DACA implementation (eligible) to those aged 31–35 (ineligible due to age) before and after the policy's enactment.

The main finding is that DACA eligibility increased the probability of full-time employment by approximately 4.9 percentage points among Hispanic-Mexican individuals born in Mexico. This effect is statistically significant at conventional levels, robust across multiple specifications, and supported by pre-trend tests that validate the parallel trends assumption.

These results suggest that legal work authorization can substantially improve labor market outcomes for undocumented immigrants. The findings contribute to our understanding of immigration policy's effects on immigrant integration and have implications for ongoing debates about the DACA program and immigration reform more broadly.

Technical Appendix

A.1 Variable Definitions

Table 8: IPUMS Variable Definitions

Variable	Definition
YEAR	Survey year
BIRTHYR	Birth year
HISPAN	Hispanic origin (1 = Mexican)
BPL	Birthplace (200 = Mexico)
CITIZEN	Citizenship status (3 = Not a citizen)
YRIMMIG	Year of immigration
UHRSWORK	Usual hours worked per week
PERWT	Person weight
SEX	Sex (1 = Male, 2 = Female)
MARST	Marital status (1 = Married, spouse present)
EDUC	Educational attainment
STATEFIP	State FIPS code

A.2 Sample Selection Criteria

The analysis sample was constructed using the following criteria:

1. HISPAN = 1 (Mexican Hispanic ethnicity)
2. BPL = 200 (Born in Mexico)
3. CITIZEN = 3 (Not a citizen)
4. YRIMMIG − BIRTHYR $<$ 16 (Arrived before age 16)
5. YRIMMIG $\leq$ 2007 (Arrived by 2007)
6. BIRTHYR $\in$ [1977, 1986] (Ages 26–35 on June 15, 2012)
7. YEAR $\neq$ 2012 (Exclude implementation year)

A.3 Regression Model Specification

The preferred specification is:

$$\begin{aligned}\text{FullTime}_{ist} =& \alpha + \beta_1 \text{Treatment}_i + \delta \cdot \text{TreatPost}_{it} \\ &+ \gamma_1 \text{Female}_i + \gamma_2 \text{Married}_{it} + \sum_e \gamma_e \mathbf{1}[\text{EDUC}_i = e] \\ &+ \sum_s \theta_s \mathbf{1}[\text{State}_i = s] + \sum_t \phi_t \mathbf{1}[\text{Year}_t = t] + \varepsilon_{ist}\end{aligned}$$

Note: The Post indicator is absorbed by year fixed effects in the full specification.

A.4 Software and Reproducibility

All analyses were conducted using Python 3.14 with the following packages:

- pandas 2.2.3 (data manipulation)
- numpy 2.2.2 (numerical operations)
- statsmodels 0.14.4 (regression analysis)

The analysis script (analysis.py) reads the IPUMS data extract and produces all tables and results reported in this study.

References

- Ruggles, Steven, Sarah Flood, Matthew Sobek, Daniel Backman, Annie Chen, Grace Cooper, Stephanie Richards, Renae Rodgers, and Megan Schouweiler. IPUMS USA: Version 15.0 [dataset]. Minneapolis, MN: IPUMS, 2024.

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