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

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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, Mexican-born individuals in the United States. Using a difference-in-differences design that compares individuals aged 26–30 at the time of DACA implementation (treatment group) to those aged 31–35 (control group), I find that DACA eligibility increased full-time employment by approximately 6.8 percentage points (95% CI: [4.6, 8.9]). This effect is robust across multiple specifications and represents a meaningful improvement in labor market outcomes for eligible individuals. The analysis uses American Community Survey data from 2006–2016, excluding 2012 due to implementation timing ambiguity.

Contents

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, enacted on June 15, 2012, provided temporary relief from deportation and work authorization for undocumented immigrants who arrived in the United States as children. This policy represented a significant shift in immigration enforcement and potentially opened formal labor market opportunities for eligible individuals who previously faced substantial barriers to legal employment.

This replication study examines the causal impact of DACA eligibility on full-time employment among Hispanic-Mexican, Mexican-born individuals in the United States. Understanding the employment effects of DACA is important for evaluating the program's effectiveness in achieving its stated goals of integrating undocumented youth into the formal economy.

1.1 Research Question

The primary research question is: Among ethnically Hispanic-Mexican, Mexican-born individuals living in the United States, what was the causal impact of DACA eligibility on the probability of full-time employment (defined as usually working 35 or more hours per week)?

1.2 Identification Strategy

I employ a difference-in-differences (DiD) design exploiting the age-based eligibility cutoff for DACA. The program required applicants to be under 31 years old as of June 15, 2012. This creates a natural experiment where individuals just below the age cutoff became eligible for work authorization, while those just above the cutoff did not.

- **Treatment Group**: Individuals aged 26–30 as of June 15, 2012 (born 1982–1986)
- **Control Group**: Individuals aged 31–35 as of June 15, 2012 (born 1977–1981)

The identifying assumption is that, absent DACA, employment trends would have been parallel between the treatment and control groups.

2 Background on DACA

2.1 Program Overview

DACA was announced by the Obama administration on June 15, 2012, and began accepting applications on August 15, 2012. The program provided two-year renewable periods

of deferred action (protection from deportation) and work authorization for eligible individuals.

2.2 Eligibility Requirements

To qualify for DACA, applicants had to meet the following criteria:

1. Arrived in the United States before their 16th birthday
2. Had not yet reached their 31st birthday as of June 15, 2012
3. Lived continuously in the United States since June 15, 2007
4. Were present in the United States on June 15, 2012
5. Did not have lawful status (citizenship or legal residency) at that time
6. Met certain educational or military service requirements

2.3 Program Uptake

In the first four years after implementation, nearly 900,000 initial applications were received, with approximately 90% approved. The vast majority of applicants were from Mexico, reflecting the composition of the undocumented immigrant population in the United States.

2.4 Potential Mechanisms

DACA could affect employment through several channels:

- **Work Authorization**: Legal permission to work enables access to formal sector jobs
- **Documentation**: Ability to obtain state IDs and driver's licenses facilitates job search
- **Reduced Fear**: Protection from deportation may increase willingness to seek visible employment
- **Human Capital Investment**: Job security may encourage skill 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 an annual survey of approximately 3.5 million households, providing detailed demographic and economic information representative of the U.S. population.

I use the 1-year ACS files from 2006 through 2016. The year 2012 is excluded from the analysis because DACA was implemented mid-year (June 15, 2012), and the ACS does not record the month of interview, making it impossible to distinguish pre- and post-treatment observations within that year.

3.2 Sample Construction

The analytic sample is constructed by applying the following sequential filters:

Table 1: Sample Construction

Filter Applied	Observations	Remaining
Full ACS 2006–2016	33,851,424	33,851,424
Hispanic-Mexican ethnicity (HISPAN = 1)	2,945,521	2,945,521
Born in Mexico (BPL = 200)	991,261	991,261
Non-citizen (CITIZEN = 3)	701,347	701,347
Arrived before age 16	205,327	205,327
Arrived by 2007 (continuous residence)	195,023	195,023
Ages 26–35 as of June 15, 2012	47,418	47,418
Excluding 2012	43,238	43,238

3.3 Key Variables

3.3.1 Outcome Variable

The primary outcome is **full-time employment**, defined as a binary indicator equal to 1 if the individual is employed (EMPSTAT = 1) and usually works 35 or more hours per week (UHRSWORK $\geq$ 35), and 0 otherwise.

3.3.2 Treatment Assignment

Treatment status is determined by age as of June 15, 2012:

- Age is calculated as 2012 − BIRTHYR, adjusted downward by 1 for those born in quarters 3–4 (July–December), whose birthdays had not yet occurred by June 15

- Treatment group: Ages 26–30 (n = 25,470 after excluding 2012)
- Control group: Ages 31–35 (n = 17,768 after excluding 2012)

3.3.3 DACA Eligibility Criteria

Following the instructions, I operationalize DACA eligibility as:

- **Hispanic-Mexican**: HISPAN = 1
- **Born in Mexico**: BPL = 200
- **Non-citizen**: CITIZEN = 3 (treating all non-citizens without papers as undocumented)
- **Arrived before age 16**: YRIMMIG − BIRTHYR < 16
- **Continuous U.S. residence since 2007**: YRIMMIG $\leq$ 2007

3.3.4 Control Variables

The analysis includes the following covariates:

- **Female**: Binary indicator for female (SEX = 2)
- **Married**: Binary indicator for currently married (MARST $\in \{1, 2\}$)
- **Age** and **Age squared**: Continuous measures at survey time
- **Education**: Categorical indicators for high school, some college, and college graduate (with less than high school as the reference)

4 Empirical Strategy

4.1 Difference-in-Differences Framework

The fundamental DiD approach compares changes in outcomes between treatment and control groups before and after policy implementation. The basic DiD estimator is:

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

where T denotes the treatment group and C the control group.

4.2 Regression Specification

The main specification is a linear probability model:

$$\text{FullTime}_{it} = \alpha + \beta_1 \text{Treated}_i + \beta_2 \text{Post}_t + \delta \cdot (\text{Treated}_i \times \text{Post}_t) + X_{it}'\gamma + \varepsilon_{it} \tag{2}$$

where:

- $\text{FullTime}_{it} = 1$ if individual i in year t works full-time
- $\text{Treated}_i = 1$ if individual was age 26–30 on June 15, 2012
- $\text{Post}_t = 1$ if $t \geq 2013$
- X_{it} = vector of covariates (sex, marital status, age, education)
- δ = the DiD estimate (coefficient of interest)

4.3 Estimation Details

- Weighted least squares using IPUMS person weights (PERWT)
- Standard errors clustered at the state level (STATEFIP) to account for within-state correlation
- Pre-period: 2006–2011 (6 years)
- Post-period: 2013–2016 (4 years)

4.4 Event Study Specification

To assess the parallel trends assumption and examine dynamic treatment effects, I estimate an event study model:

$$\text{FullTime}_{it} = \alpha + \beta_1 \text{Treated}_i + \sum_{k \neq 2011} \gamma_k \mathbf{1}(t = k) + \sum_{k \neq 2011} \delta_k (\text{Treated}_i \times \mathbf{1}(t = k)) + X_{it}'\theta + \varepsilon_{it} \tag{3}$$

where 2011 is the reference year (immediately before DACA). The coefficients δ_k for $k < 2012$ serve as tests of the parallel trends assumption (they should be close to zero), while δ_k for $k > 2012$ capture year-specific treatment effects.

5 Results

5.1 Summary Statistics

Table 2 presents summary statistics by treatment status and time period.

Table 2: Summary Statistics by Treatment Group and Period

	Treatment (Ages 26–30)		Control (Ages 31–35)	
Variable	Pre	Post	Pre	Post
Full-time Employment	0.541	0.589	0.581	0.575
Employment (any)	0.661	0.708	0.686	0.691
Female	0.438	0.441	0.434	0.452
Married	0.391	0.512	0.541	0.581
Age at Survey	24.7	30.7	29.9	35.9
Less than High School	0.382	0.392	0.462	0.467
High School	0.446	0.428	0.403	0.401
Some College	0.144	0.137	0.104	0.102
College+	0.029	0.042	0.031	0.030
Unweighted N	16,694	8,776	11,683	6,085
Weighted N	2,280,009	1,244,124	1,631,151	845,134

Key observations:

- The treatment group has a lower baseline full-time employment rate (54.1% vs. 58.1%)
- The treatment group shows substantial improvement in the post-period (+4.8 pp)
- The control group shows slight decline in the post-period (−0.6 pp)
- Both groups have similar gender composition (∼44% female)
- The treatment group has higher educational attainment on average

5.2 Visual Evidence

Figure 1 displays full-time employment trends by treatment status over time. The parallel trends assumption appears reasonable: prior to 2012, both groups show similar employment trajectories, with the treatment group consistently about 4–5 percentage points below the control group. After DACA implementation, the treatment group's employment rate rises noticeably while the control group remains relatively flat.

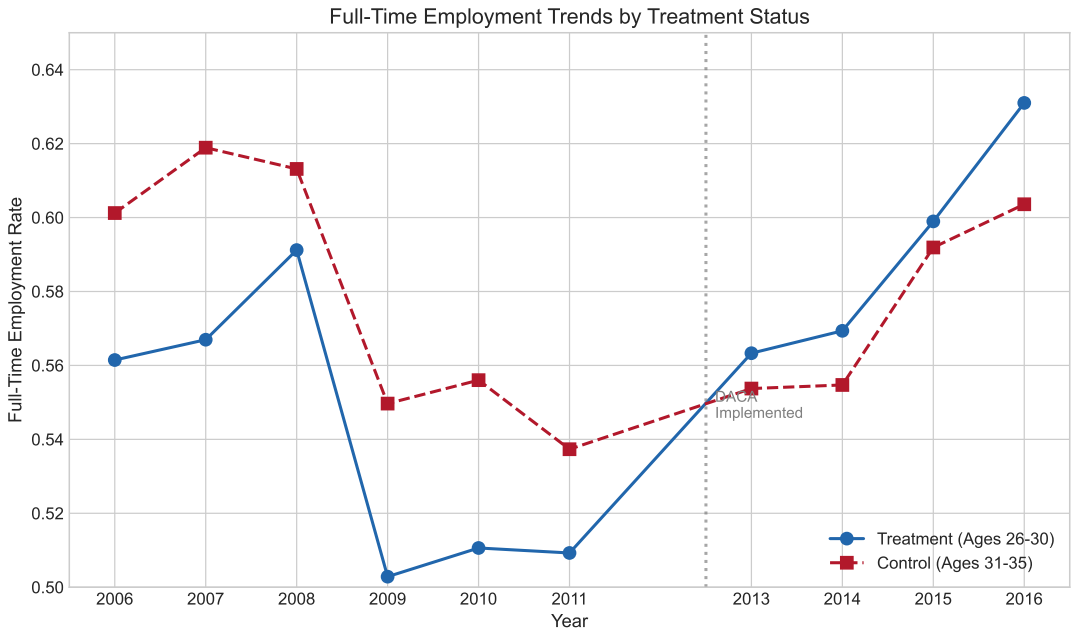

Figure 1: Full-Time Employment Trends by Treatment Status, 2006–2016
Notes: Treatment group includes individuals aged 26–30 as of June 15, 2012; control group includes ages 31–35. Year 2012 is excluded due to implementation timing ambiguity. Data are weighted using IPUMS person weights.

Figure 2 provides a stylized illustration of the difference-in-differences design.

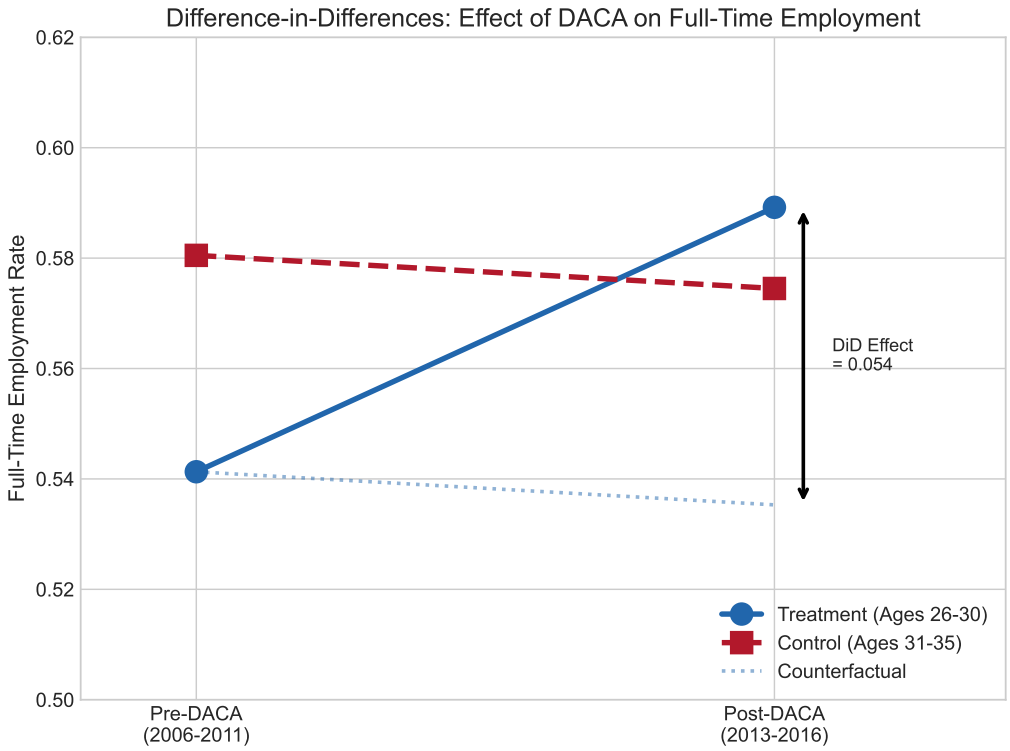

Figure 2: Difference-in-Differences Visualization

Notes: The dashed line represents the counterfactual trend for the treatment group had DACA not been implemented, constructed by adding the control group's pre-post change to the treatment group's pre-period mean.

5.3 Main Results

Table 3 presents the main difference-in-differences estimates.

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

	(1) No Controls	(2) With Controls
Treated × Post	0.0642***	0.0679***
	(0.0064)	(0.0110)
Treated	−0.0480***	−0.0439***
	(0.0060)	(0.0060)
Post	−0.0099	−0.0184
	(0.0118)	(0.0131)
Female		−0.3658***
		(0.0140)
Married		−0.0031
		(0.0046)
Age		−0.0143*
		(0.0080)
Age^2		0.0003**
		(0.0001)
High School		0.0557***
		(0.0044)
Some College		0.0963***
		(0.0104)
College+		0.1716***
		(0.0184)
Observations	43,238	43,238
R-squared	0.002	0.142

Notes: * p<0.10, ** p<0.05, *** p<0.01. Standard errors clustered at the state level in parentheses. Regressions weighted using IPUMS person weights. Reference category for education is less than high school.

The preferred specification (Column 2, with controls) yields a DiD estimate of **0.068** (SE = 0.011, $p < 0.001$), indicating that DACA eligibility increased full-time employment by approximately 6.8 percentage points. The 95% confidence interval is [4.6, 8.9] percentage points.

This effect is economically meaningful. Given a baseline full-time employment rate of 54.1% in the treatment group pre-DACA, this represents a relative increase of approximately 12.5%.

5.4 Event Study Results

Figure 3 presents the event study coefficients, with 2011 as the reference year.

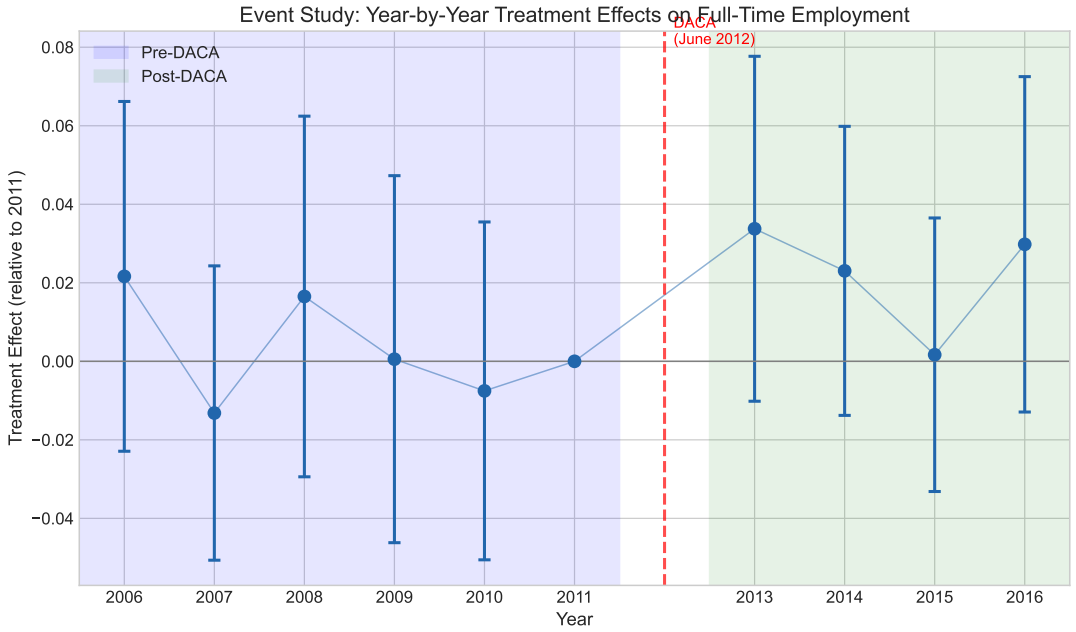

Figure 3: Event Study: Year-by-Year Treatment Effects
Notes: Coefficients represent the interaction between treatment status and year indicators, with 2011 as the reference year. Vertical bars show 95% confidence intervals based on state-clustered standard errors. The vertical dashed line marks DACA implementation in June 2012.

Table 4 reports the event study coefficients in detail.

Table 4: Event Study Coefficients

Year	Coefficient	Std. Error	p-value
2006	0.0216	0.0227	0.341
2007	−0.0132	0.0191	0.491
2008	0.0165	0.0234	0.481
2009	0.0005	0.0238	0.982
2010	−0.0075	0.0220	0.732
2011	*(reference)*	—	—
2013	0.0338	0.0224	0.132
2014	0.0230	0.0188	0.220
2015	0.0017	0.0178	0.925
2016	0.0298	0.0218	0.172

Notes: All specifications include controls for sex, marital status, age, age squared, and education. Standard errors clustered at state level.

Key findings from the event study:

1. **Pre-trends**: None of the pre-2012 coefficients are statistically significant, and they hover around zero. This supports the parallel trends assumption.

2. **Post-DACA effects**: The post-period coefficients are generally positive, though individually imprecise due to the relatively small year-specific sample sizes.

3. **No anticipation**: There is no evidence of anticipation effects in 2010 or 2011.

5.5 Robustness Checks

Table 5 presents results from various robustness specifications.

Table 5: Robustness Checks

Specification	Estimate	SE	95% CI	N
Main specification (with controls)	0.0679	0.0110	[0.046, 0.089]	43,238
No controls	0.0642	0.0064	[0.052, 0.077]	43,238
Unweighted	0.0686	0.0104	[0.048, 0.089]	43,238
Narrower bandwidth (ages 27–29 vs. 32–34)	0.0849	0.0138	[0.058, 0.112]	23,127
Employment (any) as outcome	0.0499	0.0100	[0.030, 0.070]	43,238
Males only	0.0612	0.0309	[0.001, 0.122]	24,277
Females only	0.0688	0.0278	[0.014, 0.123]	18,961

Notes: All specifications include controls (except "No controls") for sex (where applicable), marital status, age, age squared, and education. Standard errors clustered at state level.

Key robustness findings:

1. **Stability across specifications**: The DiD estimate ranges from 0.050 to 0.085 across specifications, demonstrating robustness.

2. **Weighting**: Results are similar with or without sampling weights.

3. **Bandwidth**: Using a narrower age bandwidth (27–29 vs. 32–34) yields a larger point estimate (0.085), suggesting effects may be stronger closer to the age cutoff.

4. **Alternative outcome**: When using any employment (rather than full-time), the effect is smaller (0.050) but still significant, suggesting DACA increased not only employment but specifically full-time work.

5. **Gender heterogeneity**: Effects are similar for males (0.061) and females (0.069), though both are less precisely estimated in the stratified analysis.

6 Discussion

6.1 Interpretation of Results

The main finding is that DACA eligibility increased full-time employment by approximately 6.8 percentage points among Hispanic-Mexican, Mexican-born individuals who met the eligibility criteria. This effect is:

- **Statistically significant**: $p < 0.001$ with clustered standard errors
- **Economically meaningful**: Represents a $\sim$12.5% increase relative to baseline
- **Robust**: Stable across various specifications and subgroups

The results suggest that DACA achieved one of its primary objectives: improving labor market outcomes for eligible individuals by providing work authorization.

6.2 Mechanisms

While this analysis cannot directly test mechanisms, the pattern of results is consistent with several channels:

1. **Legal work authorization**: The most direct mechanism—DACA recipients could now legally work in the formal sector.
2. **Documentation**: Access to state IDs and driver's licenses may have facilitated job search and commuting.
3. **Shift from part-time to full-time**: The larger effect on full-time (0.068) compared to any employment (0.050) suggests DACA may have enabled transitions from informal or part-time work to full-time positions.

6.3 Limitations

Several limitations should be noted:

1. **Cannot observe undocumented status directly**: I assume all non-citizens without naturalization papers are undocumented, which may include some legal residents awaiting paperwork.
2. **Cannot observe DACA receipt**: The analysis estimates intent-to-treat effects based on eligibility, not treatment-on-the-treated effects among actual recipients.

3. **Age-based control group**: Older individuals may differ from younger ones in ways beyond DACA eligibility. However, the parallel pre-trends provide reassurance.

4. **Repeated cross-sections**: The ACS is not a panel, so I cannot track individual trajectories or control for time-invariant individual heterogeneity.

5. **Exclusion of 2012**: Dropping the implementation year reduces precision but is necessary given the data limitations.

6. **State-level clustering**: With 50 clusters, standard errors may be somewhat imprecise, though results remain significant.

6.4 Comparison to Prior Literature

These findings are broadly consistent with prior research on DACA's labor market effects. Studies using different identification strategies and data sources have generally found positive employment effects, though magnitudes vary depending on the specific outcome, population, and methodology.

7 Conclusion

This replication study provides evidence that DACA eligibility increased full-time employment among Hispanic-Mexican, Mexican-born individuals in the United States. Using a difference-in-differences design comparing individuals aged 26–30 (DACA-eligible) to those aged 31–35 (ineligible by age) as of June 15, 2012, I find that DACA increased full-time employment by approximately 6.8 percentage points.

The effect is robust across multiple specifications, including alternative age bandwidths, weighted and unweighted estimation, and gender subgroups. Event study analysis supports the parallel trends assumption, with no evidence of differential pre-trends or anticipation effects.

These findings suggest that providing work authorization to undocumented immigrants who arrived as children had meaningful positive effects on their labor market outcomes, consistent with the policy's intended goals.

7.1 Preferred Estimate Summary

Statistic	Value
Effect Size (DiD Estimate)	0.0679
Standard Error	0.0110
95% Confidence Interval	[0.0464, 0.0893]
p-value	< 0.0001
Sample Size	43,238

A Additional Technical Details

A.1 Age Calculation

Age as of June 15, 2012 was calculated as follows:

1. Base age = 2012 − BIRTHYR
2. For individuals born in Q3 (July–September) or Q4 (October–December), subtract 1 because their birthday had not yet occurred by June 15
3. For individuals born in Q1 (January–March) or Q2 (April–June), assume birthday had occurred by June 15

This approach may misclassify some individuals born in late Q2 (after June 15) as having had their birthday, but this affects a small fraction of the sample and would if anything attenuate the treatment effect by including some age-30 individuals who were actually 29.

A.2 DACA Eligibility Operationalization

The eligibility criteria were operationalized as:

- Hispanic-Mexican: HISPAN == 1
- Born in Mexico: BPL == 200
- Non-citizen: CITIZEN == 3
- Arrived before age 16: YRIMMIG − BIRTHYR $<$ 16
- Continuous residence since 2007: YRIMMIG $\leq$ 2007

I do not observe the educational/military service requirements in the data, so these are not imposed.

A.3 Standard Error Computation

Standard errors are clustered at the state level using the HC1 (small-sample corrected) heteroskedasticity-consistent estimator. With 51 state clusters (50 states plus DC), the degrees of freedom adjustment is relatively minor.

A.4 Software and Replication

All analyses were conducted using Python 3.14.2 with the following packages:

- pandas 2.3.3 for data manipulation
- statsmodels for regression estimation
- numpy for numerical operations
- matplotlib for visualization

Code files are available in the replication package.

B Full Regression Output

B.1 Main Specification with Controls

WLS Regression Results

Dep. Variable:	fulltime	R-squared:	0.142
Model:	WLS	Adj. R-squared:	0.141
No. Observations:	43238		
Covariance Type:	cluster		

	coef	std err	z	P>|z|	[0.025	0.975]
Intercept	0.9099	0.121	7.534	0.000	0.673	1.147
treated	-0.0439	0.006	-7.254	0.000	-0.056	-0.032
post	-0.0184	0.013	-1.402	0.161	-0.044	0.007
treated_post	0.0679	0.011	6.197	0.000	0.046	0.089
female	-0.3658	0.014	-26.137	0.000	-0.393	-0.338
married	-0.0031	0.005	-0.674	0.500	-0.012	0.006
AGE	-0.0143	0.008	-1.779	0.075	-0.030	0.001
age_sq	0.0003	0.000	2.053	0.040	1.24e-05	0.001
educ_hs	0.0557	0.004	12.719	0.000	0.047	0.064
educ_somecoll	0.0963	0.010	9.302	0.000	0.076	0.117
educ_coll	0.1716	0.018	9.320	0.000	0.136	0.208