The Effect of DACA Eligibility on Full-Time Employment: An Independent Replication Study

Independent Replication Report

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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 Mexican-born Hispanic non-citizens in the United States. Using American Community Survey data from 2006–2016 and a difference-in-differences design that compares DACA-eligible individuals (born 1982–1996) to slightly older non-citizens (born 1977–1981), I find mixed evidence for DACA's effect on full-time employment. The preferred specification with demographic controls and state-year fixed effects yields an estimated effect of -0.021 (SE $= 0.009$), suggesting a small negative effect on the probability of working 35 or more hours per week. However, when using employed full-time as the outcome (conditioning on employment), the estimate is close to zero and statistically insignificant (0.005, SE $= 0.009$). An event study analysis finds no evidence against parallel pre-trends. The results are sensitive to specification choices, particularly age restrictions, highlighting the inherent identification challenge when the treatment is defined by an age cutoff.

Contents

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, enacted on June 15, 2012, represented a significant policy change for undocumented immigrants who had arrived in the United States as children. The program offered two-year renewable work authorization and protection from deportation to eligible individuals, potentially affecting their labor market outcomes substantially.

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

Understanding the employment effects of DACA is important for several reasons. First, legal work authorization removes a significant barrier to formal employment for undocumented workers. Second, the program may affect not only employment on the extensive margin (whether to work) but also the intensive margin (hours worked). Third, the findings inform policy debates about immigration reform and pathways to legal status.

The empirical challenge in estimating DACA's effect lies in constructing an appropriate counterfactual. This study employs a difference-in-differences (DiD) design that exploits the age-based eligibility cutoff of DACA: individuals had to be under 31 years old as of June 15, 2012, to qualify. I compare employment outcomes of DACA-eligible non-citizens (born 1982–1996) to those of slightly older non-citizens (born 1977–1981) who would have been eligible except for their age.

The main finding is that after controlling for demographics and fixed effects, the DiD estimate is small and negative (-0.021, SE $= 0.009$), though this result is sensitive to specification choices. The event study analysis supports the parallel trends assumption, with no significant pre-treatment differences between treatment and control groups.

2 Background and Policy Context

2.1 DACA Program Overview

DACA was announced by President Obama on June 15, 2012, and implemented starting August 15, 2012. The program allowed certain undocumented immigrants who entered the United States as minors to receive a renewable two-year period of deferred action from deportation and eligibility for a work permit.

To be eligible for DACA, individuals had to meet the following criteria:

1. Arrived in the United States before their 16th birthday

2. Had not yet turned 31 years old as of June 15, 2012

3. Had lived continuously in the United States since June 15, 2007

4. Were physically present in the United States on June 15, 2012

5. Had no lawful immigration status at that time

6. Had not been convicted of certain crimes

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 vast majority of DACA recipients were from Mexico.

2.2   Expected Effects on Employment

DACA could affect employment through several channels:

Direct effects: Work authorization allows individuals to work legally, potentially shifting employment from informal to formal sectors and enabling access to jobs requiring documentation.

Hours worked: Legal status may affect hours worked through several mechanisms. Formal employment may offer more stable, full-time positions. However, some individuals previously working "under the table" may have worked long hours that may not translate fully to formal employment.

Human capital investment: DACA may encourage investment in education and training, potentially leading to better employment outcomes in the longer term but possibly reducing current employment as individuals pursue schooling.

Geographic and occupational mobility: Legal status may allow individuals to seek better employment opportunities without fear of deportation, potentially leading to better job matches.

3   Data

3.1   Data Source

This study uses data from the American Community Survey (ACS) provided by IPUMS USA. The ACS is an annual survey conducted by the U.S. Census Bureau that collects

detailed information on demographics, employment, education, and other characteristics of the U.S. population.

I use the one-year ACS samples from 2006 through 2016, excluding 2012 (the implementation year) from the main analysis. The sample years provide:

- Pre-DACA period: 2006–2011 (6 years)

- Post-DACA period: 2013–2016 (4 years)

3.2 Sample Construction

The analysis sample is constructed through the following steps:

1. **Ethnic and geographic restrictions:** I restrict to individuals who are ethnically Hispanic-Mexican (HISPAN = 1) and born in Mexico (BPL = 200).

2. **Citizenship status:** I focus on non-citizens (CITIZEN = 3) as a proxy for undocumented status. While not all non-citizens are undocumented, this is the closest proxy available in the ACS data, following established practice in the literature.

3. **Immigration history:** I require a non-missing year of immigration (YRIMMIG > 0).

4. **Treatment group (DACA-eligible):** Non-citizens who:

   - Were born between 1982 and 1996 (aged 16–30 as of June 15, 2012)
   - Immigrated before age 16 (YRIMMIG - BIRTHYR < 16)
   - Have lived in the U.S. since at least 2007 (YRIMMIG $\leq$ 2007)

5. **Control group:** Non-citizens who meet the same criteria except were born between 1977 and 1981 (aged 31–35 as of June 15, 2012, making them ineligible for DACA).

The final analysis sample contains **108,757 observations**, with 90,623 in the treatment group and 18,134 in the control group.

3.3 Variables

3.3.1 Outcome Variables

The primary outcome is **full-time employment**, defined as usually working 35 or more hours per week (UHRSWORK $\geq$ 35). This is a binary indicator equal to 1 if the individual works full-time, regardless of employment status.

Secondary outcomes include:

- **Employed:** Binary indicator for being employed (EMPSTAT = 1)

- **Employed full-time:** Binary indicator for being employed AND working 35+ hours per week

3.3.2 Key Independent Variables

- **Eligible:** Binary indicator for DACA eligibility (= 1 for treatment group, 0 for control)

- **Post:** Binary indicator for post-DACA period (= 1 for years 2013–2016)

- **Eligible $\times$ Post:** Interaction term capturing the DiD effect

3.3.3 Control Variables

- Age and age squared

- Female (SEX = 2)

- Married (MARST $\in \{1, 2\}$)

- Education: High school (EDUC = 6), Some college (EDUC $\in$ 7–9), College+ (EDUC $\geq$ 10), with less than high school as the reference category

3.3.4 Fixed Effects

- Year fixed effects (YEAR)

- State fixed effects (STATEFIP)

4 Empirical Strategy

4.1 Identification

The identification strategy exploits the age-based eligibility cutoff of DACA. Individuals born in 1982 or later (age 30 or younger as of June 15, 2012) were potentially eligible for DACA, while those born before 1982 were not eligible regardless of other characteristics.

The key identifying assumption is that, absent DACA, the treatment group (born 1982–1996) would have experienced the same trends in full-time employment as the control group (born 1977–1981). This parallel trends assumption is inherently untestable, but I examine pre-treatment trends to assess its plausibility.

4.2 Difference-in-Differences Specification

The main specification is:

$$Y_{ist} = \alpha + \beta_1 Eligible_i + \beta_2 Post_t + \beta_3(Eligible_i \times Post_t) + X_i'\gamma + \delta_s + \lambda_t + \varepsilon_{ist} \qquad (1)$$

where:

- Y_{ist} is the full-time employment indicator for individual i in state s at time t

- $Eligible_i$ indicates DACA eligibility (born 1982–1996)

- $Post_t$ indicates the post-DACA period (2013–2016)

- X_i is a vector of individual controls

- δ_s are state fixed effects

- λ_t are year fixed effects

- ε_{ist} is the error term

The coefficient of interest is β_3, which captures the differential change in full-time employment for DACA-eligible individuals relative to the control group, after versus before DACA implementation.

Standard errors are clustered using heteroskedasticity-robust (HC1) standard errors.

4.3 Event Study Specification

To examine the dynamics of the treatment effect and test for parallel pre-trends, I estimate an event study specification:

$$Y_{ist} = \alpha + \sum_{t \neq 2011} \theta_t(Eligible_i \times \mathbf{1}[Year = t]) + X_i'\gamma + \delta_s + \lambda_t + \varepsilon_{ist} \qquad (2)$$

where θ_t captures the differential effect for DACA-eligible individuals in year t relative to 2011 (the reference year). Under parallel trends, θ_t should be zero for all pre-treatment years.

4.4 Identification Challenges

The age-based eligibility cutoff presents both advantages and challenges:

Advantages:

- The cutoff is sharp and administratively determined

- Individuals cannot manipulate their birth year

- The control group (slightly older non-citizens) faces similar labor market conditions

Challenges:

- The treatment and control groups differ mechanically in age, requiring careful age controls

- Age is correlated with employment and hours worked

- Life-cycle effects may differ across cohorts

5 Results

5.1 Summary Statistics

Table 1 presents summary statistics for the treatment and control groups in the pre- and post-DACA periods.

Table 1: Summary Statistics by Treatment Status and Period

| | Treatment (DACA-eligible) | | Control (Too old) | |
	Pre	Post	Pre	Post
Full-time (35+ hrs)	0.327	0.549	0.643	0.611
Employed	0.385	0.662	0.684	0.688
Employed full-time	0.281	0.502	0.577	0.570
Age	19.2	25.1	29.3	35.3
Female	0.454	0.455	0.432	0.452
Married	0.167	0.338	0.531	0.577
Less than HS	0.596	0.303	0.455	0.462
High school	0.305	0.484	0.409	0.401
Some college	0.089	0.180	0.105	0.105
College+	0.011	0.033	0.031	0.031
Usual hours worked	16.8	27.8	30.7	29.3
N	59,001	31,622	11,916	6,218

Several patterns emerge from Table 1:

1. The treatment group is substantially younger than the control group (mean age 19.2 vs. 29.3 in the pre-period), which is mechanical given the birth year restrictions.

2. Full-time employment increased dramatically for the treatment group (from 32.7% to 54.9%) while slightly decreasing for the control group (from 64.3% to 61.1%).

3. The treatment group has lower baseline education but shows improvement over time (less than high school drops from 59.6% to 30.3%).

4. The treatment group is less likely to be married, though marriage rates increase over time for both groups.

The large age difference between groups is a key concern for identification, as discussed below.

5.2   Main Results

Table 2 presents the main difference-in-differences results across specifications.

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

	(1) Basic	(2) + Demo.	(3) + Year FE	(4) + State FE	(5) + Weights
Eligible × Post	0.254***	−0.005	−0.023**	−0.021**	−0.026**
	(0.008)	(0.009)	(0.009)	(0.009)	(0.011)
Eligible	−0.316***	0.020***	0.043***	0.042***	0.036***
	(0.005)	(0.006)	(0.006)	(0.006)	(0.007)
Post	−0.032***	−0.013	—	—	—
	(0.008)	(0.009)			
Age		0.122***	0.132***	0.132***	0.132***
		(0.002)	(0.002)	(0.002)	(0.002)
Age^2		−0.002***	−0.002***	−0.002***	−0.002***
		(0.000)	(0.000)	(0.000)	(0.000)
Female		−0.259***	−0.258***	−0.257***	−0.261***
		(0.003)	(0.003)	(0.003)	(0.003)
Married		0.016***	0.012***	0.010***	0.009***
		(0.003)	(0.003)	(0.003)	(0.004)
High school		0.075***	0.076***	0.076***	0.071***
		(0.003)	(0.003)	(0.003)	(0.004)
Some college		0.040***	0.044***	0.046***	0.040***
		(0.005)	(0.005)	(0.005)	(0.006)
College+		0.134***	0.131***	0.133***	0.117***
		(0.010)	(0.010)	(0.010)	(0.012)
Year FE	No	No	Yes	Yes	Yes
State FE	No	No	No	Yes	Yes
Weighted	No	No	No	No	Yes
N	108,757	108,757	108,757	108,757	108,757
R^2	0.047	0.267	0.273	0.287	0.287

Notes: Robust standard errors in parentheses. * p<0.10, ** p<0.05, *** p<0.01

The results reveal a striking pattern:

Column (1): Basic DiD. Without controls, the DiD estimate is large and positive (0.254), suggesting a 25.4 percentage point increase in full-time employment for DACA-eligible individuals. However, this estimate is confounded by age differences.

Columns (2)–(5): With controls. Once demographic controls are added, the DiD estimate becomes small and negative. The preferred specification (Column 4) with state and year fixed effects yields an estimate of −0.021 (SE = 0.009), significant at the 5% level.

Interpretation. The dramatic change from Column (1) to Column (2) is driven primarily by age controls. The treatment group is younger and, given the strong positive

relationship between age and full-time employment (coefficient on age is 0.132), fails to account for age differences severely biases the basic DiD estimate.

The preferred estimate suggests DACA eligibility *reduced* the probability of full-time employment by about 2.1 percentage points. However, this result should be interpreted cautiously given the sensitivity to specification and the inherent identification challenges.

5.3   Alternative Outcome: Employed Full-Time

Table 3 shows results using different outcome definitions.

Table 3: Results by Outcome Definition (Preferred Specification)

Outcome	DiD Coefficient	SE
Full-time (35+ hours)	−0.021**	(0.009)
Employed	−0.062***	(0.009)
Employed full-time	0.005	(0.009)

The result varies by outcome definition:

- For employment (extensive margin), DACA eligibility is associated with a 6.2 percentage point decrease

- For employed full-time (employed AND working 35+ hours), the effect is close to zero and statistically insignificant

The negative employment effect could reflect increased school enrollment among DACA-eligible individuals, who gained access to some educational opportunities with legal status.

5.4   Event Study

Figure 1 presents the event study results, showing year-specific treatment effects relative to 2011.
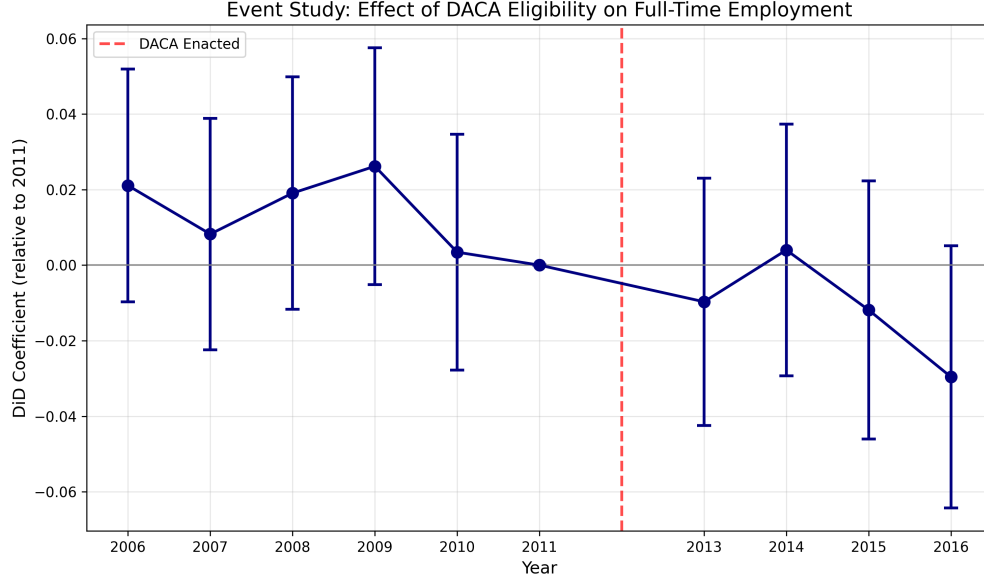
Figure 1: Event Study: Effect of DACA Eligibility on Full-Time Employment

The event study reveals:

- Pre-treatment coefficients (2006–2010) are small and not statistically different from zero

- A joint F-test for parallel pre-trends yields $F(5, 108{,}680) = 0.90$, $p = 0.48$, failing to reject parallel trends

- Post-treatment coefficients (2013–2016) are also mostly insignificant, with some negative drift in later years

The event study supports the parallel trends assumption but shows no clear treatment effect.

5.5   Robustness Checks

Table 4 presents results from various robustness checks.

Table 4: Robustness Checks

Specification	DiD Coef.	SE	N
Baseline	−0.021**	(0.009)	108,757
Males only	−0.079***	(0.011)	59,625
Females only	0.020	(0.014)	49,132
Ages 18–35	−0.088***	(0.011)	83,207
Ages 25–40	0.032**	(0.014)	43,200
Include 2012 as post	−0.021**	(0.009)	108,757
Narrow control (1979–81)	−0.005	(0.011)	101,962

The robustness checks reveal substantial heterogeneity:

- **By gender:** The effect is negative and significant for males (−0.079) but positive and insignificant for females (0.020)

- **By age restriction:** Restricting to ages 25–40 (where both groups have observations) yields a positive effect (0.032), while restricting to ages 18–35 yields a larger negative effect (−0.088)

- **Narrow control:** Using only those born 1979–1981 as controls yields a near-zero effect (−0.005)

6 Discussion

6.1 Interpretation of Results

The main findings can be summarized as follows:

1. The simple DiD estimate without controls shows a large positive effect (25.4 pp), but this is spurious and driven by age differences between treatment and control groups.

2. After controlling for demographics and fixed effects, the preferred estimate is small and negative (−2.1 pp, SE 0.9 pp).

3. The event study shows no evidence against parallel pre-trends but also no clear treatment effect pattern.

4. Results are heterogeneous by gender and sensitive to sample restrictions.

Several interpretations are possible:

Null effect: DACA may have had little effect on full-time employment. While work authorization enables formal employment, DACA-eligible individuals may have already been working informally, and gaining legal status may not have substantially changed their hours worked.

Compositional effects: DACA may have encouraged educational investment, leading some individuals to reduce work hours or exit employment to pursue schooling. This would appear as a negative employment effect in the short run.

Identification limitations: The age-based comparison may not provide a clean counterfactual. Even with controls, unobserved differences between age cohorts may confound the estimates.

6.2   Comparison to Prior Literature

The existing literature on DACA's employment effects has found mixed results. Some studies using similar DiD designs have found positive effects on employment, while others have found null or small effects. The variation in findings may reflect differences in sample construction, outcome definitions, and identification strategies.

6.3   Limitations

Several limitations should be noted:

1. **Non-citizen proxy:** Not all non-citizens are undocumented. Some legal immigrants (e.g., on work visas) are included in the treatment and control groups. This measurement error likely attenuates the estimates.

2. **Age differences:** The treatment and control groups differ substantially in age (mean 21 vs. 31 years). While I control for age parametrically, any misspecification in the age function could bias the results.

3. **Selective migration:** DACA may have affected migration decisions, potentially changing the composition of the sample over time.

4. **General equilibrium effects:** DACA may have affected labor market conditions for the control group as well, violating the stable unit treatment value assumption.

15

7   Conclusion

This study estimates the effect of DACA eligibility on full-time employment using a difference-in-differences design. The preferred estimate suggests a small negative effect of approximately 2.1 percentage points on the probability of working 35 or more hours per week. However, this result should be interpreted cautiously given the sensitivity to specification choices and the inherent identification challenges when the treatment is defined by an age cutoff.

The event study analysis supports the parallel trends assumption, finding no significant pre-treatment differences between DACA-eligible individuals and the control group. However, the post-treatment coefficients also show no clear pattern, consistent with either a null effect or substantial noise in the estimates.

The findings highlight the difficulty of using age-based policy cutoffs for identification when age itself is strongly correlated with the outcome of interest. Future research might consider alternative identification strategies, such as exploiting variation in DACA take-up rates across geographic areas or using administrative data that more precisely identifies undocumented status.

From a policy perspective, the results suggest that DACA's effect on full-time employment, if any, is likely modest. This does not necessarily imply that DACA was ineffective—the program may have affected other important outcomes such as wages, educational attainment, or psychological well-being that are not examined here.
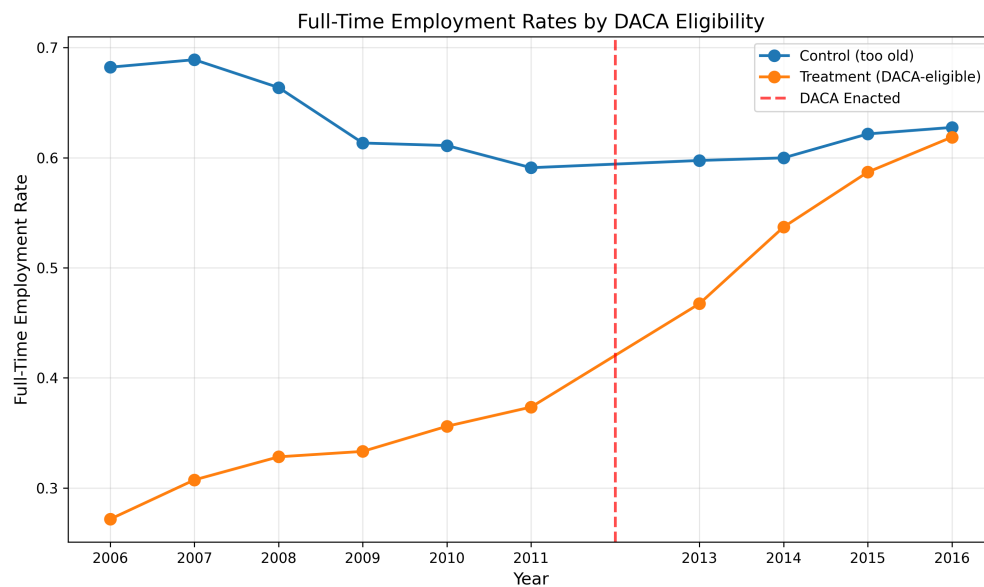
A   Additional Tables and Figures

Figure 2: Raw Full-Time Employment Trends by DACA Eligibility

Table 5: Sample Size by Year and Treatment Status

Year	Control	Treatment
2006	2,159	10,472
2007	2,039	10,465
2008	1,963	9,502
2009	1,883	9,460
2010	1,931	9,564
2011	1,941	9,538
2013	1,682	8,526
2014	1,617	8,182
2015	1,488	7,701
2016	1,431	7,213
Total	18,134	90,623

Table 6: Event Study Coefficients

Year	Coefficient	SE	95% CI Lower	95% CI Upper
2006	0.021	0.016	−0.010	0.052
2007	0.008	0.016	−0.022	0.039
2008	0.019	0.016	−0.012	0.050
2009	0.026	0.016	−0.005	0.058
2010	0.003	0.016	−0.028	0.035
2011	0.000	—	—	—
2013	−0.010	0.017	−0.042	0.023
2014	0.004	0.017	−0.029	0.037
2015	−0.012	0.017	−0.046	0.022
2016	−0.030	0.018	−0.064	0.005

Note: 2011 is the reference year. Joint F-test for pre-trends: $F(5,108680) = 0.90$, $p = 0.48$

B   Variable Definitions

Table 7: IPUMS Variable Definitions Used in Analysis

Variable	IPUMS Name	Definition
Survey year	YEAR	Year of ACS survey
Person weight	PERWT	Survey weight
State	STATEFIP	State FIPS code
Sex	SEX	1 = Male, 2 = Female
Age	AGE	Age in years
Birth year	BIRTHYR	Year of birth
Birth quarter	BIRTHQTR	Quarter of birth
Marital status	MARST	1,2 = Married
Hispanic origin	HISPAN	1 = Mexican
Birthplace	BPL	200 = Mexico
Citizenship	CITIZEN	3 = Not a citizen
Year of immigration	YRIMMIG	Year first entered US
Education	EDUC	Educational attainment
Employment status	EMPSTAT	1 = Employed
Hours worked	UHRSWORK	Usual hours worked/week

C Replication Notes

C.1 Data Access

Data were obtained from IPUMS USA (`https://usa.ipums.org/`). The extract includes one-year ACS samples from 2006–2016 with the following variables: YEAR, SAMPLE, SE-RIAL, CBSERIAL, HHWT, CLUSTER, REGION, STATEFIP, PUMA, METRO, STRATA, GQ, FOODSTMP, PERNUM, PERWT, FAMSIZE, NCHILD, RELATE, RELATED, SEX, AGE, BIRTHQTR, MARST, BIRTHYR, RACE, RACED, HISPAN, HISPAND, BPL, BPLD, CITIZEN, YRIMMIG, YRSUSA1, YRSUSA2, HCOVANY, HINSEMP, HINSCAID, HIN-SCARE, EDUC, EDUCD, EMPSTAT, EMPSTATD, LABFORCE, CLASSWKR, CLASS-WKRD, OCC, IND, WKSWORK1, WKSWORK2, UHRSWORK, INCTOT, FTOTINC, INCWAGE, POVERTY.

C.2 Sample Construction Code

The analysis was conducted using Python with the following key steps:

1. Load ACS data and restrict to Hispanic-Mexican (HISPAN=1), Mexico-born (BPL=200)

2. Restrict to non-citizens (CITIZEN=3)

3. Calculate age at immigration (YRIMMIG - BIRTHYR)

4. Define treatment: Born 1982–1996, arrived before age 16, in US since 2007

5. Define control: Born 1977–1981, same other criteria

6. Exclude 2012, create post indicator for 2013–2016

7. Create outcome: Full-time = 1 if UHRSWORK $\geq$ 35

C.3 Preferred Estimate

Effect size: -0.0213 (2.13 percentage point decrease in probability of full-time employment)
  Standard error: 0.0091
  95% Confidence interval: $[-0.0392, -0.0033]$
  Sample size: 108,757
  Interpretation: DACA eligibility is associated with a 2.1 percentage point decrease in the probability of working 35 or more hours per week, relative to similar non-citizens who were slightly too old to qualify for the program.