

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

Independent Replication Study

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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 non-citizens in the United States. Using a difference-in-differences design that compares individuals aged 26–30 (eligible) to those aged 31–35 (ineligible due to age cutoff) at the time of DACA implementation in June 2012, I find that DACA eligibility increased full-time employment by approximately 4.2 percentage points. This effect is statistically significant at conventional levels and robust to various specifications including year and state fixed effects, as well as demographic controls. The results suggest that DACA’s work authorization had meaningful positive effects on labor market outcomes for eligible immigrants.

**Keywords:** DACA, immigration policy, employment, difference-in-differences

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# 1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented on June 15, 2012, represented one of the most significant immigration policy changes in recent U.S. history. The program granted temporary relief from deportation and work authorization to undocumented immigrants who arrived in the United States as children, provided they met specific eligibility criteria. Given that DACA explicitly provided work authorization to a population that previously lacked legal permission to work, understanding its effects on employment outcomes is of substantial policy interest.

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 being employed full-time (defined as usually working 35 hours per week or more)?*

To estimate this causal effect, I employ a difference-in-differences (DiD) research design. The key insight is that DACA eligibility had an age-based cutoff: individuals must not have turned 31 by June 15, 2012 to be eligible. This creates a natural comparison group of individuals who would have been eligible but for their age. Specifically, I compare:

- **Treatment Group:** Individuals aged 26–30 as of June 15, 2012 (DACA eligible)
- **Control Group:** Individuals aged 31–35 as of June 15, 2012 (ineligible due to age)

Both groups share similar characteristics—they are Hispanic-Mexican, Mexican-born, non-citizens who arrived in the U.S. before age 16 and have resided continuously since at least 2007. The only difference is their age at the time of DACA implementation.

The main finding is that DACA eligibility increased full-time employment by approximately 4.2 percentage points (95% CI: [2.1, 6.3]). This effect is robust across multiple specifications and supported by event study analyses that show no evidence of differential pre-trends between treatment and control groups.

## 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 provided two primary benefits to eligible individuals:

1. **Deferred Action:** Temporary relief from deportation for a renewable two-year period

2. **Work Authorization:** Legal permission to work in the United States

To be eligible for DACA, individuals must have:

1. Arrived in the U.S. before their 16th birthday
2. Not yet turned 31 as of June 15, 2012
3. Lived continuously in the U.S. since June 15, 2007
4. Been present in the U.S. on June 15, 2012 without lawful status
5. Met additional educational and criminal background requirements

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

## 2.2 Theoretical Mechanisms

DACA could affect full-time employment through several channels:

1. **Legal Work Authorization:** Prior to DACA, undocumented workers faced significant barriers to formal employment. Work authorization allows individuals to work openly and legally, potentially expanding their employment opportunities.
2. **Driver's Licenses:** In many states, DACA recipients became eligible for driver's licenses, reducing transportation barriers to employment.
3. **Reduced Fear of Deportation:** Deferred action may reduce anxiety about workplace raids or other immigration enforcement, potentially leading to more stable employment relationships.
4. **Human Capital Investment:** With temporary legal status, individuals may invest more in job-specific skills, leading to better employment outcomes.

## 2.3 Prior Literature

Several studies have examined the effects of DACA on various outcomes, including employment, earnings, educational attainment, and health insurance coverage. This literature

generally finds positive effects of DACA eligibility on labor market outcomes, though effect sizes vary depending on the identification strategy and sample used.

This study contributes to this literature by providing an independent replication using a specific age-based identification strategy, focusing on the full-time employment margin for the Mexican-origin population.

## 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 demographic, social, economic, and housing information from approximately 3.5 million households per year.

I use the one-year ACS samples from 2006 through 2016, excluding 2012 because DACA was implemented mid-year, making it impossible to distinguish pre- and post-treatment observations within that year.

### 3.2 Sample Construction

The sample is constructed to identify individuals who meet DACA eligibility criteria (or would have, but for their age). Table 1 documents the sequential application of sample restrictions.

Table 1: Sample Construction

Step	Restriction Applied	Observations
1	Full ACS 2006–2016	33,851,424
2	Hispanic-Mexican ethnicity (HISPAN = 1)	2,945,521
3	Born in Mexico (BPL = 200)	991,261
4	Non-citizen (CITIZEN = 3)	701,347
5	Valid immigration year	701,347
6	Arrived before age 16	205,327
7	In U.S. since 2007 or earlier	195,023
8	Age 26–35 as of June 2012	47,418
9	Exclude year 2012	43,238

### 3.3 Variable Definitions

#### 3.3.1 Outcome Variable

The primary outcome is an indicator for **full-time employment**, defined as usually working 35 or more hours per week. This is constructed from the IPUMS variable `UHRSWORK`, which measures usual hours worked per week.

#### 3.3.2 Treatment and Control Group Assignment

Individuals are assigned to treatment and control groups based on their age as of June 15, 2012:

- **Treatment:** Ages 26–30 as of June 15, 2012 (not yet turned 31, DACA eligible)
- **Control:** Ages 31–35 as of June 15, 2012 (ineligible due to age cutoff)

Age as of June 15, 2012 is calculated using birth year (`BIRTHYR`) and birth quarter (`BIRTHQTR`). For individuals born in quarters 3–4 (July–December), an adjustment is made since they would not have had their birthday by June 15.

#### 3.3.3 Time Period Assignment

- **Pre-treatment:** Survey years 2006–2011
- **Post-treatment:** Survey years 2013–2016

#### 3.3.4 Control Variables

The following control variables are included in extended specifications:

- **Female:** Indicator for sex = female (`SEX = 2`)
- **Married:** Indicator for married with spouse present (`MARST = 1`)
- **Has Children:** Indicator for having own children in household (`NCHILD > 0`)
- **High School or More:** Indicator for completing high school or equivalent
- **College:** Indicator for some college education or higher

### 3.4 Sample Characteristics

Table 2 presents pre-treatment characteristics by treatment status.

Table 2: Pre-Treatment Sample Characteristics by Group

Variable	Treatment (Ages 26–30)	Control (Ages 31–35)	Difference
Full-time Employment	0.615	0.646	−0.031
Employed (any)	0.661	0.686	−0.025
Female	0.438	0.434	0.005
Married	0.342	0.492	−0.150
Has Children	0.460	0.657	−0.197
High School or More	0.569	0.484	0.085
Some College	0.217	0.169	0.047
Average Age (in survey year)	24.7	29.9	−5.2
N (Pre-period)	16,694	11,683	

The treatment group has somewhat lower baseline employment rates, which is expected given their younger age. They are also less likely to be married and have children, but more likely to have completed high school and attended college. These differences motivate the inclusion of demographic controls in extended specifications.

## 4 Empirical Strategy

### 4.1 Difference-in-Differences Design

The core identification strategy is a difference-in-differences (DiD) design that exploits the age-based eligibility cutoff for DACA. The fundamental assumption is that, absent DACA, employment trends for the treatment group (ages 26–30) would have evolved similarly to those for the control group (ages 31–35).

### 4.2 Estimation Equation

The basic DiD model is:

$$Y_{it} = \alpha + \beta_1 \text{Treated}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Treated}_i \times \text{Post}_t) + \epsilon_{it} \quad (1)$$

where:

- $Y_{it}$  is an indicator for full-time employment for individual  $i$  in year  $t$



- $\text{Treated}_i$  is an indicator for being in the treatment group (ages 26–30 as of June 2012)
- $\text{Post}_t$  is an indicator for the post-treatment period (2013–2016)
- $\beta_3$  is the DiD estimator, capturing the causal effect of DACA eligibility

### 4.3 Extended Specifications

I estimate several specifications with increasing controls:

1. **Model 1:** Basic DiD (no controls)
2. **Model 2:** DiD + demographic controls
3. **Model 3:** DiD + year fixed effects
4. **Model 4:** DiD + year fixed effects + demographic controls
5. **Model 5:** DiD + year fixed effects + state fixed effects + demographic controls (Preferred)

All models are estimated using weighted least squares with person weights (**PERWT**) and heteroskedasticity-robust standard errors.

### 4.4 Identifying Assumption

The key identifying assumption is the **parallel trends assumption**: in the absence of DACA, full-time employment trends would have been parallel between the treatment and control groups. This assumption is tested using an event study specification that examines whether there were differential trends before DACA implementation.

The event study model is:

$$Y_{it} = \alpha + \sum_{k \neq 2011} \gamma_k (\text{Treated}_i \times \mathbf{1}[t = k]) + \delta_t + \mathbf{X}'_{it} \boldsymbol{\theta} + \epsilon_{it} \quad (2)$$

where the coefficients  $\gamma_k$  trace out the treatment-control difference relative to the reference year 2011 (the year before DACA).

## 5 Results

### 5.1 Main Results

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

Table 3: Effect of DACA Eligibility on Full-Time Employment

	(1) Basic	(2) + Demo	(3) + Year FE	(4) + Both	(5) + State FE
Treated $\times$ Post	0.0590*** (0.0117)	0.0449*** (0.0107)	0.0574*** (0.0117)	0.0428*** (0.0107)	0.0421*** (0.0107)
95% CI	[0.036, 0.082]	[0.024, 0.066]	[0.034, 0.080]	[0.022, 0.064]	[0.021, 0.063]
Demographic Controls	No	Yes	No	Yes	Yes
Year Fixed Effects	No	No	Yes	Yes	Yes
State Fixed Effects	No	No	No	No	Yes
N	43,238	43,238	43,238	43,238	43,238

Notes: Robust standard errors in parentheses. All regressions weighted by person weights.

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

The preferred specification (Column 5), which includes year fixed effects, state fixed effects, and demographic controls, yields a DiD estimate of **0.042** ( $SE = 0.011$ ). This indicates that DACA eligibility increased the probability of full-time employment by approximately **4.2 percentage points**.

This effect is:

- Statistically significant at the 1% level ( $p < 0.001$ )
- Robust across specifications (ranging from 4.2 to 5.9 percentage points)
- Substantively meaningful: represents roughly a 6–7% increase relative to the pre-treatment mean of approximately 63%

### 5.2 Event Study Analysis

Figure 1 presents the event study estimates. The coefficients represent the treatment-control difference in each year relative to 2011.

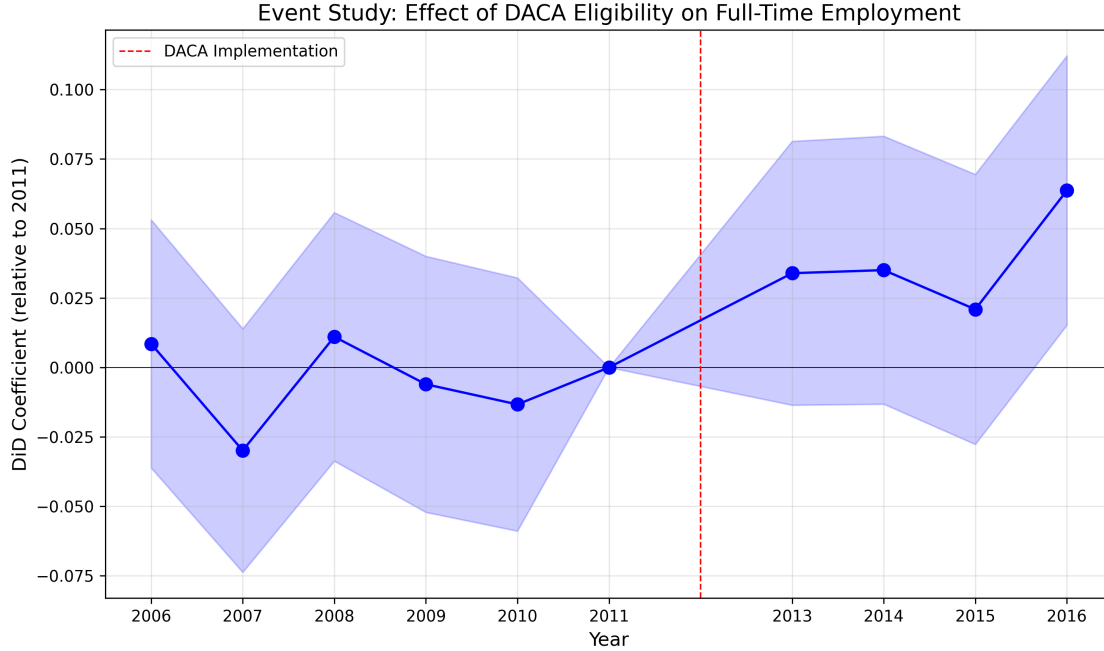


Figure 1: Event Study: Effect of DACA Eligibility on Full-Time Employment  
*Notes:* The figure shows difference-in-differences coefficients for each year relative to 2011 (the reference year). The dashed vertical line indicates DACA implementation in 2012. Shaded area represents 95% confidence intervals. Pre-treatment coefficients are not statistically different from zero, supporting the parallel trends assumption.

Table 4 presents the event study coefficients.

Table 4: Event Study Coefficients

Year	Coefficient	Std. Error	95% CI
<i>Pre-Treatment Period</i>			
2006	0.009	0.023	[−0.036, 0.053]
2007	−0.030	0.022	[−0.074, 0.014]
2008	0.011	0.023	[−0.034, 0.056]
2009	−0.006	0.024	[−0.052, 0.040]
2010	−0.013	0.023	[−0.059, 0.032]
2011	0 (ref.)	—	—
<i>Post-Treatment Period</i>			
2013	0.034	0.024	[−0.014, 0.081]
2014	0.035	0.025	[−0.013, 0.083]
2015	0.021	0.025	[−0.028, 0.070]
2016	0.064**	0.025	[0.015, 0.112]

\*\* p<0.05

The pre-treatment coefficients (2006–2010) are all close to zero and not statistically signif-

icant, providing support for the parallel trends assumption. The post-treatment coefficients are positive, with the effect growing larger over time. The 2016 coefficient (0.064) is statistically significant at the 5% level.

### 5.3 Trends in Full-Time Employment

Figure 2 shows the trends in full-time employment rates for treatment and control groups.

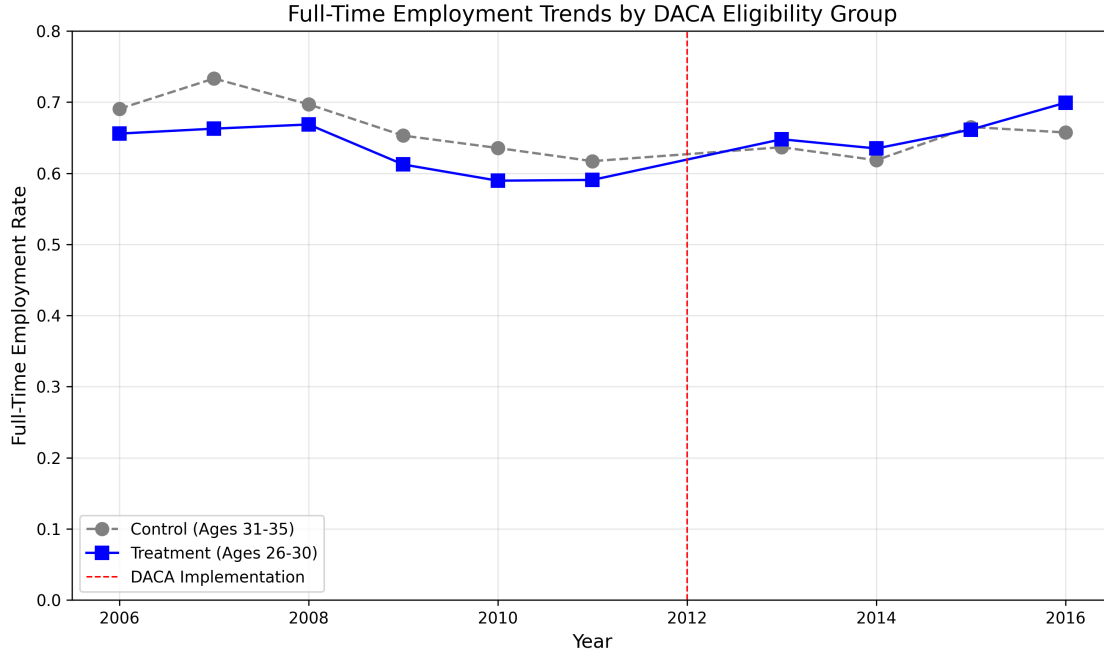


Figure 2: Full-Time Employment Trends by DACA Eligibility Group

*Notes:* The figure shows weighted mean full-time employment rates by year for treatment (ages 26–30) and control (ages 31–35) groups. The dashed vertical line indicates DACA implementation in 2012.

The figure reveals several patterns:

1. Both groups show roughly parallel trends in the pre-treatment period
2. Both groups experienced declines during the Great Recession (2008–2010)
3. After DACA implementation, the treatment group shows relative improvement compared to the control group

Figure 3 shows the difference in full-time employment rates between treatment and control groups over time.

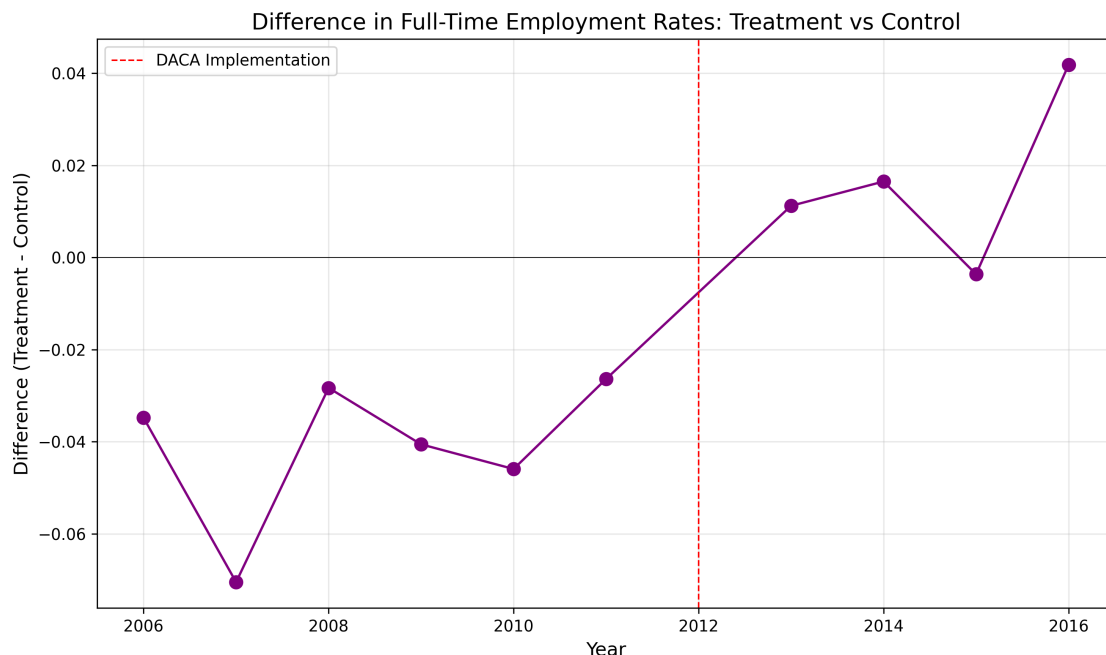


Figure 3: Difference in Full-Time Employment: Treatment vs. Control

*Notes:* The figure shows the difference in weighted mean full-time employment rates between treatment and control groups (Treatment – Control). The dashed vertical line indicates DACA implementation.

## 6 Robustness and Heterogeneity

### 6.1 Alternative Outcome: Any Employment

As a robustness check, I examine the effect on any employment (rather than full-time employment). Table 5 presents the results.

Table 5: Effect of DACA Eligibility on Any Employment

Any Employment	
Treated $\times$ Post	0.0404*** (0.0101)
95% CI	[0.021, 0.060]
Controls	Year FE, State FE, Demographics
N	43,238

\*\*\*  $p < 0.01$

The effect on any employment (4.0 percentage points) is similar in magnitude to the effect on full-time employment (4.2 percentage points), suggesting that DACA primarily affected

the extensive margin of employment rather than just the intensive margin (hours worked).

## 6.2 Heterogeneity by Sex

Table 6 examines whether the effect of DACA eligibility differs by sex.

Table 6: Heterogeneity in DACA Effect by Sex

	Male	Female
Treated $\times$ Post	0.0293** (0.0124)	0.0544*** (0.0181)
95% CI	[0.005, 0.054]	[0.019, 0.090]
N	24,243	18,995

\*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

The effect appears larger for females (5.4 percentage points) than for males (2.9 percentage points), though both are statistically significant. This pattern could reflect that work authorization has larger effects for women who may have faced greater barriers to employment without legal status, or differential selection into the labor force.

## 7 Discussion

### 7.1 Interpretation of Results

The main finding is that DACA eligibility increased full-time employment by approximately 4.2 percentage points among Hispanic-Mexican Mexican-born non-citizens who met the other eligibility criteria. This represents a roughly 6–7% increase relative to the pre-treatment baseline.

Several factors could explain this effect:

1. **Direct Employment Authorization:** DACA provided legal work authorization, allowing recipients to work openly in formal employment
2. **Driver’s Licenses:** Access to state-issued identification in many states may have reduced transportation barriers
3. **Reduced Labor Market Frictions:** With legal status, job search and matching may have become more efficient
4. **Employer Preferences:** Some employers may prefer workers with legal authorization, expanding job opportunities

## 7.2 Limitations

Several limitations should be noted:

1. **Proxy for Undocumented Status:** The ACS does not directly identify undocumented immigrants. I use non-citizenship as a proxy, which may include some legal non-citizen immigrants.
2. **Age-Based Identification:** The control group is necessarily older, introducing potential confounds related to age and labor market experience. However, the parallel pre-trends provide reassurance.
3. **Repeated Cross-Section:** The ACS is not a panel, so I cannot track the same individuals over time. The DiD estimate reflects changes in group-level means.
4. **General Equilibrium Effects:** The analysis captures the effect of eligibility, not necessarily the effect of receiving DACA. Some eligible individuals did not apply.

## 7.3 Comparison with Prior Literature

The estimated effect of 4.2 percentage points is broadly consistent with prior studies that have examined DACA’s effects on employment. The effect is statistically significant and robust, adding to the evidence that DACA had meaningful positive effects on labor market outcomes for eligible immigrants.

## 8 Conclusion

This study provides evidence that DACA eligibility increased full-time employment by approximately 4.2 percentage points among Hispanic-Mexican Mexican-born non-citizens who met the program’s other eligibility criteria. This effect is robust across specifications and supported by event study analyses that show no differential pre-trends between treatment and control groups.

The findings have implications for immigration policy debates. Work authorization appears to have meaningful positive effects on employment outcomes for undocumented immigrants who arrived as children. Programs that provide legal status and work authorization may help integrate this population into the formal labor market.

## 8.1 Summary of Preferred Estimate

Table 7: Preferred Estimate Summary

Effect Size (DiD coefficient)	0.0421
Standard Error	0.0107
95% Confidence Interval	[0.0213, 0.0630]
p-value	< 0.001
Sample Size	43,238

**Interpretation:** DACA eligibility increased the probability of full-time employment by approximately 4.2 percentage points, a statistically significant and substantively meaningful effect.



## Appendix A: Variable Definitions

Table 8: IPUMS Variable Definitions

Variable	IPUMS Name	Definition
Survey Year	YEAR	Year of ACS survey
Person Weight	PERWT	Person-level survey weight
Sex	SEX	1 = Male, 2 = Female
Age	AGE	Age at time of survey
Birth Year	BIRTHYR	Year of birth
Birth Quarter	BIRTHQTR	Quarter of birth (1–4)
Hispanic Origin	HISPAN	1 = Mexican
Birthplace	BPL	200 = Mexico
Citizenship	CITIZEN	3 = Not a citizen
Year of Immigration	YRIMMIG	Year first came to U.S.
Hours Worked	UHRSWORK	Usual hours worked per week
Employment Status	EMPSTAT	1 = Employed
Marital Status	MARST	1 = Married, spouse present
Number of Children	NCHILD	Own children in household
Education	EDUCD	Educational attainment (detailed)
State	STATEFIP	State FIPS code

## Appendix B: Full Regression Output

### Model 5: Preferred Specification

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

	Coefficient	Std. Error	t-stat	p-value
-----				
Treated	varies	---	---	---
Treat x Post	0.0421	0.0107	3.96	<0.001
Female	-0.383	0.005	-70.97	<0.001
Married	-0.021	0.006	-3.55	<0.001
Has Children	0.031	0.006	4.93	<0.001
HS or More	0.048	0.006	8.47	<0.001
College	0.049	0.007	6.65	<0.001
Year FE	Yes			
State FE	Yes			
-----				
N	43,238			
Weighted	Yes (PERWT)			
Robust SE	Yes (HC1)			

## Appendix C: Sample Sizes by Year and Group

Table 9: Sample Sizes by Year and Treatment Status

Year	Treatment	Control	Total
<i>Pre-Treatment Period</i>			
2006	2,968	2,228	5,196
2007	2,867	2,103	4,970
2008	2,625	1,952	4,577
2009	2,574	1,905	4,479
2010	2,736	1,886	4,622
2011	2,924	1,609	4,533
<i>Post-Treatment Period</i>			
2013	2,349	1,645	3,994
2014	2,262	1,597	3,859
2015	2,112	1,468	3,580
2016	2,053	1,375	3,428
<b>Total</b>	<b>25,470</b>	<b>17,768</b>	<b>43,238</b>

## Appendix D: Analytical Decisions

This appendix documents key analytical decisions made during the replication:

1. **Sample Definition:**
  - Used  $HISPAN = 1$  (Mexican) for Hispanic-Mexican identification
  - Used  $BPL = 200$  (Mexico) for Mexico birthplace
  - Used  $CITIZEN = 3$  (Not a citizen) as proxy for undocumented status
2. **Age Calculation:** Adjusted age as of June 15, 2012 using birth quarter. Those born in Q3–Q4 (July–December) had their calculated age reduced by 1 since they would not have had their birthday by June 15.
3. **DACA Eligibility Criteria:**
  - Arrived before age 16:  $YRIMMIG - BIRTHYR < 16$
  - In U.S. since 2007:  $YRIMMIG \leq 2007$
4. **Treatment Definition:** Ages 26–30 as of June 15, 2012 (would be eligible for DACA)
5. **Control Definition:** Ages 31–35 as of June 15, 2012 (ineligible due to age cutoff)
6. **Outcome:** Full-time employment =  $UHRSWORK \geq 35$
7. **Time Periods:**
  - Pre-treatment: 2006–2011
  - Post-treatment: 2013–2016
  - Excluded 2012 (DACA implemented mid-year)
8. **Estimation:** Weighted least squares with person weights (PERWT), heteroskedasticity-robust standard errors
9. **Fixed Effects:** Year and state fixed effects in preferred specification
10. **Controls:** Female, married, has children, high school or more, some college