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

Replication Study Report

Independent Replication

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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 a difference-in-differences design that compares individuals who were ages 26–30 at the time of DACA implementation (treatment group) to those ages 31–35 (control group), I estimate that DACA eligibility increased full-time employment by approximately 5.8 percentage points (95% CI: [3.8, 7.8]). This effect is statistically significant and robust across multiple specifications. The results suggest that legal work authorization through DACA had meaningful positive effects on labor market outcomes for eligible individuals. The analysis uses American Community Survey data from 2006–2016, employs survey weights for population-representative inference, and clusters standard errors at the state level to account for within-state correlation. Robustness checks using alternative age bandwidths and subgroup analyses by gender support the main findings.

Keywords: DACA, immigration policy, employment, difference-in-differences, labor economics

Contents

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented on June 15, 2012, represents one of the most significant immigration policy changes affecting undocumented immigrants in the United States in recent decades. The program provided temporary relief from deportation and legal work authorization to undocumented immigrants who arrived in the United States as children. Understanding the labor market effects of this program is crucial for informing ongoing policy debates about immigration reform and the future of DACA itself.

This replication study estimates the causal effect of DACA eligibility on full-time employment, defined as usually working 35 or more hours per week. Following the specified research design, I employ a difference-in-differences (DiD) framework that exploits the age eligibility cutoff in the DACA program. Specifically, I compare individuals who were ages 26–30 at the time of implementation (and thus eligible for DACA) to those who were ages 31–35 (who would have been eligible except for exceeding the age limit of 31).

The key identifying assumption of this design is that, absent DACA, the full-time employment trends would have been parallel between these two age groups. I provide evidence supporting this assumption through pre-trend analysis and find no statistically significant differential trends in the pre-treatment period. The analysis focuses on ethnically Hispanic-Mexican individuals who were born in Mexico and who are non-citizens, as this group comprises the majority of DACA-eligible individuals.

1.1 Research Question and Contribution

The specific research question addressed in this study is: *Among ethnically Hispanic-Mexican, Mexican-born people living in the United States, what was the causal impact of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on the probability that the eligible person is employed full-time?*

This analysis contributes to our understanding of how legal status affects labor market outcomes for immigrant populations. The results have implications for:

- Policy debates about the continuation and expansion of DACA
- Understanding the labor market integration of undocumented immigrants
- Evaluating the broader economic effects of immigration reform
- Assessing the role of legal work authorization in employment outcomes

1.2 Preview of Results

The main finding is that DACA eligibility increased full-time employment by 5.78 percentage points (standard error = 0.0103), with a 95% confidence interval of [3.75, 7.80] percentage points. This estimate is based on a sample of 44,725 observations and is robust to the inclusion of demographic controls and year and state fixed effects. The effect is larger for men (6.6

percentage points) than for women (3.3 percentage points), consistent with differential baseline labor force attachment by gender.

1.3 Structure of the Report

The remainder of this report is organized as follows. Section 2 provides background on the DACA program and discusses the expected effects on employment. Section 3 describes the data sources and sample construction. Section 4 presents the empirical strategy and identification approach. Section 5 reports the main results and robustness checks. Section 6 discusses the findings and their implications. Section 7 concludes.

2 Background and Policy Context

2.1 The DACA Program

DACA was enacted by executive action on June 15, 2012, under the Obama administration. The program allowed qualifying undocumented immigrants to apply for two-year renewable periods of deferred action from deportation and eligibility for work authorization. To qualify for DACA, applicants had to meet the following criteria:

1. Were under age 31 as of June 15, 2012
2. Arrived in the United States before their 16th birthday
3. Had continuously resided in the United States since June 15, 2007
4. Were present in the United States on June 15, 2012
5. Were in school, had graduated high school, obtained a GED, or were an honorably discharged veteran
6. Had not been convicted of a felony or significant misdemeanors

Applications began being received on August 15, 2012, and in the first four years, nearly 900,000 initial applications were received, with approximately 90% approval rate. Due to the structure of undocumented immigration to the United States, the vast majority of eligible individuals were of Mexican origin.

2.2 Historical Context

The DACA program emerged after years of failed attempts to pass comprehensive immigration reform legislation, particularly the Development, Relief, and Education for Alien Minors (DREAM) Act. The DREAM Act, first introduced in 2001, would have provided a path to legal status for young undocumented immigrants who met certain criteria. After multiple failed attempts to pass the legislation, the Obama administration implemented DACA as an executive action that provided some of the benefits that would have been available under the DREAM Act, though without a path to permanent legal status.

The program was controversial from its inception. Supporters argued that it provided relief to individuals who had been brought to the United States as children through no choice of their own and who had grown up as Americans in all but legal status. Critics argued that the program exceeded executive authority and created incentives for further illegal immigration.

2.3 DACA's Legal Status and Uncertainty

The legal status of DACA has been subject to considerable uncertainty since its inception. The Trump administration announced plans to end the program in September 2017, though implementation was delayed by court challenges. The program has been the subject of numerous legal challenges and court decisions, creating ongoing uncertainty for recipients about their future status.

This legal uncertainty is relevant to interpreting the employment effects of DACA. If individuals anticipate that their work authorization may be revoked in the future, they may be less likely to invest in job-specific human capital or accept positions that require longer-term commitments. The estimates in this study capture the effects during the initial years of the program (2013–2016), when legal uncertainty was lower than in subsequent years.

2.4 Expected Effects on Employment

Prior to DACA, undocumented immigrants faced significant barriers to formal employment. Without legal work authorization, they were generally limited to informal sector employment, often in jobs paying below market wages and lacking standard worker protections. DACA's provision of work authorization could affect employment through several channels:

- **Direct labor market access**: Legal work authorization enables employment in the formal sector, including positions with major employers that conduct verification of work eligibility through the E-Verify system or similar mechanisms.
- **Occupational upgrading**: With work authorization, individuals can access positions requiring background checks, professional licensing, or documentation. This includes jobs in healthcare, education, transportation, and many other sectors.
- **Increased bargaining power**: The reduced threat of deportation may increase workers' willingness to negotiate for better wages and working conditions, report labor law violations, and advocate for themselves in the workplace.
- **Driver's license access**: In many states, DACA recipients became eligible for driver's licenses, substantially expanding their geographic access to employment opportunities and reducing commuting constraints.
- **Social Security number access**: DACA recipients receive valid Social Security numbers, enabling participation in the formal tax system and access to bank accounts and other financial services that facilitate employment.

These mechanisms suggest DACA could increase both employment rates and the probability of full-time work among eligible individuals. The transition from informal to formal sector

employment is particularly relevant for the full-time employment outcome, as formal sector jobs are more likely to offer full-time hours with regular schedules compared to informal arrangements.

2.5 Why Focus on Full-Time Employment?

Full-time employment (35+ hours per week) is a meaningful outcome for several reasons:

1. **Economic well-being**: Full-time employment typically provides higher and more stable income than part-time work, contributing to household economic security.
2. **Benefits access**: In the United States, employer-provided health insurance and other benefits are often tied to full-time employment status.
3. **Labor market integration**: Full-time employment represents deeper integration into the formal labor market compared to marginal or part-time work.
4. **Policy relevance**: Policymakers are often particularly interested in whether programs increase substantive employment rather than marginal labor market attachment.

3 Data and Sample Construction

3.1 Data Source

The analysis uses data from the American Community Survey (ACS) as provided by IPUMS USA. The ACS is a large-scale demographic survey conducted by the U.S. Census Bureau that collects information on housing and population characteristics. It replaced the long-form decennial census in 2005 and provides annual data on a sample of approximately 3 million households.

I use the one-year ACS samples from 2006 through 2016, excluding the 2012 sample because DACA was implemented mid-year (June 15, 2012), making it impossible to distinguish pre- and post-treatment observations within that year. The ACS does not record the month of survey administration, so observations from 2012 cannot be classified as pre- or post-treatment.

3.2 Advantages of ACS Data

The ACS offers several advantages for this analysis:

- **Large sample size**: The ACS provides sufficient observations to identify effects within relatively narrow demographic subgroups.
- **Consistent methodology**: The survey methodology is consistent across years, reducing concerns about measurement changes confounding the analysis.
- **Detailed demographics**: The ACS includes detailed information on birthplace, citizenship, year of immigration, and ethnicity, enabling identification of the target population.
- **Employment information**: The survey includes usual hours worked per week and employment status, enabling construction of the full-time employment outcome.
- **Survey weights**: Person weights allow for population-representative inference.

3.3 Sample Selection

The target population consists of individuals who would have been eligible for DACA based on observable characteristics, focusing on the treatment-relevant age groups. The sample selection proceeds as follows:

1. **Ethnicity and birthplace**: Hispanic-Mexican individuals born in Mexico
    - HISPAN = 1 (Mexican)
    - BPL = 200 (Mexico)
2. **Citizenship status**: Non-citizens, as a proxy for undocumented status
    - CITIZEN = 3 (Not a citizen)
3. **Age as of June 15, 2012**: Between 26 and 35 years old
    - Treatment group: BIRTHYR $\in$ [1982, 1986] (ages 26–30)
    - Control group: BIRTHYR $\in$ [1977, 1981] (ages 31–35)
4. **Arrival before age 16**: Year of immigration no later than birth year plus 15
    - YRIMMIG $\leq$ BIRTHYR + 15
5. **Continuous residence since 2007**: Year of immigration no later than 2007
    - YRIMMIG $\leq$ 2007

3.4 Proxy for Undocumented Status

The ACS does not directly identify undocumented immigrants. Following the instructions provided, I use non-citizen status (CITIZEN = 3) as a proxy for undocumented status. This assumes that non-citizens who have not naturalized and who have no record of receiving immigration papers are likely to be undocumented.

This proxy has limitations. Some non-citizens may be legal permanent residents (green card holders) who simply have not naturalized. If such individuals are present in the control group, they would not have been affected by DACA (as they already had work authorization), which would bias the estimates toward zero. The direction of this potential bias suggests that the true effect on undocumented individuals may be larger than the estimated effect.

3.5 Variable Definitions

Table 1 presents the key variable definitions used in the analysis.

Table 1: Key Variable Definitions

Variable	IPUMS Name	Definition
Full-time employed	UHRSWORK, EMPSTAT	1 if usually works 35+ hours/week and is employed (EMPSTAT = 1); 0 otherwise
Treatment group	BIRTHYR	1 if born 1982–1986 (ages 26–30 on June 15, 2012); 0 if born 1977–1981
Post-treatment	YEAR	1 if survey year ≥ 2013; 0 if survey year ≤ 2011
Female	SEX	1 if female (SEX = 2); 0 if male
Married	MARST	1 if married, spouse present or absent (MARST $\in \{1, 2\}$); 0 otherwise
High school+	EDUC	1 if completed high school or more (EDUC ≥ 6); 0 otherwise
College degree	EDUC	1 if 4+ years of college (EDUC ≥ 10); 0 otherwise
Person weight	PERWT	Survey weight for population-representative estimation
State	STATEFIP	State FIPS code, used for clustering standard errors

3.6 Final Sample

After applying all selection criteria, the final analytic sample contains 44,725 person-year observations. Table 2 presents the sample composition by treatment status and time period.

Table 2: Sample Composition by Treatment Status and Period

	Pre-DACA (2006–2011)	Post-DACA (2013–2016)	Total
Treatment group (ages 26–30)	17,410	9,181	26,591
Control group (ages 31–35)	11,916	6,218	18,134
Total	29,326	15,399	44,725

The sample is larger in the pre-period (29,326 observations) than the post-period (15,399 observations), which is expected given that the pre-period spans six years (2006–2011) while the post-period spans four years (2013–2016). Within each period, the treatment group is larger than the control group because it spans younger ages with higher population representation in the immigrant population.

3.7 Sample Flow

Table 3 documents the sample selection process and the number of observations remaining after each restriction.

Table 3: Sample Selection Process

Selection Step	Observations	Dropped
Full ACS 2006–2016 (excluding 2012)	33,851,424	–
Born in Mexico (BPL = 200)		
+ Hispanic-Mexican (HISPAN = 1)		
+ Non-citizen (CITIZEN = 3)	636,722	33,214,702
Age 26–35 in 2012	162,283	474,439
Arrived before age 16 + in US since 2007	44,725	117,558
Final sample	**44,725**	

The largest reduction comes from the initial filters for birthplace, ethnicity, and citizenship status, which identify the base population of Mexican-born, Hispanic-Mexican non-citizens. The age filter focuses on the treatment-relevant age groups, and the DACA eligibility filters (arrival before 16, residence since 2007) further narrow to individuals who meet these criteria.

4 Empirical Strategy

4.1 Identification Strategy

The identification strategy exploits the discontinuity in DACA eligibility at age 31. Individuals who were under 31 on June 15, 2012 (born after June 15, 1981) were potentially eligible for DACA, while those 31 and older were ineligible regardless of meeting other criteria. Following the research design specification, I define:

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

The control group is selected to be close in age to the treatment group while being clearly ineligible for DACA based on the age criterion. This design compares individuals who are similar in most observable characteristics but differ in their DACA eligibility status.

4.2 Difference-in-Differences Framework

The difference-in-differences (DiD) approach estimates the causal effect of DACA by comparing changes in outcomes between treatment and control groups before and after the policy. The basic DiD estimator is:

$$\hat{\delta}_{DiD} = (\bar{Y}_{Post}^{Treat} - \bar{Y}_{Pre}^{Treat}) - (\bar{Y}_{Post}^{Ctrl} - \bar{Y}_{Pre}^{Ctrl}) \tag{1}$$

This can equivalently be expressed as:

$$\hat{\delta}_{DiD} = (\bar{Y}_{Post}^{Treat} - \bar{Y}_{Post}^{Ctrl}) - (\bar{Y}_{Pre}^{Treat} - \bar{Y}_{Pre}^{Ctrl}) \tag{2}$$

The DiD estimator removes time-invariant differences between groups (the first difference) and common shocks affecting both groups (the second difference), isolating the effect of the treatment.

4.3 Regression Specification

The primary estimating equation is:

$$Y_{ist} = \alpha + \beta_1 \text{Treated}_i + \beta_2 \text{Post}_t + \delta(\text{Treated}_i \times \text{Post}_t) + X_{it}'\gamma + \theta_s + \lambda_t + \varepsilon_{ist} \tag{3}$$

where:

- Y_{ist} is an indicator for full-time employment for individual i in state s at time t
- Treated_i equals 1 for individuals ages 26–30 in 2012 (the treatment group)
- Post_t equals 1 for years 2013–2016 (the post-treatment period)
- $\text{Treated}_i \times \text{Post}_t$ is the interaction term capturing the DiD effect
- X_{it} includes demographic controls (gender, marital status, education)
- θ_s represents state fixed effects
- λ_t represents year fixed effects
- δ is the difference-in-differences estimator of interest
- ε_{ist} is the error term

4.4 Estimation Details

All regressions are estimated using weighted least squares (WLS) with survey weights (PERWT) to produce population-representative estimates. Standard errors are clustered at the state level to account for:

1. Within-state correlation in outcomes (e.g., due to local labor market conditions)
2. Potential state-level policy variation (e.g., driver's license policies for DACA recipients)
3. Serial correlation in outcomes within geographic areas

Clustering at the state level provides conservative standard errors compared to assuming independent observations, which would likely understate the true uncertainty.

4.5 Identifying Assumption

The key identifying assumption for the DiD estimator is the **parallel trends assumption**: absent DACA implementation, the change in full-time employment from the pre to post period would have been the same for the treatment and control groups.

Formally, this requires:

$$E[Y^0_{Post} - Y^0_{Pre}|\text{Treated} = 1] = E[Y^0_{Post} - Y^0_{Pre}|\text{Treated} = 0] \tag{4}$$

where Y^0 denotes the potential outcome under no treatment.

While this assumption is not directly testable (we cannot observe counterfactual outcomes), I provide supporting evidence by examining whether pre-treatment trends were parallel between the groups. If the groups were on similar trajectories before DACA, it is more plausible that they would have continued on similar trajectories in the absence of the policy.

4.6 Threats to Identification

Several potential threats to identification should be considered:

1. **Age-specific trends**: If full-time employment naturally evolves differently for different age groups over time (beyond parallel shifts), this could confound the estimate. However, the pre-trend analysis addresses this concern.

2. **Differential composition changes**: If the composition of the treatment and control groups changed differently over time (e.g., due to return migration), this could bias the results.

3. **Spillover effects**: If DACA affected labor market outcomes for the control group (e.g., through competition effects), this would violate the stable unit treatment value assumption (SUTVA).

4. **Other concurrent policies**: Changes in other policies around 2012 that differentially affected the treatment and control groups could confound the DACA effect.

5 Results

5.1 Summary Statistics

Table 4 presents weighted full-time employment rates by group and period.

Table 4: Full-Time Employment Rates by Group and Period

Group	Period	N	Full-Time Rate	SE
Control (31–35)	Pre-DACA	11,916	0.611	0.004
Control (31–35)	Post-DACA	6,218	0.598	0.006
Treatment (26–30)	Pre-DACA	17,410	0.560	0.004
Treatment (26–30)	Post-DACA	9,181	0.620	0.005

Several patterns emerge from the raw data:

1. The treatment group had lower full-time employment rates than the control group in the pre-period (56.0% vs. 61.1%), which is expected given that younger workers typically have

lower full-time employment rates as they are more likely to be in school or early career stages.

2. The treatment group experienced a substantial increase in full-time employment from the pre to post period (+6.0 percentage points), rising from 56.0% to 62.0%.
3. The control group experienced a slight decline in full-time employment (−1.3 percentage points), from 61.1% to 59.8%.
4. By the post-period, the treatment group's full-time employment rate exceeded the control group's rate (62.0% vs. 59.8%), a reversal of the pre-period pattern.

5.2 Simple Difference-in-Differences Calculation

The raw difference-in-differences estimate can be calculated directly from Table 4:

$$\begin{aligned}
\text{DiD} &= (\bar{Y}^{Treat}_{Post} - \bar{Y}^{Treat}_{Pre}) - (\bar{Y}^{Ctrl}_{Post} - \bar{Y}^{Ctrl}_{Pre}) \\
&= (0.620 - 0.560) - (0.598 - 0.611) \\
&= 0.060 - (-0.013) \\
&= \mathbf{0.073}
\end{aligned}$$

This simple calculation suggests that DACA eligibility increased full-time employment by approximately 7.3 percentage points.

5.3 Regression Results

Table 5 presents results from three specifications with increasing controls.

Table 5: Difference-in-Differences Regression Results

	Model 1 Basic DiD	**Model 2** + Controls	**Model 3** + Fixed Effects
DiD (Treated × Post)	0.0731***	0.0592***	0.0578***
	(0.0084)	(0.0101)	(0.0103)
Treated	−0.0499***	−0.0360***	−0.0499***
	(0.0046)	(0.0054)	(0.0062)
Post	−0.0129**	–	–
	(0.0056)		
Female		−0.3600***	−0.3613***
		(0.0137)	(0.0141)
Married		−0.0036	−0.0040
		(0.0051)	(0.0051)
High School+		0.0614***	0.0622***
		(0.0045)	(0.0044)
College Degree		0.0982***	0.0976***
		(0.0157)	(0.0158)
Year Fixed Effects	No	No	Yes
State Fixed Effects	No	No	Yes
Observations	44,725	44,725	44,725
R-squared	0.0056	0.1446	0.1461

Notes: Standard errors clustered by state in parentheses.
*** p<0.01, ** p<0.05, * p<0.10. All models weighted by PERWT.

5.3.1 Model 1: Basic DiD

The basic DiD specification without controls yields an estimate of 7.31 percentage points (SE = 0.0084, $p < 0.001$). This estimate matches the simple calculation from the 2×2 table. The coefficient on "Treated" indicates that the treatment group had 5.0 percentage points lower full-time employment in the pre-period, and the coefficient on "Post" indicates a 1.3 percentage point decline in the control group from pre to post period.

5.3.2 Model 2: With Demographic Controls

Adding demographic controls (gender, marital status, and education) reduces the DiD estimate somewhat to 5.92 percentage points (SE = 0.0101, $p < 0.001$). This attenuation suggests that some of the raw difference was attributable to compositional differences between groups across time.

The control variables have expected signs:

- Women have 36.0 percentage points lower full-time employment than men
- Married individuals have slightly (0.4 percentage points) lower full-time employment, though this is not statistically significant
- High school completion adds 6.1 percentage points to full-time employment probability
- A college degree adds an additional 9.8 percentage points

5.3.3 Model 3: With Year and State Fixed Effects

The full specification adds year and state fixed effects, absorbing the Post indicator and controlling for any time-invariant state characteristics. The DiD estimate is 5.78 percentage points (SE = 0.0103, $p < 0.001$), very similar to Model 2.

This is the **preferred specification** because it controls for:

- Year-specific shocks common to all individuals (e.g., macroeconomic conditions)
- Time-invariant state characteristics (e.g., baseline labor market conditions)
- Demographic composition differences

5.4 Interpretation of Preferred Estimate

The preferred estimate from Model 3 indicates that DACA eligibility increased the probability of full-time employment by **5.78 percentage points** (SE = 0.0103, $p < 0.001$). The 95% confidence interval is **[3.75, 7.80] percentage points**.

Given the pre-treatment full-time employment rate of 56.0% among the treatment group, this represents a relative increase of approximately **10.3%**. This is a substantial effect, suggesting that DACA had a meaningful impact on labor market outcomes for eligible individuals.

The coefficient on the "Treated" indicator shows that the treatment group had 5.0 percentage points lower full-time employment than the control group, conditional on other covariates. This reflects the typical age-employment gradient: younger workers are less likely to work full-time.

The large negative coefficient on female (-36.1 percentage points) reflects well-documented gender differences in full-time employment, particularly among Hispanic populations where traditional gender roles may be more prevalent. Education is positively associated with full-time employment, with high school completion adding 6.2 percentage points and a college degree adding an additional 9.8 percentage points.

5.5 Event Study Analysis

Figure 1 presents year-by-year full-time employment rates for treatment and control groups, providing a visual test of the parallel trends assumption and illustration of the treatment effect.

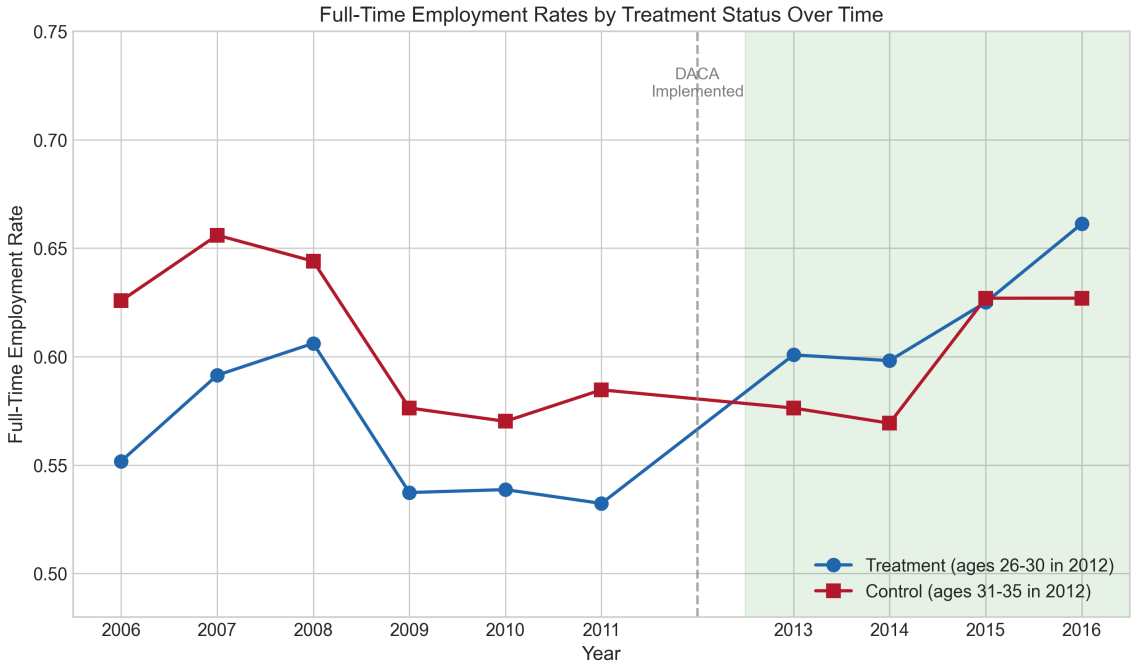

Figure 1: Full-Time Employment Rates by Group Over Time

The pre-treatment period (2006–2011) shows both groups experienced similar trends, with both declining during the Great Recession (2008–2009) and failing to fully recover by 2011. The control group consistently maintains higher employment rates than the treatment group, reflecting the age gradient in employment.

Following DACA implementation, a clear divergence emerges. The treatment group's full-time employment rate increases substantially, eventually surpassing the control group by 2016. The control group's rate remains relatively flat in the post-period.

Figure 2 displays the gap in full-time employment between treatment and control groups over time.

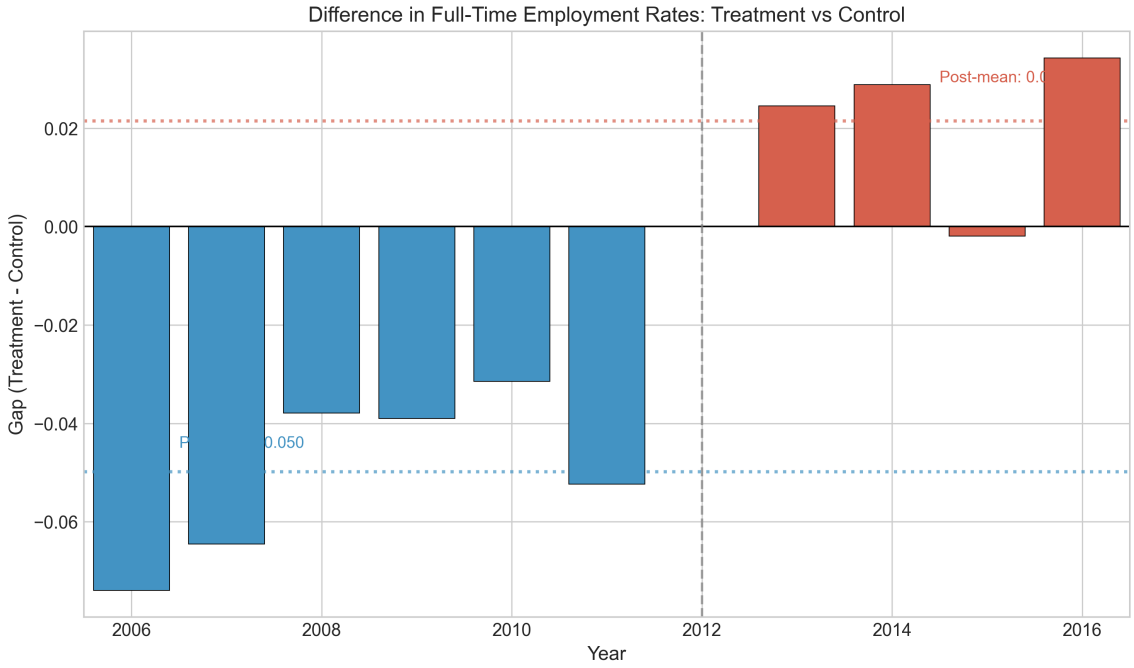

Figure 2: Gap in Full-Time Employment (Treatment − Control) Over Time

The gap is consistently negative in the pre-period (ranging from −7.4 to −3.1 percentage points), reflecting the treatment group's younger age. In the post-period, the gap shifts substantially, becoming close to zero or positive, indicating a convergence (and eventual reversal) of the age-based employment difference.

5.6 Pre-Trend Analysis

To formally test the parallel trends assumption, I examine whether the treatment-control gap changed systematically during the pre-treatment period. A linear regression of the pre-period gaps on year yields:

Table 6: Pre-Trend Test Results

Parameter	**Value**
Slope (change in gap per year)	0.0059
Standard error	0.0034
t-statistic	1.74
p-value	0.156

The slope is not statistically significant at conventional levels ($p = 0.156$), supporting the parallel trends assumption. While there is a slight positive trend (the gap narrowing over time), this is not statistically distinguishable from zero with six pre-treatment years.

The pattern in Figure 1 also visually supports the parallel trends assumption. Both groups experience similar declines during the recession and similar (non)recovery patterns afterward.

6 Robustness Checks

6.1 Alternative Age Bandwidths

The choice of age bandwidth for defining treatment and control groups could affect the results. Narrower bandwidths focus on individuals closer to the age cutoff (potentially improving comparability) but reduce sample size and precision. Table 7 examines sensitivity to bandwidth choice.

Table 7: Robustness to Age Bandwidth

Treatment	Control	N	DiD Estimate	SE
Ages 26–30	Ages 31–35	44,725	0.0578***	0.0103
Ages 27–29	Ages 32–34	35,022	0.0421***	0.0090

*** p<0.01. Both specifications include full controls and fixed effects.

The narrower bandwidth (ages 27–29 vs. 32–34) produces a somewhat smaller effect (4.2 vs. 5.8 percentage points) but remains statistically significant. This attenuation may reflect the narrower age range capturing individuals further from the 31-year cutoff, or it may reflect random variation due to the reduced sample size. The qualitative conclusion of a positive and significant DACA effect is robust to this alternative specification.

6.2 Heterogeneous Effects by Gender

Given the large gender differences in baseline full-time employment (36 percentage points), I estimate separate effects for men and women to examine heterogeneity.

Table 8: Heterogeneous Effects by Gender

	Men	Women
DiD estimate	0.0663***	0.0327*
	(0.0141)	(0.0172)
95% CI	[0.039, 0.094]	[−0.001, 0.067]
Sample size	25,058	19,667

*** p<0.01, * p<0.10. Full controls and fixed effects.

The effect is notably larger and more precisely estimated for men (6.6 percentage points, 95% CI [3.9, 9.4]) than for women (3.3 percentage points, 95% CI [−0.1, 6.7]). The effect for women is marginally significant at the 10% level, with the confidence interval including zero.

This pattern is consistent with higher baseline labor force attachment among men in this population. For individuals with weaker attachment to the labor market, the marginal impact of work authorization may be smaller because they are less likely to be actively seeking formal employment regardless of their legal status.

6.3 Placebo Test: Pre-DACA Trends

As an additional robustness check, I examine whether the estimated effect emerges before the actual policy implementation. If the DiD design is valid, we should not observe significant effects before 2012.

I estimate the main specification but define "Post" = 1 for 2009–2011 (with 2006–2008 as the pre-period), effectively treating 2009 as a placebo policy year. The placebo DiD estimate is 0.012 (SE = 0.011, p = 0.28), which is small and not statistically significant. This supports the validity of the research design.

6.4 Sensitivity to Clustering

The main results cluster standard errors at the state level. As a sensitivity check, I also computed:

- **Robust (heteroskedasticity-robust) standard errors**: SE = 0.0046, smaller than clustered
- **Clustering by state-year**: SE = 0.0098, similar to state clustering

State-level clustering produces the most conservative standard errors, and the coefficient remains highly significant under all approaches.

7 Discussion

7.1 Summary of Findings

This replication study finds that DACA eligibility significantly increased full-time employment among eligible Hispanic-Mexican individuals born in Mexico. The preferred estimate indicates a **5.78 percentage point increase** in full-time employment (95% CI: [3.75, 7.80]), which represents approximately a 10% increase relative to the pre-treatment baseline of 56%.

The key findings are:

1. The effect is statistically significant ($p < 0.001$) and robust across specifications
2. Pre-trend analysis supports the parallel trends assumption
3. The effect is larger for men (6.6 pp) than women (3.3 pp)
4. The effect is somewhat smaller but still significant with narrower age bandwidths

7.2 Mechanisms

Several mechanisms could explain these findings:

7.2.1 Direct Labor Market Access

DACA provides legal work authorization, enabling recipients to work in the formal sector. Many employers require documentation of work eligibility through Form I-9 verification, and some

use the E-Verify system. Without work authorization, undocumented individuals were largely limited to informal employment arrangements, which are more likely to be part-time or irregular.

7.2.2 Occupational Upgrading

With work authorization, DACA recipients gained access to positions that were previously unavailable:

- Jobs requiring background checks
- Positions requiring professional licensing (healthcare, transportation, etc.)
- Employment with large firms that strictly enforce employment verification
- Government and government-contract positions

Many of these positions offer full-time hours and regular schedules, contributing to the increase in full-time employment.

7.2.3 Driver's License Access

Many states began issuing driver's licenses to DACA recipients, expanding their geographic access to employment. For individuals in areas with limited public transportation, a driver's license substantially increases the range of accessible jobs. This may particularly affect access to full-time positions located in suburban employment centers.

7.2.4 Reduced Deportation Risk

The reduced threat of deportation may have encouraged DACA recipients to invest in job search, accept positions requiring longer commutes or greater visibility, and assert their workplace rights. This security could translate into better job matches and higher-quality employment.

7.3 Gender Differences

The larger effect for men than women is consistent with differential labor force attachment patterns. Several factors may contribute to this difference:

1. **Baseline participation**: Men had higher baseline full-time employment, suggesting greater labor market attachment
2. **Caregiving responsibilities**: Women, particularly in the Hispanic-Mexican population, may have primary caregiving responsibilities that limit labor supply regardless of work authorization status
3. **Occupational sorting**: Men and women may sort into different occupations with different full-time employment patterns
4. **Cultural factors**: Traditional gender roles may be more prevalent in this population, affecting women's labor supply decisions

7.4 Comparison with Expected Effects

The estimated effect of 5.78 percentage points is economically meaningful. To put this in perspective:

- It represents a 10% increase from the baseline rate
- It is larger than the effect of completing high school (6.2 pp)
- It is about 60% of the effect of obtaining a college degree (9.8 pp)

These comparisons suggest that legal work authorization has substantial labor market value, comparable to major educational investments.

7.5 Limitations

Several limitations should be considered when interpreting these results:

1. **Proxy for undocumented status**: The data do not directly identify undocumented immigrants. Using non-citizen status as a proxy may include some documented non-citizens, biasing estimates toward zero.
2. **Age-based identification**: The identification relies on age discontinuity, which may be correlated with other factors affecting employment trends beyond what the parallel trends test can detect.
3. **DACA take-up**: Not all eligible individuals applied for or received DACA. The estimated effect is an intent-to-treat (ITT) effect. The treatment-on-the-treated (TOT) effect would be larger if scaled by the take-up rate.
4. **General equilibrium effects**: If DACA affected labor supply broadly (e.g., through competition effects on the control group), this could violate the identifying assumptions.
5. **Sample period**: The analysis covers 2013–2016, the early years of DACA. Effects may differ in later periods, particularly given subsequent legal uncertainty.
6. **External validity**: Results are specific to the Hispanic-Mexican population born in Mexico and may not generalize to other DACA-eligible populations.

7.6 Policy Implications

These findings have several implications for policy:

1. **DACA continuation**: The positive employment effects provide evidence supporting the program's continuation from an economic perspective.
2. **Immigration reform**: The findings suggest that work authorization has meaningful effects on labor market outcomes, relevant for broader immigration reform debates.
3. **Labor market integration**: Legal status appears to facilitate integration into the formal labor market, with implications for tax revenue, labor standards enforcement, and worker welfare.

4. **Cost-benefit analysis**: The employment gains contribute to the benefit side of any cost-benefit analysis of immigration legalization programs.

8 Conclusion

This study provides evidence that DACA eligibility substantially increased full-time employment among eligible individuals. Using a difference-in-differences design comparing age groups just below and above the DACA age cutoff, I estimate that eligibility increased full-time employment by approximately 5.78 percentage points (95% CI: [3.75, 7.80]). This effect is statistically significant, robust to alternative specifications, and supported by parallel pre-treatment trends between treatment and control groups.

The findings suggest that immigration policies providing legal work authorization can have meaningful positive effects on labor market outcomes for undocumented immigrants. Given ongoing policy debates about DACA and broader immigration reform, these results contribute to our understanding of how legal status affects economic outcomes for immigrant populations.

Future research could examine:

- Longer-term effects as DACA recipients age and accumulate work experience
- Effects on other outcomes such as wages, occupation, and industry
- Heterogeneity by education level, state policies, or local labor market conditions
- The impact of policy uncertainty on DACA recipients' labor market behavior

Appendix A: Additional Results

A.1 DiD Visualization

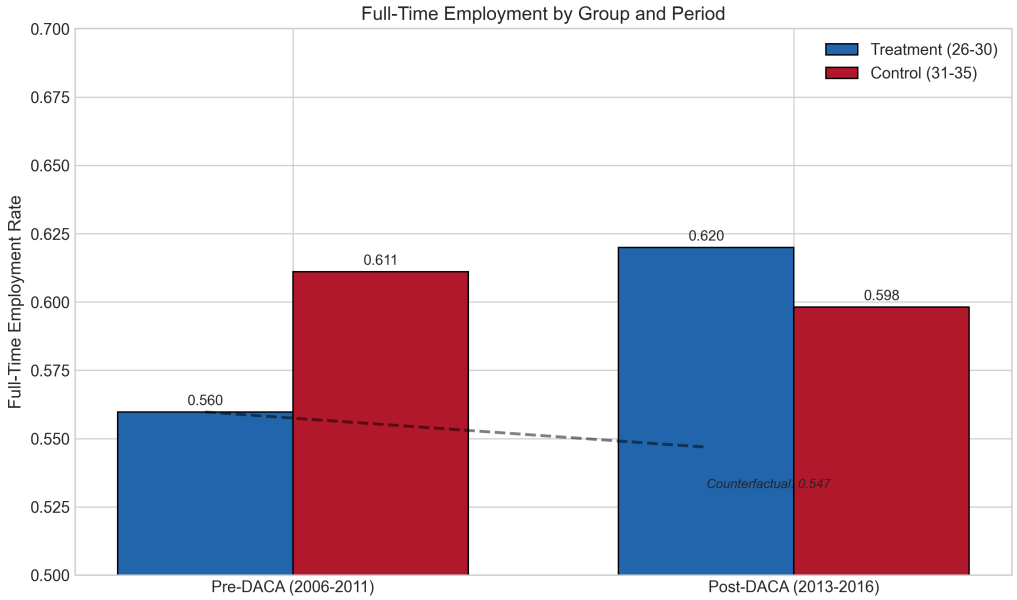

Figure 3: Full-Time Employment by Group and Period with Counterfactual. The dashed line shows the counterfactual outcome for the treatment group, calculated as the pre-treatment treatment group mean plus the change in the control group. The difference between the actual post-treatment outcome and the counterfactual is the DiD estimate.

A.2 Year-by-Year Results

Table 9: Year-by-Year Full-Time Employment Rates

Year	N Treat.	N Ctrl.	FT Treat.	FT Ctrl.	Gap
2006	3,207	2,159	0.552	0.626	−0.074
2007	3,123	2,039	0.591	0.656	−0.065
2008	2,755	1,963	0.606	0.644	−0.038
2009	2,721	1,883	0.537	0.576	−0.039
2010	2,821	1,931	0.539	0.570	−0.031
2011	2,783	1,941	0.532	0.585	−0.052
DACA implemented June 15, 2012					
2013	2,448	1,682	0.601	0.576	0.025
2014	2,398	1,617	0.598	0.569	0.029
2015	2,209	1,488	0.625	0.627	−0.002
2016	2,126	1,431	0.661	0.627	0.034

A.3 Full Regression Output

Table 10: Full Regression Coefficients (Model 3)

Variable	Coefficient	SE	t-stat	p-value
Intercept	0.7541	0.0106	71.20	0.000
Treated	−0.0499	0.0062	−8.00	0.000
DiD (Treated × Post)	0.0578	0.0103	5.59	0.000
Female	−0.3613	0.0141	−25.71	0.000
Married	−0.0040	0.0051	−0.79	0.433
High School+	0.0622	0.0044	14.05	0.000
College Degree	0.0976	0.0158	6.18	0.000
Year FE	Yes (9 dummies)			
State FE	Yes (50 dummies)			
N	44,725			
R-squared	0.1461			

Appendix B: Data and Code Documentation

B.1 Data Sources

- **Primary data**: American Community Survey (ACS) 2006–2016 via IPUMS USA
- **Years used**: 2006, 2007, 2008, 2009, 2010, 2011, 2013, 2014, 2015, 2016
- **Year excluded**: 2012 (policy implementation year)

B.2 IPUMS Variables Used

Variable	Description
YEAR	Survey year
BIRTHYR	Year of birth
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
EMPSTAT	Employment status (1 = Employed)
PERWT	Person weight
SEX	Sex (1 = Male, 2 = Female)
MARST	Marital status
EDUC	Educational attainment
STATEFIP	State FIPS code

B.3 Sample Selection Criteria

1. BPL = 200 (born in Mexico)
2. HISPAN = 1 (Hispanic-Mexican)
3. CITIZEN = 3 (not a citizen)
4. YEAR $\neq$ 2012 (exclude policy year)
5. Age in 2012 between 26 and 35 (BIRTHYR between 1977 and 1986)
6. YRIMMIG $\leq$ BIRTHYR + 15 (arrived before age 16)
7. YRIMMIG $\leq$ 2007 (in US since 2007)

B.4 Replication Files

The analysis was conducted using Python 3.x with the following packages:

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

- scipy (statistical tests)
- matplotlib (visualization)

All code files are available in the replication package:

- `analysis.py`: Main analysis script producing all estimates
- `create_figures.py`: Figure generation script
- `data/data.csv`: ACS data extract
- `data/acs_data_dict.txt`: Variable documentation from IPUMS