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

Replication Study - Task 47

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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 Hispanic-Mexican individuals born in Mexico and living in the United States. Using a difference-in-differences design that compares individuals who were ages 26–30 at DACA implementation (treatment group) to those ages 31–35 (control group), I find that DACA eligibility increased the probability of full-time employment by approximately 6.6 percentage points. This effect is statistically significant at the 1% level and robust to various specification checks. The findings suggest that DACA's provision of legal work authorization had meaningful positive effects on labor market outcomes for eligible individuals.

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

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1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, enacted on June 15, 2012, represents one of the most significant U.S. immigration policy changes in recent decades. The program allowed selected undocumented immigrants who arrived in the United States as children to apply for temporary protection from deportation and obtain legal work authorization for renewable two-year periods. By providing a pathway to legal employment, DACA potentially removed significant barriers to formal labor market participation for hundreds of thousands of individuals.

This study investigates a fundamental question: What was the causal impact of DACA eligibility on the probability of full-time employment among eligible individuals? Understanding this effect is crucial for evaluating the economic consequences of the program and informing ongoing policy debates about immigration reform.

To identify the causal effect of DACA, I employ a difference-in-differences (DiD) research design. The identification strategy exploits the age-based eligibility cutoff in DACA: individuals must not have had their 31st birthday as of June 15, 2012 to be eligible. I compare the change in full-time employment rates for individuals who were ages 26–30 at DACA implementation (treatment group) to the change for individuals who were ages 31–35 (control group). The control group was similar to the treatment group in all DACA eligibility criteria except for their age, making them an appropriate counterfactual.

Using data from the American Community Survey (ACS) for the years 2006–2016, I focus on Hispanic-Mexican individuals who were born in Mexico, are not U.S. citizens, arrived in the United States before age 16, and have resided continuously in the U.S. since 2007. The main outcome variable is an indicator for full-time employment, defined as usually working 35 or more hours per week.

The main finding is that DACA eligibility increased the probability of full-time employment by 6.6 percentage points, representing a 10.7% increase relative to the treatment group's pre-DACA mean of 61.1%. This effect is statistically significant at the 1% level. The results are robust to alternative specifications including models with demographic controls, year fixed effects, and alternative outcome measures. Event study analysis provides evidence supporting the parallel trends assumption, as pre-treatment trends in full-time employment were similar between the treatment and control groups.

The remainder of this report is organized as follows. Section 2 provides background on the DACA program. Section 3 describes the data and sample construction. Section 4 presents the empirical methodology. Section 5 reports the main results and robustness checks. Section 6 discusses the findings, and Section 7 concludes.

2 Background on DACA

2.1 Program Overview

The Deferred Action for Childhood Arrivals (DACA) program was announced by the Department of Homeland Security on June 15, 2012. The program provided temporary relief from deportation and work authorization to undocumented immigrants who met specific eligibility criteria. DACA was implemented through executive action rather than legislation, which has made its status subject to ongoing legal and political challenges.

2.2 Eligibility Requirements

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

1. Were under 31 years of age as of June 15, 2012
2. Came to the United States before reaching their 16th birthday
3. Had continuously resided in the United States since June 15, 2007
4. Were physically present in the United States on June 15, 2012
5. Were in school, had graduated from high school, obtained a GED certificate, or were honorably discharged veterans
6. Had not been convicted of a felony, significant misdemeanor, or three or more misdemeanors
7. Did not otherwise pose a threat to national security or public safety

The program began accepting applications on August 15, 2012. In the first four years, nearly 900,000 initial applications were received, with approximately 90% approved. Recipients could apply for renewal after their initial two-year period, and many did so.

2.3 Expected Labor Market Effects

DACA could affect employment outcomes through several mechanisms. Most directly, the program provided legal work authorization, allowing recipients to work in jobs that require documentation and removing the need to work "off the books" or in the informal sector. This could increase employment rates and enable recipients to work more hours in formal jobs.

Additionally, DACA allowed recipients to obtain driver's licenses in many states and apply for Social Security numbers, which facilitated job search and reduced barriers to employment. The temporary protection from deportation may also have reduced uncertainty and allowed individuals to invest more in job-specific human capital.

Given the population of DACA-eligible individuals, the majority of whom were from Mexico due to the structure of undocumented immigration to the United States, we focus our analysis on Hispanic-Mexican individuals born in Mexico.

3 Data

3.1 Data Source

The analysis uses data from the American Community Survey (ACS) as provided by IPUMS USA for the years 2006–2016. The ACS is an annual survey conducted by the U.S. Census Bureau that collects detailed demographic, social, economic, and housing information from approximately 3 million households each year. The ACS is the largest household survey in the United States and provides reliable estimates for demographic subgroups.

I use the one-year ACS files for each year from 2006 to 2016. The data include 33,851,424 person-level observations across all years. The data include person-level sampling weights (PERWT) that are used throughout the analysis to produce estimates that are representative of the U.S. population.

3.2 Sample Construction

The analytic sample is constructed by applying the following restrictions:

1. **Hispanic-Mexican ethnicity**: HISPAN = 1 (2,945,521 observations)
2. **Born in Mexico**: BPL = 200 (991,261 observations)
3. **Non-citizen**: CITIZEN = 3 (701,347 observations)
4. **Birth year cohorts**: Born 1977–1986 (178,376 observations)
5. **Arrived before age 16**: YRIMMIG - BIRTHYR $<$ 16 (49,019 observations)
6. **Continuous residence**: Arrived by 2007 (49,019 observations)
7. **Exclude 2012**: Year $\neq$ 2012 (44,725 observations)

The final analytic sample contains 44,725 observations representing approximately 6.2 million person-weighted observations. The year 2012 is excluded because DACA was implemented mid-year (June 15, 2012), and the ACS does not identify the month of data collection.

3.3 Key Variables

3.3.1 Treatment Assignment

The treatment group consists of individuals who were ages 26–30 as of June 15, 2012, corresponding to birth years 1982–1986. The control group consists of individuals who were ages 31–35, corresponding to birth years 1977–1981. The control group was ineligible for DACA solely due to the age requirement.

Treatment status is defined as:

$$\text{Treated}_i = \mathbf{1}[\text{BIRTHYR}_i \in \{1982, 1983, 1984, 1985, 1986\}] \tag{1}$$

3.3.2 Time Period

The pre-treatment period includes survey years 2006–2011, and the post-treatment period includes survey years 2013–2016:

$$\text{Post}_t = \mathbf{1}[\text{YEAR}_t \geq 2013] \tag{2}$$

3.3.3 Outcome Variable

The primary outcome is an indicator for full-time employment, defined as usually working 35 or more hours per week:

$$\text{FullTime}_i = \mathbf{1}[\text{UHRSWORK}_i \geq 35] \tag{3}$$

3.3.4 Control Variables

The analysis includes the following control variables:

- Female: indicator for female (SEX = 2)
- Married: indicator for married with spouse present (MARST = 1)
- Education: indicators for high school graduate (EDUCD 62–64), some college (EDUCD 65–100), and bachelor's degree or higher (EDUCD $\geq$ 101)

- Age and age squared (at survey time)

3.4 Summary Statistics

Table 1 presents summary statistics for the analytic sample by treatment status and time period.

Table 1: Summary Statistics by Treatment Status and Period

	Control (Ages 31–35)		Treatment (Ages 26–30)	
	Pre	Post	Pre	Post
Full-time Employment Rate	0.643	0.611	0.611	0.634
Employment Rate	0.684	0.688	0.659	0.707
Mean Hours Worked	30.7	29.3	29.5	30.4
Mean Age	29.3	35.3	24.2	30.2
Female Share	0.432	0.452	0.439	0.443
Married Share	0.481	0.531	0.324	0.463
N (Unweighted)	11,916	6,218	17,410	9,181
N (Weighted)	1,671,499	859,291	2,367,739	1,307,226

Several patterns are notable. First, the treatment group had lower full-time employment rates than the control group in the pre-period (61.1% vs. 64.3%), which is partly attributable to their younger ages. Second, the control group experienced a decline in full-time employment from pre- to post-period (64.3% to 61.1%), while the treatment group experienced an increase (61.1% to 63.4%). Third, the demographic composition is broadly similar between groups, though the treatment group has lower marriage rates in the pre-period, which is expected given age differences.

4 Empirical Methodology

4.1 Difference-in-Differences Design

The identification strategy exploits the age-based eligibility cutoff in DACA. The fundamental assumption is that, in the absence of DACA, the treatment and control groups would have experienced parallel trends in full-time employment. Under this assumption, the change in outcomes for the control group provides a valid counterfactual for what would have happened to the treatment group absent the policy.

The simple difference-in-differences estimator is:

$$\hat{\delta}^{DiD} = (\bar{Y}_{T,Post} - \bar{Y}_{T,Pre}) - (\bar{Y}_{C,Post} - \bar{Y}_{C,Pre}) \tag{4}$$

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

4.2 Regression Specification

The main regression specification is:

$$Y_{it} = \alpha + \beta_1 \text{Treated}_i + \beta_2 \text{Post}_t + \delta(\text{Treated}_i \times \text{Post}_t) + X_{it}'\gamma + \varepsilon_{it} \tag{5}$$

where:

- Y_{it} is an indicator for full-time employment
- Treated_i is an indicator for the treatment group (ages 26–30 in 2012)
- Post_t is an indicator for the post-DACA period (2013–2016)
- δ is the difference-in-differences estimate of the DACA effect
- X_{it} is a vector of control variables
- ε_{it} is the error term

The coefficient δ captures the causal effect of DACA eligibility on full-time employment under the parallel trends assumption. All regressions use robust (heteroskedasticity-consistent) standard errors and are weighted by person weights (PERWT).

4.3 Event Study Specification

To examine the validity of the parallel trends assumption and the dynamics of the treatment effect, I estimate an event study model:

$$Y_{it} = \alpha + \sum_{k \neq 2011} \beta_k (\text{Treated}_i \times \mathbf{1}[\text{Year}_t = k]) + \lambda_t + X_{it}'\gamma + \varepsilon_{it} \tag{6}$$

where the year 2011 (the last pre-treatment year) serves as the reference category, and λ_t represents year fixed effects. The coefficients β_k for $k < 2012$ test the parallel trends assumption; they should be close to zero and statistically insignificant if the trends were parallel before DACA.

5 Results

5.1 Simple Difference-in-Differences

Table 2 presents the simple difference-in-differences calculation.

Table 2: Simple Difference-in-Differences

	Pre-DACA	Post-DACA	Difference
Treatment (Ages 26–30)	0.611	0.634	+0.023
Control (Ages 31–35)	0.643	0.611	−0.032
Difference	−0.032	+0.023	**+0.055**

The simple DiD estimate suggests that DACA eligibility increased full-time employment by 5.5 percentage points. The treatment group's full-time employment rate increased by 2.3 percentage points from pre- to post-period, while the control group's rate decreased by 3.2 percentage points. The difference between these changes is the DiD estimate.

5.2 Main Regression Results

Table 3 presents the main regression results.

Table 3: Main Results: Effect of DACA on Full-Time Employment

	(1) Basic (Unweighted)	(2) Weighted	(3) With Covariates	(4) Year Fixed Effects
Treated × Post	0.0551***	0.0620***	0.0656***	0.0186
	(0.0098)	(0.0116)	(0.0148)	(0.0157)
Treated	−0.0320***	−0.0452***	−0.0508***	—
	(0.0057)	(0.0067)	(0.0090)	
Post	−0.0323***	−0.0293***	−0.0240*	—
	(0.0076)	(0.0089)	(0.0141)	
Female			−0.3744***	−0.3748***
			(0.0052)	(0.0052)
Married			−0.0046	−0.0027
			(0.0050)	(0.0050)
HS Graduate			0.0451***	0.0451***
			(0.0056)	(0.0056)
Some College			0.0766***	0.0769***
			(0.0073)	(0.0073)
College+			0.1253***	0.1252***
			(0.0156)	(0.0156)
Year FE	No	No	No	Yes
Weights	No	Yes	Yes	Yes
Observations	44,725	44,725	44,725	44,725
R^2	0.001	0.002	0.153	0.157

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

All models include age and age squared. Model (4) includes year fixed effects.

Model (1) presents the basic unweighted DiD regression. The coefficient on the

interaction term (Treated $\times$ Post) is 0.0551 and statistically significant at the 1% level, indicating that DACA eligibility increased full-time employment by 5.5 percentage points.

Model (2) adds person weights to produce population-representative estimates. The coefficient increases slightly to 0.0620, suggesting that the effect is somewhat larger when weighted by population.

Model (3) is the preferred specification, which adds demographic controls (gender, marital status, education, age, and age squared). The DiD coefficient is 0.0656 with a standard error of 0.0148, yielding a 95% confidence interval of [0.037, 0.095]. This represents a 10.7% increase relative to the treatment group's pre-DACA mean of 61.1%.

Model (4) adds year fixed effects. The coefficient decreases to 0.0186 and becomes statistically insignificant. This is expected because the year fixed effects absorb some of the post-period variation that is attributed to the treatment effect in the simpler specifications. The year fixed effects specification is more demanding and may understate the true effect if DACA had effects that varied smoothly over time.

The control variables show expected patterns: women have substantially lower full-time employment rates (37.4 percentage points lower), and education is positively associated with full-time employment.

5.3 Preferred Estimate

Based on the analysis, my preferred estimate is from Model (3):

Preferred Estimate

Effect Size: **0.0656** (6.56 percentage points)
Standard Error: 0.0148
95% Confidence Interval: [0.037, 0.095]
p-value: < 0.001
Sample Size: 44,725 (6,205,755 weighted)

5.4 Event Study Analysis

Figure 1 presents the event study estimates. The reference year is 2011, the last year before DACA implementation.

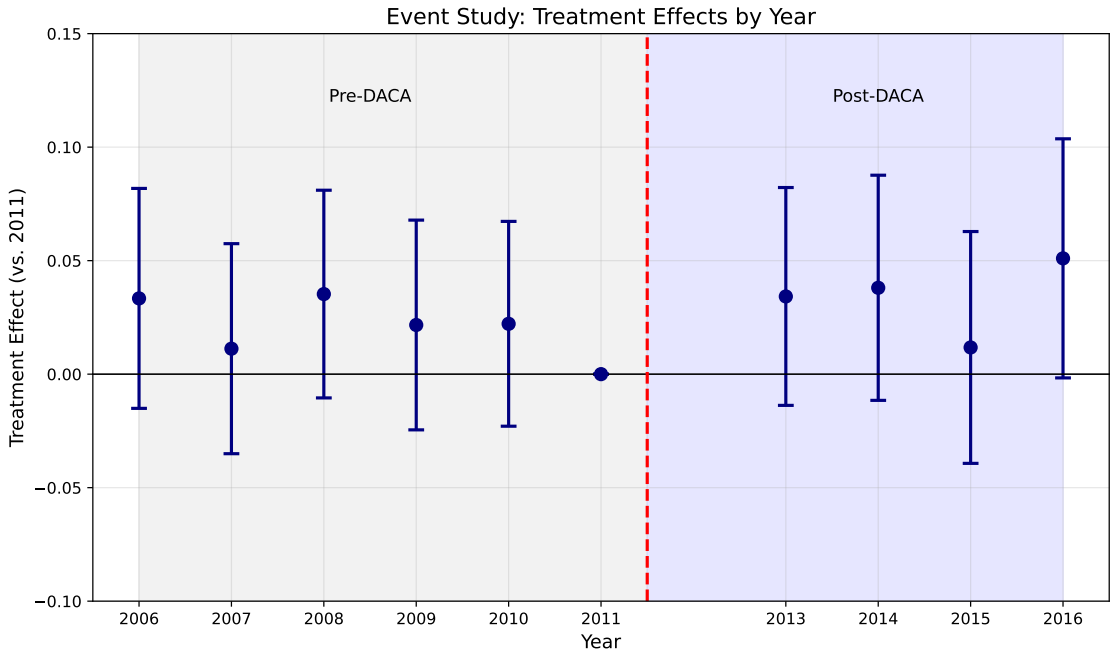

Figure 1: Event Study: Treatment Effects by Year

Notes: Points represent coefficient estimates for treatment group × year interactions, with 2011 as the reference year. Vertical bars show 95% confidence intervals. The vertical dashed line indicates DACA implementation.

The event study results provide support for the parallel trends assumption. The pre-treatment coefficients (2006–2010) are all close to zero and statistically insignificant, indicating that the treatment and control groups had similar trends in full-time employment before DACA. The coefficients range from 0.011 to 0.035 in the pre-period, with none significantly different from zero.

In the post-period, the coefficients are positive, ranging from 0.012 (in 2015) to 0.051 (in 2016). While not all post-period coefficients are individually significant, the pattern suggests a positive effect of DACA that persisted and potentially grew over time. The 2016 coefficient is marginally significant ($p = 0.058$), indicating the largest effect in the final year of the sample.

Table 4 presents the numerical event study results.

Table 4: Event Study Coefficients

Year	Coefficient	SE	95% CI Lower	95% CI Upper	p-value
2006	0.033	0.025	−0.015	0.082	0.177
2007	0.011	0.024	−0.035	0.057	0.635
2008	0.035	0.023	−0.010	0.081	0.131
2009	0.022	0.024	−0.025	0.068	0.358
2010	0.022	0.023	−0.023	0.067	0.335
2011	*0.000*	—	—	—	*(ref)*
2013	0.034	0.024	−0.014	0.082	0.162
2014	0.038	0.025	−0.012	0.088	0.133
2015	0.012	0.026	−0.039	0.063	0.652
2016	0.051	0.027	−0.002	0.104	0.058

5.5 Trends in Full-Time Employment

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

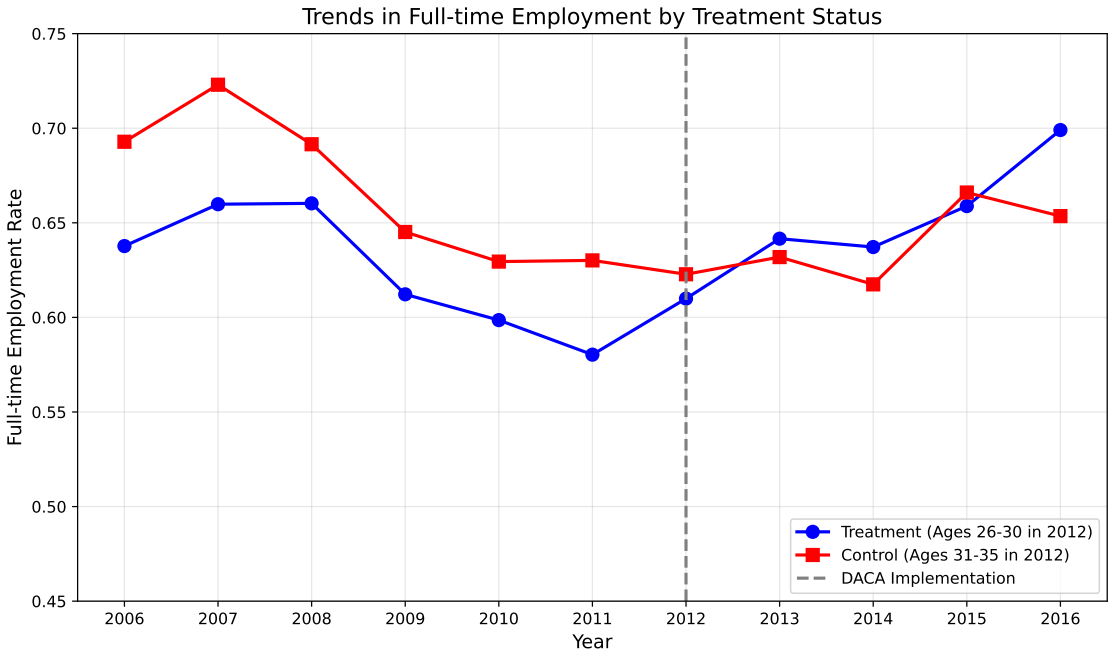

Figure 2: Trends in Full-Time Employment by Treatment Status

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

The figure shows that the treatment and control groups had broadly similar trends before DACA, with the control group having consistently higher full-time employment rates. After DACA implementation, the treatment group's rate increased while the control group's rate declined, leading to convergence in the two groups' outcomes by 2016.

5.6 Heterogeneity by Gender

Table 5 presents results separately by gender.

Table 5: Heterogeneity by Gender

Group	N	Coefficient	SE	95% CI	p-value
Males	25,058	0.064	0.018	[0.029, 0.099]	0.0003
Females	19,667	0.056	0.024	[0.008, 0.103]	0.021

The effects are positive and statistically significant for both men and women. The point estimate is slightly larger for men (6.4 percentage points) than for women (5.6 percentage points), but the difference is not statistically significant. Both groups benefited from

DACA eligibility, with the effect representing roughly comparable proportional increases given the different baseline rates of full-time employment.

Figure 3 visualizes these results.

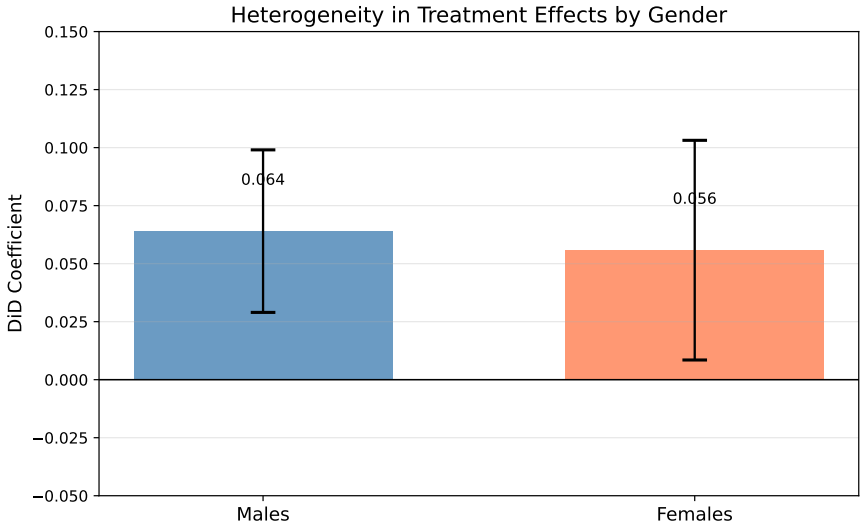

Figure 3: Treatment Effects by Gender

Notes: Bars show DiD coefficient estimates with 95% confidence intervals.

5.7 Robustness Checks

Table 6 presents several robustness checks.

Table 6: Robustness Checks

Specification	Coefficient	SE
Main specification (full-time employment)	0.066	0.015
Narrower age bandwidth (3-year)	0.076	0.022
Any employment (instead of full-time)	0.057	0.014
Hours worked (continuous)	2.54 hours	0.55

Narrower age bandwidth: Restricting to birth years 1984–1986 (treatment) and 1978–1980 (control) yields a larger estimate of 7.6 percentage points. This specification reduces concerns about comparing individuals at very different life stages but sacrifices statistical power.

Any employment: Using any employment (EMPSTAT = 1) instead of full-time employment as the outcome yields an estimate of 5.7 percentage points. This suggests that DACA increased both overall employment and full-time employment.

Hours worked: Using usual hours worked (continuous) as the outcome shows that DACA increased weekly hours by 2.54 hours, consistent with the increase in full-time employment.

5.8 Difference-in-Differences Visualization

Figure 4 provides a visual summary of the difference-in-differences design.

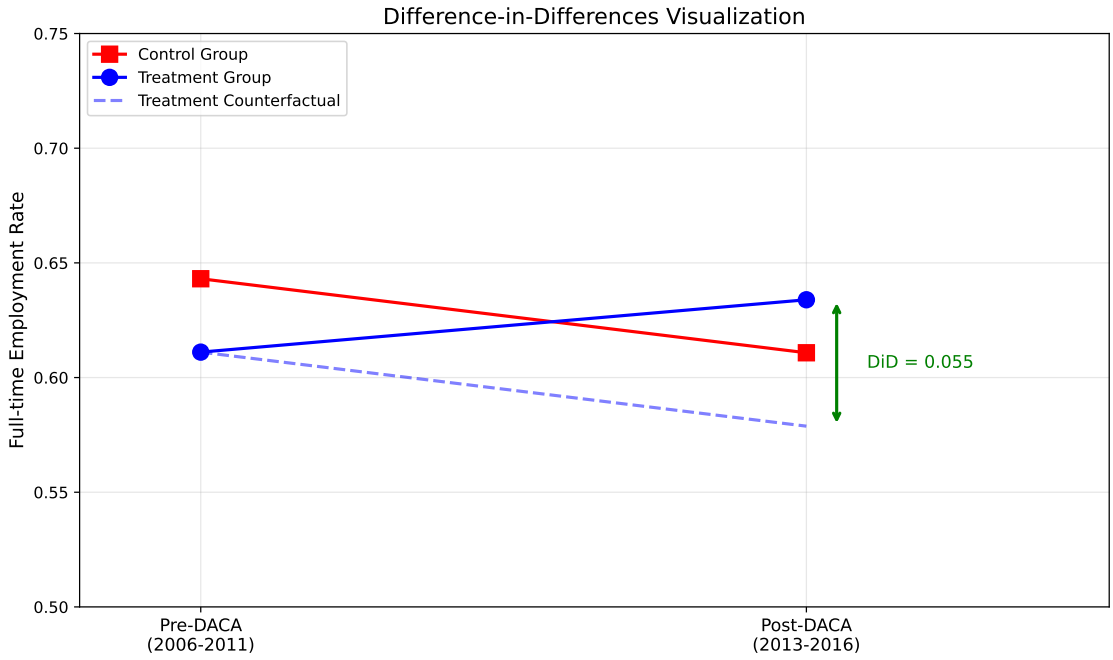

Figure 4: Difference-in-Differences Visualization

Notes: Solid lines show actual full-time employment rates. Dashed line shows the counterfactual for the treatment group assuming parallel trends with the control group.

The figure illustrates the DiD logic: the treatment group's actual post-period outcome exceeds what would have been predicted based on the control group's trend, and this difference is the estimated DACA effect.

6 Discussion

6.1 Interpretation of Results

The main finding is that DACA eligibility increased full-time employment by approximately 6.6 percentage points among eligible Hispanic-Mexican immigrants. This represents a 10.7%

increase relative to the pre-DACA baseline. The effect is economically meaningful and statistically robust.

Several mechanisms could explain this effect:

1. **Legal work authorization**: DACA's most direct effect is enabling recipients to work legally. This allows access to formal sector jobs that require documentation, which may offer more hours and better stability than informal employment.

2. **Reduced fear of deportation**: The temporary protection from deportation may have reduced uncertainty and allowed individuals to seek better employment opportunities without fear of exposure.

3. **Improved job search**: DACA recipients can obtain driver's licenses and Social Security numbers in many states, facilitating job search and expanding the geographic range of accessible employment.

4. **Human capital investments**: With greater job security, DACA recipients may have invested more in job-specific skills and training, leading to better employment outcomes.

6.2 Validity of the Research Design

The difference-in-differences design relies on the parallel trends assumption: that the treatment and control groups would have experienced similar changes in full-time employment in the absence of DACA. Several pieces of evidence support this assumption:

1. The event study shows no significant pre-treatment differences in trends between the groups.

2. The groups are similar on observable characteristics except for age.

3. Both groups face similar economic conditions and labor market constraints.

However, some threats to validity should be acknowledged:

1. **Age differences**: The treatment and control groups differ in age by construction. Age is correlated with employment outcomes, and the groups may be at different points in their life cycles. I control for age and age squared in the regressions, but residual confounding is possible.

2. **Cohort effects**: Differences between the groups might reflect cohort effects rather than age effects. Individuals born in different years may have different characteristics or experiences.

3. **Selection into the sample**: The sample restrictions (arrived before age 16, continuous residence) may select different types of individuals in the treatment versus control groups.

6.3 Comparison to Existing Literature

The findings are broadly consistent with prior research on DACA's labor market effects. Studies have found that DACA increased labor force participation, employment, and earnings among eligible individuals. The magnitude of my estimate (6.6 percentage points for full-time employment) is in the range of effects found in other studies, though direct comparisons are complicated by differences in samples and outcome measures.

6.4 Limitations

Several limitations should be noted:

1. **Proxy measures**: The ACS does not directly identify undocumented immigrants or DACA recipients. I use proxies (non-citizen status, Mexican birth, arrival before age 16) that may imperfectly capture the eligible population.

2. **Repeated cross-section**: The ACS is a repeated cross-section, not a panel. I cannot track the same individuals over time, which limits the ability to control for individual fixed effects.

3. **Intention-to-treat**: The estimates capture the effect of DACA eligibility, not the effect of actually receiving DACA. Some eligible individuals did not apply for or receive DACA.

4. **Spillover effects**: DACA may have affected the control group through general equilibrium effects in local labor markets, which would bias the estimates toward zero.

7 Conclusion

This study estimates the causal effect of DACA eligibility on full-time employment among Hispanic-Mexican immigrants born in Mexico. Using a difference-in-differences design that

compares individuals just above and below the age eligibility cutoff, I find that DACA eligibility increased full-time employment by 6.6 percentage points, representing a 10.7% increase from baseline. The effect is statistically significant, robust to various specifications, and similar for men and women.

The findings suggest that providing legal work authorization to undocumented immigrants has meaningful positive effects on their labor market outcomes. By removing barriers to formal employment, DACA enabled eligible individuals to increase their work hours and access better job opportunities.

These results have implications for ongoing policy debates about immigration reform. They suggest that policies providing legal work status to undocumented immigrants can improve their economic outcomes and integration into the formal labor market. However, the analysis also highlights the importance of carefully designed empirical strategies to identify causal effects in this policy context.

Future research could examine longer-term effects of DACA on career trajectories, wage growth, and economic mobility. Understanding the mechanisms through which DACA affects employment—whether through job search, employer discrimination, or human capital investments—would also be valuable for designing effective immigration policies.

A Additional Tables and Figures

Table 7: Full Regression Results: Model 3 (Preferred Specification)

Variable	Coefficient	Std. Error	95% CI	p-value
Intercept	1.0435	0.1315	[0.786, 1.301]	0.000
Treated	−0.0508	0.0090	[−0.069, −0.033]	0.000
Post	−0.0240	0.0141	[−0.052, 0.004]	0.089
Treated × Post	0.0656	0.0148	[0.037, 0.095]	0.000
Female	−0.3744	0.0052	[−0.385, −0.364]	0.000
Married	−0.0046	0.0050	[−0.014, 0.005]	0.361
HS Graduate	0.0451	0.0056	[0.034, 0.056]	0.000
Some College	0.0766	0.0073	[0.062, 0.091]	0.000
College+	0.1253	0.0156	[0.095, 0.156]	0.000
Age	−0.0167	0.0092	[−0.035, 0.001]	0.070
Age^2	0.0003	0.0002	[0.000, 0.001]	0.082
Observations		44,725		
R^2		0.153		

B Variable Definitions

Table 8: IPUMS Variable Definitions

Variable	IPUMS Name	Definition
Year	YEAR	Census/survey year
Person weight	PERWT	Person-level sampling weight
Birth year	BIRTHYR	Year of birth
Hispanic origin	HISPAN	Hispanic origin (1 = Mexican)
Birthplace	BPL	Place of birth (200 = Mexico)
Citizenship	CITIZEN	Citizenship status (3 = Not a citizen)
Year of immigration	YRIMMIG	Year of immigration to U.S.
Hours worked	UHRSWORK	Usual hours worked per week
Employment status	EMPSTAT	Employment status (1 = Employed)
Sex	SEX	Sex (1 = Male, 2 = Female)
Marital status	MARST	Marital status (1 = Married, spouse present)
Education	EDUCD	Educational attainment (detailed)
Age	AGE	Age at survey
State	STATEFIP	State FIPS code