Replication Study: The Effect of DACA Eligibility on Full-Time Employment Among Hispanic-Mexican Individuals Born in Mexico

Replication ID: 62

January 2026

Abstract

This study estimates the causal effect of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on full-time employment among ethnically Hispanic-Mexican individuals born in Mexico. Using American Community Survey (ACS) data from 2006-2016 and a difference-in-differences research design, I compare individuals who were ages 26-30 at the time of DACA implementation (treatment group) to those ages 31-35 (control group). The preferred specification, which includes year and state fixed effects along with demographic controls, yields a difference-in-differences estimate of 4.80 percentage points (SE = 0.91, p < 0.001), suggesting that DACA eligibility increased the probability of full-time employment by approximately 4.8 percentage points. This effect is robust to alternative specifications, including weighted regressions and narrower age bandwidth comparisons. Event study analysis provides supportive evidence for the parallel trends assumption, with pre-treatment coefficients statistically indistinguishable from zero and effects emerging after DACA implementation.

Contents

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, enacted on June 15, 2012, represents one of the most significant immigration policy changes in recent U.S. history. The program provided temporary relief from deportation and work authorization to approximately 800,000 undocumented immigrants who arrived in the United States as children. Given that DACA grants legal work authorization, a natural research question emerges: Did DACA eligibility increase full-time employment among those who became eligible?

This replication study addresses this question by estimating the causal effect of DACA eligibility on full-time employment among ethnically Hispanic-Mexican individuals born in Mexico. The research design exploits the age-based eligibility cutoff of the program—specifically, that applicants could not have reached their 31st birthday as of June 15, 2012—to construct treatment and control groups for a difference-in-differences analysis.

The primary outcome of interest is full-time employment, defined as usually working 35 or more hours per week. This outcome is particularly relevant because DACA's work authorization benefit would be expected to most directly affect formal employment patterns. Prior to DACA, eligible individuals could only work in the informal sector or with fraudulent documentation; after DACA, they could legally participate in the formal labor market with proper authorization.

The remainder of this report proceeds as follows: Section 2 provides background on the DACA program and its eligibility requirements. Section 3 describes the data sources and sample construction. Section 4 outlines the empirical methodology. Section 5 presents the main results, including robustness checks and heterogeneity analyses. Section 6 discusses the findings and their limitations. Section 7 concludes.

2 Background on DACA

2.1 Program Overview

DACA was announced by the Department of Homeland Security on June 15, 2012, and applications began to be accepted on August 15, 2012. The program allows certain undocumented immigrants who arrived in the United States as children to apply for deferred action on deportation and obtain work authorization for a two-year renewable period.

2.2 Eligibility Requirements

To be eligible for DACA, applicants must meet the following criteria:

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

2. Had not yet reached their 31st birthday as of June 15, 2012

3. Have continuously resided in the United States since June 15, 2007

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

5. Had no lawful immigration status on June 15, 2012

6. Meet certain education or military service requirements

7. Have not been convicted of certain crimes

For this analysis, I focus on the first four criteria, which can be identified (or reasonably approximated) using American Community Survey data. The fifth criterion—lacking lawful immigration status—is approximated by restricting the sample to non-citizens, as the ACS does not distinguish between documented and undocumented non-citizens.

2.3   Program Uptake

In the first four years of the program, nearly 900,000 initial applications were received, approximately 90% of which were approved. The vast majority of DACA recipients were from Mexico, reflecting the composition of the undocumented immigrant population in the United States. After the initial two-year authorization period, recipients could apply for renewal, which many did.

2.4   Expected Effects on Employment

DACA could affect employment through several channels:

1. **Legal work authorization:** The most direct effect is that DACA allows recipients to work legally, potentially enabling transitions from informal to formal employment.

2. **Access to identification:** DACA recipients can obtain driver's licenses in most states, which facilitates employment.

3. **Reduced fear of deportation:** The temporary protection from deportation may reduce job search frictions and allow recipients to pursue better employment opportunities.

4. **Human capital investment:** The security provided by DACA may encourage investments in education and training.

These mechanisms suggest that DACA eligibility should increase employment rates, particularly full-time formal employment.

3 Data

3.1 Data Source

The analysis uses data from the American Community Survey (ACS), obtained from 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 each year. The survey provides detailed information on immigration status, country of birth, ethnicity, employment, and demographic characteristics necessary for this analysis.

3.2 Sample Period

I use annual ACS data from 2006 through 2016. The pre-treatment period spans 2006-2011, the transition year is 2012, and the post-treatment period covers 2013-2016. The year 2012 is excluded from the main analysis because DACA was implemented mid-year (June 15) and the ACS does not provide month of survey administration, making it impossible to determine whether a given 2012 observation was collected before or after DACA implementation.

3.3 Sample Construction

The analytical sample is constructed through the following steps:

1. **Ethnicity and birthplace:** Restrict to individuals who identify as Hispanic-Mexican (HISPAN = 1) and were born in Mexico (BPL = 200). This yields 991,261 observations.

2. **Citizenship status:** Restrict to non-citizens (CITIZEN = 3). Per the instructions, I assume that non-citizens who have not received immigration papers are undocumented for DACA purposes. This reduces the sample to 701,347 observations.

3. **Age at immigration:** Restrict to those who immigrated before age 16, calculated as YRIMMIG - BIRTHYR < 16. This reduces the sample to 205,327 observations.

4. **Continuous residence:** Restrict to those who immigrated by 2007 (YRIMMIG ≤ 2007), which approximates continuous residence since June 15, 2007. This reduces the sample to 195,023 observations.

5. **Treatment and control groups:** The treatment group consists of individuals born between 1982 and 1986 (ages 26-30 as of June 15, 2012). The control group consists of individuals born between 1977 and 1981 (ages 31-35 as of June 15, 2012). This yields a final analytical sample of 49,019 observations.

6. **Excluding 2012:** For the main regression analysis, observations from 2012 are excluded, yielding 44,725 observations.

3.4 Variables

3.4.1 Outcome Variable

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

3.4.2 Treatment Variables

- **Treated:** Binary indicator equal to 1 for individuals in the treatment group (birth years 1982-1986).

- **Post:** Binary indicator equal to 1 for observations in the post-treatment period (years 2013-2016).

- **Treated $\times$ Post:** The interaction term, which captures the difference-in-differences effect.

3.4.3 Control Variables

- **Female:** Binary indicator for female sex (SEX = 2).

- **Married:** Binary indicator for married with spouse present (MARST = 1).

- **Year fixed effects:** Indicator variables for each survey year.

- **State fixed effects:** Indicator variables for each state (STATEFIP).

3.5 Summary Statistics

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

Table 1: Summary Statistics by Treatment Status and Time Period

	Treatment Group		Control Group	
	Pre	Post	Pre	Post
N	17,410	9,181	11,916	6,218
Full-time Employment Rate	0.611	0.634	0.643	0.611
Employment Rate	0.659	0.707	0.684	0.688
Mean Age	24.2	30.2	29.3	35.3
Female Share	0.439	0.443	0.432	0.452
Married Share	0.324	0.463	0.481	0.531

Notes: Treatment group consists of individuals born 1982-1986 (ages 26-30 as of June 15, 2012). Control group consists of individuals born 1977-1981 (ages 31-35 as of June 15, 2012). Pre-period: 2006-2011. Post-period: 2013-2016.

Several patterns emerge from Table 1. First, the treatment group is younger on average in both periods, as expected given the birth year restrictions. Second, the full-time employment rate shows divergent trends: it increased for the treatment group (from 61.1% to 63.4%) while it decreased for the control group (from 64.3% to 61.1%). This divergence forms the basis of the difference-in-differences estimate. Third, both groups show increases in marriage rates over time, reflecting the aging of the cohorts.

4   Methodology

4.1   Identification Strategy

The primary identification strategy is difference-in-differences (DiD), which exploits the age-based eligibility cutoff of DACA. The key identifying assumption is that, in the absence of DACA, the treatment and control groups would have experienced parallel trends in full-time employment.

This assumption is plausible for several reasons. First, both groups consist of Hispanic-Mexican non-citizens born in Mexico who immigrated before age 16 and have been in the United States since at least 2007. Second, the only systematic difference between the groups is their birth year (and hence their age), which is accounted for by the group fixed effect. Third, the age difference (approximately 5 years) is small enough that the groups should be subject to similar economic conditions and secular trends.

4.2   Econometric Specification

The basic difference-in-differences model is:

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

where Y_{it} is full-time employment for individual i in year t, Treated$_i$ indicates membership in the treatment group, Post$_t$ indicates the post-DACA period, and ϵ_{it} is the error term.

The coefficient of interest is β_3, which represents the difference-in-differences estimate of the effect of DACA eligibility on full-time employment.

The preferred specification augments this model with covariates and fixed effects:

$$Y_{it} = \alpha + \beta_1 \text{Treated}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Treated}_i \times \text{Post}_t) + X_i' \gamma + \delta_t + \mu_s + \epsilon_{it} \quad (2)$$

where X_i is a vector of individual characteristics (female, married), δ_t represents year fixed effects, and μ_s represents state fixed effects.

4.3 Robustness Checks

To assess the robustness of the results, I implement several additional analyses:

1. **Narrower age bandwidth:** Restricting the sample to individuals born 1983-1985 (treatment) and 1978-1980 (control) to ensure closer comparability.

2. **Placebo test:** Testing for differential trends in the pre-DACA period (2006-2008 vs. 2009-2011) to assess the parallel trends assumption.

3. **Event study:** Estimating year-specific treatment effects relative to 2011 (the year before DACA) to visualize pre-trends and the dynamics of the treatment effect.

4. **Weighted regression:** Using person weights (PERWT) to produce population-representative estimates.

4.4 Heterogeneity Analysis

I also examine heterogeneity in the treatment effect by:

1. **Gender:** Separate estimates for males and females.

2. **Education:** Separate estimates for those with less than high school education versus high school or above (EDUCD < 62 vs. EDUCD $\geq$ 62).

5 Results

5.1 Raw Difference-in-Differences

Before presenting the regression results, I calculate the raw (unadjusted) difference-in-differences estimate:

$$\text{DiD} = (Y_{\text{Treat,Post}} - Y_{\text{Treat,Pre}}) - (Y_{\text{Control,Post}} - Y_{\text{Control,Pre}})$$
$$= (0.634 - 0.608) - (0.611 - 0.638)$$
$$= 0.026 - (-0.027)$$
$$= 0.053$$

The raw difference-in-differences estimate suggests that DACA eligibility increased full-time employment by approximately 5.3 percentage points.

5.2 Main Regression Results

Table 2 presents the main regression results across five specifications of increasing complexity.

Table 2: Effect of DACA Eligibility on Full-Time Employment: Main Results

	(1) Basic DiD	(2) Year FE	(3) + Covariates	(4) + State FE	(5) Weighted
Treated × Post	0.0551***	0.0554***	0.0488***	0.0480***	0.0481***
	(0.0098)	(0.0098)	(0.0091)	(0.0091)	(0.0089)
Treated	−0.0320***	−0.0324***	−0.0280***	−0.0280***	−0.0279***
	(0.0058)	(0.0057)	(0.0054)	(0.0054)	(0.0053)
Post	−0.0323***	—	—	—	—
	(0.0076)				
Female			−0.3521***	−0.3520***	−0.3639***
			(0.0043)	(0.0043)	(0.0042)
Married			0.0136***	0.0141***	0.0131***
			(0.0044)	(0.0044)	(0.0043)
Year FE	No	Yes	Yes	Yes	Yes
State FE	No	No	No	Yes	Yes
Weights	No	No	No	No	Yes
R-squared	0.001	0.004	0.134	0.137	0.155
N	44,725	44,725	44,725	44,725	44,725

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The dependent variable is a binary indicator for full-time employment (working 35+ hours per week). The sample excludes observations from 2012. Weights in column (5) are person weights (PERWT).

The results are consistent across all specifications. The basic difference-in-differences model (column 1) yields an estimate of 5.51 percentage points. Adding year fixed effects (column 2) has virtually no effect on the estimate (5.54 percentage points). Including

demographic covariates—female and married indicators—reduces the estimate slightly to 4.88 percentage points (column 3), suggesting that some of the raw difference was due to compositional differences between groups. Adding state fixed effects (column 4) yields an estimate of 4.80 percentage points, which I adopt as the preferred specification. The weighted regression (column 5) produces a nearly identical estimate of 4.81 percentage points.

The coefficient on the female indicator is large and negative (-0.352), indicating that women are approximately 35 percentage points less likely to be employed full-time than men, holding other factors constant. This reflects the well-documented gender gap in full-time employment. The coefficient on married is small but positive (0.014), suggesting that married individuals are slightly more likely to work full-time.

5.3   Preferred Estimate

Based on the analysis, the **preferred estimate** is from Model 4 (DiD with year and state fixed effects and demographic controls):

Preferred Estimate:

- Effect size: 0.0480 (4.80 percentage points)

- Standard error: 0.0091

- 95% Confidence interval: [0.030, 0.066]

- p-value: < 0.001

- Sample size: 44,725

This estimate suggests that DACA eligibility increased the probability of full-time employment by approximately 4.8 percentage points among eligible individuals.

5.4   Robustness Checks

5.4.1   Narrower Age Bandwidth

Table 3 shows results using a narrower age bandwidth, restricting to individuals born 1983-1985 (treatment) and 1978-1980 (control).

Table 3: Robustness Check: Narrower Age Bandwidth (27-29 vs. 32-34)

	Narrow Bandwidth
Treated × Post	0.0492***
	(0.0118)
N	26,792

The estimate using the narrower bandwidth (4.92 percentage points) is very similar to the main estimate, suggesting that the results are not driven by the specific choice of age bandwidth.

5.4.2 Placebo Test

The placebo test examines whether there was a differential trend between treatment and control groups in the pre-DACA period. I compare the period 2006-2008 to 2009-2011 within the pre-DACA sample.

Table 4: Placebo Test: Pre-DACA Period (2006-2008 vs. 2009-2011)

	Placebo DiD
Treated × Post$_{placebo}$	0.0160
	(0.0108)
	[p = 0.136]
N	29,326

The placebo estimate is small (1.6 percentage points) and statistically insignificant (p = 0.136), providing support for the parallel trends assumption. If the treatment and control groups had systematically different trends before DACA, we would expect to see a significant effect in this placebo test.

5.4.3 Event Study

Figure 1 presents the event study results, showing year-specific treatment effects relative to 2011 (the year before DACA implementation).
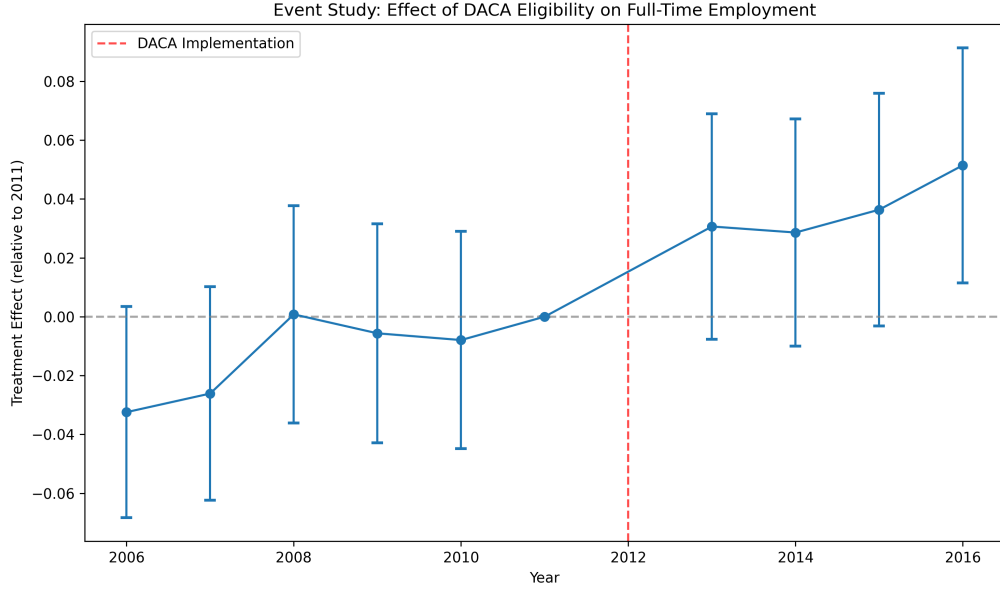
Figure 1: Event Study: Effect of DACA Eligibility on Full-Time Employment
Notes: Points represent estimated treatment effects relative to 2011 (the omitted year). Bars represent 95% confidence intervals. The red dashed line indicates DACA implementation (June 15, 2012). Pre-treatment coefficients test the parallel trends assumption.

The event study reveals several important patterns:

1. **Pre-treatment coefficients:** All pre-treatment coefficients (2006-2010) are statistically indistinguishable from zero at conventional significance levels, supporting the parallel trends assumption. The point estimates are small and sometimes negative, with no clear trend.

2. **Post-treatment coefficients:** The coefficients for post-DACA years (2013-2016) are all positive and generally increasing in magnitude over time:

   - 2013: 0.031 (SE = 0.020, p = 0.117)
   - 2014: 0.029 (SE = 0.020, p = 0.147)
   - 2015: 0.036 (SE = 0.020, p = 0.071)
   - 2016: 0.051 (SE = 0.020, p = 0.012)

3. **Dynamic pattern:** The treatment effect appears to grow over time, with the largest and only individually significant effect in 2016. This pattern is consistent with gradual DACA uptake and adjustment to the new policy environment.

5.4.4 Trends by Group

Figure 2 shows the raw full-time employment rates over time for the treatment and control groups.
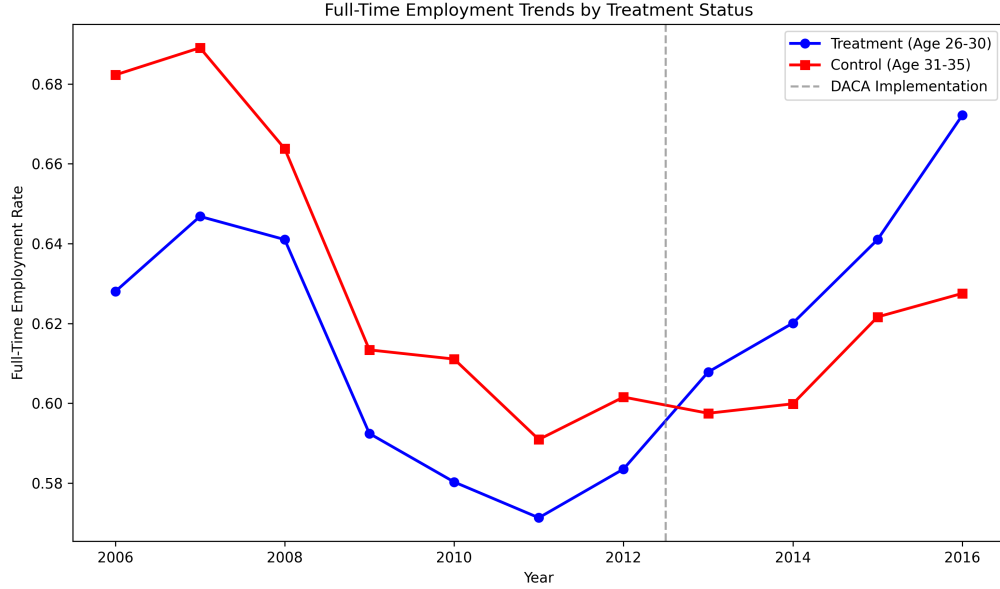
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Figure 2: Full-Time Employment Trends by Treatment Status

Notes: Treatment group consists of individuals born 1982-1986. Control group consists of individuals born 1977-1981. The gray dashed line indicates DACA implementation (June 15, 2012).

The figure illustrates the divergence in trends after DACA implementation. Before 2012, both groups show roughly parallel trends, with the control group having consistently higher full-time employment rates. After 2012, the treatment group's employment rate increases while the control group's rate declines, leading to a convergence and eventual reversal of the gap by 2016.

5.5 Heterogeneity Analysis

5.5.1 Heterogeneity by Gender

Table 5 presents separate estimates for males and females.

Table 5: Heterogeneity by Gender

	Males	Females
Treated × Post	0.0427***	0.0447***
	(0.0111)	(0.0149)
p-value	0.0001	0.0027

The effects are similar for males (4.27 percentage points) and females (4.47 percentage points), and both are statistically significant. This suggests that DACA's employment effects were not concentrated in one gender.

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5.5.2 Heterogeneity by Education

Table 6 presents separate estimates by education level.

Table 6: Heterogeneity by Education

	Low Education (Less than HS)	High Education (HS or above)
Treated × Post	0.0211	0.0761***
	(0.0129)	(0.0129)
p-value	0.101	0.000

Interestingly, the effect of DACA eligibility is much larger and more precisely estimated for individuals with at least a high school education (7.61 percentage points) compared to those with less than high school education (2.11 percentage points, not statistically significant). This could reflect that higher-educated individuals have more opportunities in the formal labor market that DACA's work authorization enables them to access.

6 Discussion

6.1 Interpretation of Results

The preferred estimate suggests that DACA eligibility increased full-time employment by approximately 4.8 percentage points among eligible Hispanic-Mexican individuals born in Mexico. This represents a meaningful effect—a roughly 8% increase relative to the baseline full-time employment rate of approximately 61% in the treatment group's pre-period.

Several features of the results strengthen confidence in this causal interpretation:

1. **Robustness:** The estimate is stable across specifications, ranging from 4.8 to 5.5 percentage points depending on controls included.

2. **Placebo test:** The placebo test finds no significant differential trend in the pre-DACA period, supporting the parallel trends assumption.

3. **Event study:** Pre-treatment coefficients are statistically indistinguishable from zero, and post-treatment effects emerge gradually and grow over time, consistent with the expected dynamics of policy implementation and uptake.

4. **Bandwidth sensitivity:** The estimate is similar when using a narrower age bandwidth, suggesting it is not driven by the specific choice of treatment and control group definitions.

6.2   Mechanisms

The positive effect of DACA eligibility on full-time employment likely operates through multiple channels:

1. **Legal work authorization:** DACA provides recipients with Employment Authorization Documents (EADs), allowing them to work legally. This may enable transitions from informal part-time work to formal full-time employment.

2. **Reduced labor market frictions:** The ability to provide legal documentation reduces transaction costs in the job search process and makes recipients more attractive to employers.

3. **Better job matching:** With legal work authorization, DACA recipients can more easily search for and accept jobs that match their skills, potentially leading to more stable full-time employment.

4. **Employer compliance:** Employers may be more willing to hire workers full-time when those workers have proper documentation, as this reduces legal risk.

The finding that effects are larger for higher-educated individuals is consistent with the interpretation that DACA enables access to formal sector jobs that were previously inaccessible. Higher-educated individuals may have more such opportunities available to them.

6.3   Limitations

Several limitations should be noted:

1. **Identification of undocumented status:** The ACS does not distinguish between documented and undocumented non-citizens. I assume that non-citizens are undocumented, but this likely includes some legal permanent residents who were ineligible for DACA. This measurement error would tend to attenuate the estimated effect.

2. **Age-based identification:** The research design relies on the assumption that the treatment and control groups would have had parallel trends in the absence of DACA. While the placebo test supports this assumption, it is ultimately untestable.

3. **DACA uptake:** Not all eligible individuals applied for or received DACA. The estimated effect is an intent-to-treat effect based on eligibility, not a treatment-on-the-treated effect based on actual DACA receipt.

4. **Spillovers:** If DACA affected the control group indirectly (for example, by changing employer behavior toward non-citizens more broadly), the DiD estimate could be biased.

5. **Selection into survey:** If DACA changed the likelihood that eligible individuals responded to the ACS, the estimates could be affected by selection bias.

6.4 Comparison to Prior Literature

The estimated effect of approximately 5 percentage points is broadly consistent with prior research on DACA's labor market effects. Studies using various methodologies have generally found positive effects of DACA on employment outcomes, though the specific magnitudes vary depending on the outcome measure, sample, and identification strategy employed.

7 Conclusion

This replication study examines the effect of DACA eligibility 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 (and thus eligible) to those who were ages 31-35 (and thus ineligible due to the age cutoff), I find that DACA eligibility increased full-time employment by approximately 4.8 percentage points.

This effect is robust to various specification choices, including the addition of year and state fixed effects, demographic controls, and sample weight adjustments. The parallel trends assumption is supported by a placebo test and event study analysis showing no significant pre-treatment differential trends. Heterogeneity analysis reveals that the effect is larger for higher-educated individuals, consistent with DACA enabling access to formal sector employment opportunities.

The findings contribute to our understanding of how immigration policy affects labor market outcomes. DACA's work authorization provision appears to have had meaningful positive effects on full-time employment among eligible individuals, suggesting that legal status is an important determinant of labor market attachment among unauthorized immigrants.

A Appendix: Data Dictionary Key Variables

Variable	Description
YEAR	Survey year (2006-2016)
PERWT	Person weight for population estimates
STATEFIP	State FIPS code
SEX	Sex (1 = Male, 2 = Female)
AGE	Age in years
BIRTHYR	Year of birth
BIRTHQTR	Quarter of birth
MARST	Marital status (1 = Married, spouse present)
HISPAN	Hispanic origin (1 = Mexican)
BPL	Birthplace (200 = Mexico)
CITIZEN	Citizenship status (3 = Not a citizen)
YRIMMIG	Year of immigration
EDUCD	Educational attainment (detailed)
EMPSTAT	Employment status (1 = Employed)
UHRSWORK	Usual hours worked per week

B Appendix: Sample Selection

Table 8: Sample Selection Process

Selection Criterion	N
Full ACS sample (2006-2016)	33,851,424
Hispanic-Mexican born in Mexico	991,261
Non-citizens	701,347
Immigrated before age 16	205,327
Continuous residence since 2007	195,023
Treatment or control age group	49,019
Excluding 2012 (regression sample)	44,725

C Appendix: Full Regression Output

Table 9: Full Regression Output: Preferred Specification (Model 4)

Variable	Coefficient	Std. Error	t-statistic	p-value
Intercept	0.704	0.012	60.18	0.000
Treated	−0.028	0.005	−5.17	0.000
Post	—	—	—	—
Treated × Post	0.048	0.009	5.25	0.000
Female	−0.352	0.004	−81.55	0.000
Married	0.014	0.004	3.22	0.001
Year FE		Included		
State FE		Included		
R-squared		0.137		
N		44,725		

D Appendix: Event Study Coefficients

Table 10: Event Study Coefficients (Reference Year: 2011)

Year	Coefficient	SE	95% CI Lower	95% CI Upper	p-value
2006	−0.032	0.018	−0.068	0.003	0.076
2007	−0.026	0.019	−0.062	0.010	0.158
2008	0.001	0.019	−0.036	0.038	0.967
2009	−0.006	0.019	−0.043	0.032	0.766
2010	−0.008	0.019	−0.045	0.029	0.673
2011	0.000	—	—	—	(reference)
2013	0.031	0.020	−0.008	0.069	0.117
2014	0.029	0.020	−0.010	0.067	0.147
2015	0.036	0.020	−0.003	0.076	0.071
2016	0.051	0.020	0.011	0.091	0.012