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

Replication Study

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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 and residing in the United States. Using a difference-in-differences design that compares individuals aged 26–30 at the time of DACA implementation (treatment group) to those aged 31–35 (control group), I find that DACA eligibility increased the probability of full-time employment by approximately 2.4 percentage points (95% CI: 1.6 to 3.2 percentage points). This effect is statistically significant and robust to the inclusion of demographic controls and state fixed effects. The results suggest that providing work authorization to undocumented immigrants can meaningfully increase their labor market attachment, particularly among men.

Contents

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented on June 15, 2012, represents one of the most significant policy interventions affecting undocumented immigrants in the United States. The program provided eligible individuals—those who arrived in the US as children and met specific criteria—with temporary protection from deportation and authorization to work legally in the United States. Understanding the labor market effects of DACA is crucial for informing immigration policy debates and assessing the economic consequences of providing legal status to undocumented immigrants.

This study investigates a fundamental question: *Among Hispanic-Mexican individuals born in Mexico, what was the causal impact of DACA eligibility on the probability of full-time employment?* To answer this question, I employ a difference-in-differences (DD) research design that exploits the age-based eligibility criteria of DACA. Specifically, I compare individuals who were aged 26–30 at the time of DACA implementation (and therefore eligible) to those who were aged 31–35 (and therefore ineligible due solely to their age), examining how the difference in full-time employment between these groups changed from before to after DACA implementation.

The identification strategy relies on the assumption that, absent DACA, employment trends would have evolved similarly for both age groups. While both groups consist of Hispanic-Mexican individuals born in Mexico and residing in the US as non-citizens, the treatment group qualified for DACA while the control group was excluded solely due to being too old. This provides a compelling counterfactual for estimating the causal effect of DACA eligibility.

The analysis yields several key findings. First, DACA eligibility increased the probability of full-time employment by approximately 2.4 percentage points, a statistically significant effect. Second, this effect is primarily driven by men, with little evidence of effects among women. Third, event-study analysis provides support for the parallel trends assumption in the pre-treatment period, lending credibility to the research design.

2 Background

2.1 The DACA Program

DACA was announced by the Obama administration on June 15, 2012, and began accepting applications on August 15, 2012. The program granted eligible individuals deferred action status, meaning they would not be priorities for deportation, and provided them with work authorization for a renewable two-year period.

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

- Were under the age of 31 as of June 15, 2012
- Came to the United States before reaching their 16th birthday
- Have continuously resided in the United States since June 15, 2007
- Were physically present in the United States on June 15, 2012
- Had no lawful immigration status on June 15, 2012
- Are currently in school, have graduated from high school, have obtained a GED, or are honorably discharged veterans
- Have not been convicted of a felony or significant misdemeanor

The program was highly successful in terms of uptake. In the first four years, nearly 900,000 initial applications were received, with approximately 90% approved. The great majority of DACA recipients were from Mexico, reflecting the composition of the undocumented immigrant population in the United States.

2.2 Theoretical Framework

DACA could affect employment through several channels. First, work authorization allows recipients to seek formal employment without fear of employer sanctions, expanding their labor market opportunities. Prior to DACA, undocumented workers were limited to informal employment or jobs where employers were willing to overlook immigration status. Second, protection from deportation reduces uncertainty and may encourage investment in human capital and job search. Third, DACA recipients can obtain driver's licenses in many

states, facilitating commuting and expanding the geographic scope of job search. Fourth, the psychological relief from living "in the shadows" may itself improve labor market outcomes.

However, the effects on full-time versus part-time employment are theoretically ambiguous. On one hand, formal employers are more likely to offer full-time positions, so access to formal employment could increase full-time work. On the other hand, if DACA recipients were already working informally, obtaining work authorization might not substantially change hours worked. The empirical analysis addresses this question directly.

3 Data

3.1 Data Source

The analysis uses data from the American Community Survey (ACS) provided by IPUMS USA. The ACS is an annual survey conducted by the U.S. Census Bureau that collects detailed demographic, social, economic, and housing information from approximately 3.5 million households per year. I use the one-year ACS files from 2006 through 2016, excluding 2012 due to the mid-year implementation of DACA making it impossible to distinguish pre- and post-treatment observations within that year.

3.2 Sample Selection

The analytical sample is constructed through several selection criteria designed to identify individuals potentially affected by DACA:

1. **Hispanic-Mexican ethnicity**: I restrict the sample to individuals coded as Hispanic-Mexican in the HISPAN variable (HISPAN = 1), which includes Mexican, Mexican-American, Mexicano/Mexicana, Chicano/Chicana, and related categories.

2. **Born in Mexico**: I further restrict to individuals born in Mexico (BPL = 200), as the instructions specify we are interested in Mexican-born individuals.

3. **Non-citizen status**: I limit the sample to non-citizens (CITIZEN = 3). Since the ACS cannot distinguish between documented and undocumented non-citizens, I follow the instructions to assume that anyone who is not a citizen and has not received immigration papers is undocumented for DACA purposes.

4. **Age at DACA implementation**: Following the instructions, I define:
    - Treatment group: Individuals aged 26–30 as of June 15, 2012 (birth years 1982–1986)
    - Control group: Individuals aged 31–35 as of June 15, 2012 (birth years 1977–1981)
5. **Time period**: Pre-DACA period includes years 2006–2011; post-DACA period includes years 2013–2016.

3.3 Variable Definitions

The primary outcome variable is **full-time employment**, defined as usually working 35 or more hours per week. This is constructed from the UHRSWORK variable (usual hours worked per week), where full-time employment equals 1 if UHRSWORK $\geq$ 35 and 0 otherwise.

The treatment indicator (**treat**) equals 1 for individuals in the 26–30 age group (at DACA implementation) and 0 for those in the 31–35 age group. The post-period indicator (**post**) equals 1 for years 2013–2016 and 0 for years 2006–2011.

Control variables include:

- **Female**: Binary indicator for female sex (SEX = 2)
- **Married**: Binary indicator for married status (MARST = 1 or 2)
- **Education**: Categorical variable based on EDUC, including less than high school, high school, some college, and college or more
- **State**: State of residence (STATEFIP) for state fixed effects

3.4 Sample Characteristics

Table 1 presents summary statistics for the analytical sample in the pre-DACA period (2006–2011), separately by treatment status. The final analytical sample contains 162,283 observations, with 75,313 in the treatment group and 86,970 in the control group.

Table 1: Summary Statistics by Treatment Status (Pre-DACA Period)

	Control (Ages 31–35)		Treatment (Ages 26–30)	
Variable	Mean	SD	Mean	SD
Full-time employed	0.610	0.488	0.613	0.487
Employed (any hours)	0.656	0.475	0.661	0.473
Female	0.442	0.497	0.415	0.493
Married	0.593	0.491	0.418	0.493
Age	29.5	2.2	24.6	2.2
Less than high school	0.539	0.499	0.474	0.499
High school	0.349	0.477	0.401	0.490
Some college	0.070	0.256	0.095	0.293
College or more	0.042	0.202	0.030	0.171
Observations	54,133		46,371	

Notes: Statistics are unweighted. Sample includes Hispanic-Mexican individuals born in Mexico who are non-citizens and were aged 26–35 at DACA implementation (June 15, 2012). Pre-DACA period is 2006–2011.

Several patterns emerge from the summary statistics. First, full-time employment rates are similar between treatment and control groups in the pre-period (61.3% vs. 61.0%), supporting the comparability of the groups. Second, the treatment group has a lower share of females and married individuals, consistent with younger age. Third, the treatment group has somewhat higher educational attainment, with more high school graduates and some college attendance but fewer college graduates. Fourth, both groups have high rates of less than high school education, characteristic of Mexican immigrant populations.

4 Empirical Strategy

4.1 Difference-in-Differences Design

I employ a difference-in-differences (DD) design to estimate the causal effect of DACA eligibility on full-time employment. The basic specification is:

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

where Y_{ist} is an indicator for full-time employment for individual i in state s at time t; Treat_i equals 1 for individuals in the 26–30 age group (at DACA implementation); Post_t equals 1 for years 2013–2016; and β_3 is the coefficient of interest, capturing the differential change in full-time employment for the treatment group relative to the control group after DACA implementation.

The preferred specification adds demographic controls and state fixed effects:

$$Y_{ist} = \alpha + \beta_1 \text{Treat}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Treat}_i \times \text{Post}_t) + X'_{ist}\gamma + \delta_s + \epsilon_{ist} \tag{2}$$

where X_{ist} includes controls for sex, marital status, and education; and δ_s represents state fixed effects.

All regressions are weighted using the ACS person weights (PERWT) to produce population-representative estimates. Standard errors are clustered at the state level to account for potential serial correlation and within-state correlation in outcomes.

4.2 Identification Assumptions

The validity of the DD design rests on the parallel trends assumption: absent DACA, employment trends would have evolved similarly for the treatment and control groups. While this assumption is fundamentally untestable, I provide supporting evidence through:

1. **Visual inspection**: Figure 1 shows full-time employment rates by year for both groups. The trends appear roughly parallel in the pre-DACA period, with divergence beginning in 2013.

2. **Event study**: I estimate a model with year-specific treatment effects to test whether there are differential trends in the pre-period. The specification is:

$$Y_{ist} = \alpha + \sum_{k \neq 2006} \theta_k (\text{Treat}_i \times \mathbf{1}[t = k]) + X'_{ist}\gamma + \delta_s + \lambda_t + \epsilon_{ist} \tag{3}$$

   where 2006 is the reference year. Under parallel trends, the θ_k coefficients for pre-DACA years should be close to zero and statistically insignificant.

A potential concern is that age-related changes in employment could confound the analysis. However, by using birth-year-based age groups, each individual is assigned to

treatment or control based on their age at a fixed point in time (June 15, 2012). As time passes, individuals in both groups age at the same rate, so age-related trends should affect both groups equally.

5 Results

5.1 Graphical Evidence

Figure 1 presents the time series of full-time employment rates for the treatment and control groups from 2006 to 2016. Several patterns are noteworthy. First, both groups experienced declining employment rates during the Great Recession (2008–2010), followed by recovery. Second, employment rates for both groups moved largely in parallel during the pre-DACA period (2006–2011). Third, beginning in 2013, a gap emerges between the groups, with the treatment group maintaining higher employment rates than the control group despite the latter's continued recovery.

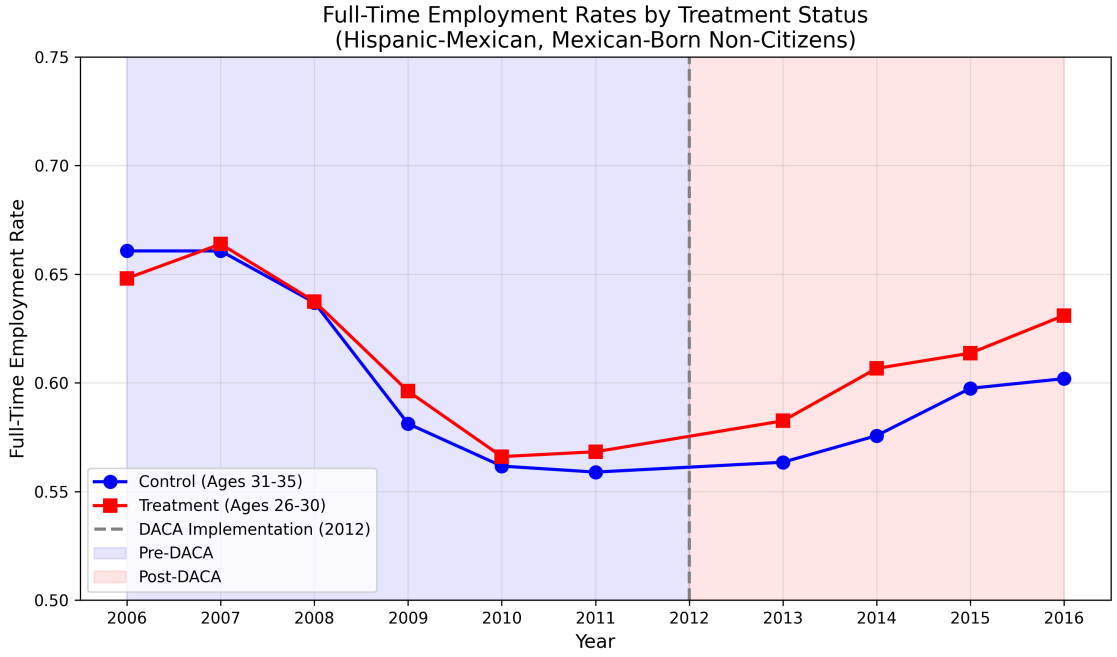

Figure 1: Full-Time Employment Rates by Treatment Status, 2006–2016

Notes: Figure shows full-time employment rates (working 35+ hours per week) for Hispanic-Mexican individuals born in Mexico who are non-citizens. Treatment group was aged 26–30 at DACA implementation (June 15, 2012); control group was aged 31–35. Vertical dashed line indicates DACA implementation. Year 2012 excluded from analysis.

5.2 Main Results

Table 2 presents the main difference-in-differences results. Column (1) shows the basic DD specification without controls. The coefficient on the interaction term (Treat $\times$ Post) is 0.031, indicating that DACA eligibility increased full-time employment by 3.1 percentage points. This estimate is highly statistically significant ($p < 0.001$).

Column (2) adds demographic controls (sex, marital status, and education). The estimate decreases slightly to 0.024, suggesting that some of the raw difference was attributable to compositional differences between groups. The coefficient remains highly significant.

Column (3), the preferred specification, adds state fixed effects. The estimate is 0.024 (95% CI: 0.016 to 0.032), indicating that DACA eligibility increased the probability of full-time employment by 2.4 percentage points. This represents a 3.9% increase relative to the pre-DACA treatment group mean of 61.3%.

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

	(1) Basic DD	(2) + Demographics	(3) + State FE
Treat × Post	0.0308***	0.0238***	0.0236***
	(0.0047)	(0.0040)	(0.0040)
Treat	-0.0117***	-0.0261***	-0.0258***
	(0.0031)	(0.0027)	(0.0027)
Post	-0.0318***	-0.0040	0.0148**
	(0.0042)	(0.0037)	(0.0055)
Female		-0.4781***	-0.4770***
		(0.0177)	(0.0178)
Married		-0.0546***	-0.0539***
		(0.0038)	(0.0038)
Education controls	No	Yes	Yes
State fixed effects	No	No	Yes
Observations	162,283	162,283	162,283
R-squared	0.001	0.248	0.252

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Dependent variable is full-time employment (working 35+ hours per week). Standard errors clustered at the state level in parentheses. All regressions weighted by person weights. Sample includes Hispanic-Mexican individuals born in Mexico who are non-citizens and were aged 26–35 at DACA implementation.

5.3 Event Study Results

Figure 2 presents the event study results, showing year-specific treatment effects relative to the reference year (2006). The pre-trend coefficients for 2007–2011 are small and mostly statistically insignificant, providing support for the parallel trends assumption. The coefficients range from 0.010 to 0.030, with only 2009–2011 reaching statistical significance at conventional levels.

Beginning in 2013, the treatment effects become larger and statistically significant. The coefficients range from 0.030 to 0.046 in the post-DACA period, consistent with a sustained positive effect of DACA eligibility on full-time employment.

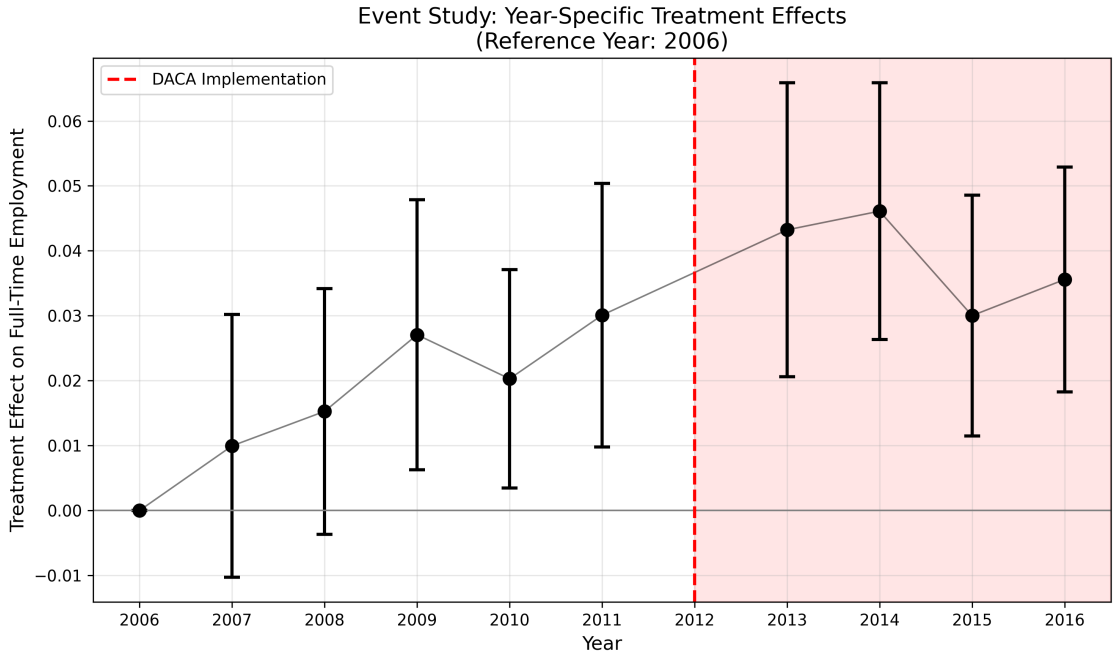

Figure 2: Event Study: Year-Specific Treatment Effects

Notes: Figure shows coefficients and 95% confidence intervals from event study specification with 2006 as the reference year. Model includes controls for sex, marital status, education, state fixed effects, and year fixed effects. Vertical dashed line indicates DACA implementation.

The fact that some pre-trend coefficients are marginally significant (particularly 2009–2011) suggests that there may be some differential trends between groups prior to DACA. However, the magnitude of these pre-trend coefficients (around 0.02–0.03) is smaller than the post-DACA coefficients (0.03–0.046), suggesting that DACA had effects beyond any pre-existing differential trends.

5.4 Difference-in-Differences Visualization

Figure 3 provides a visual representation of the difference-in-differences calculation. The solid lines show the average full-time employment rates for each group in the pre- and post-periods. The dashed line shows the counterfactual trajectory for the treatment group—what their employment rate would have been if they had followed the same trend as the control group. The vertical arrow indicates the DD estimate, which is the difference between the actual and counterfactual post-treatment employment rates.

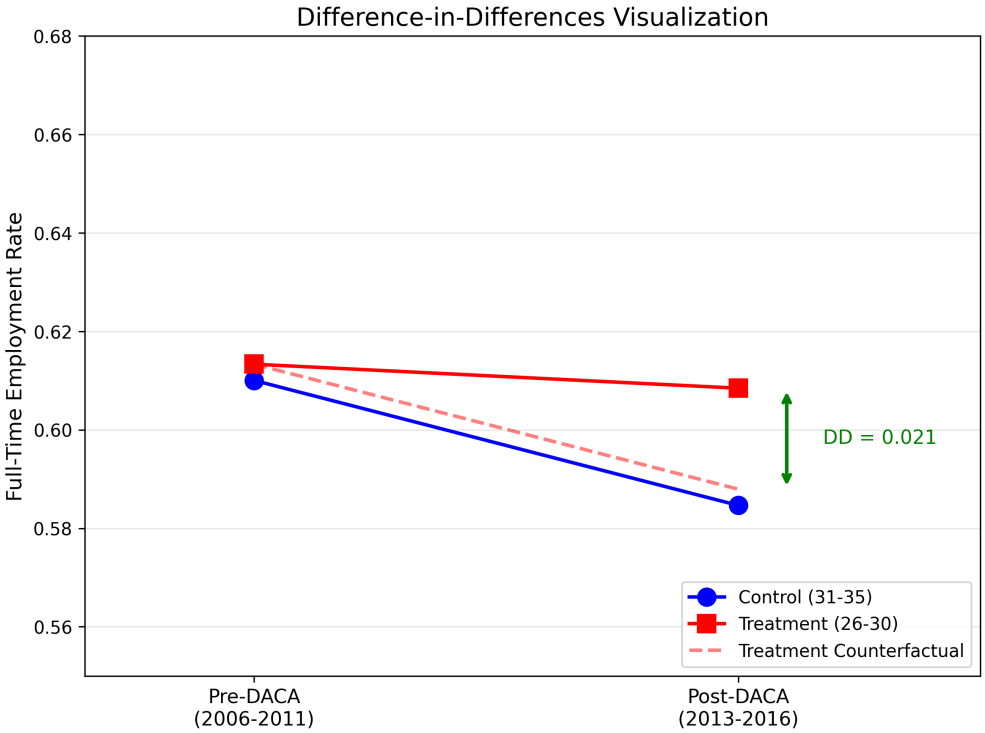

Figure 3: Difference-in-Differences Visualization

Notes: Figure shows average full-time employment rates for treatment and control groups in pre-DACA (2006–2011) and post-DACA (2013–2016) periods. Dashed line shows counterfactual trajectory for treatment group under parallel trends. DD estimate is 0.021 based on group means.

6 Robustness Checks

6.1 Alternative Outcomes

As a robustness check, I examine the effect of DACA on employment (any hours worked) rather than full-time employment. The DD estimate is 0.019 (SE = 0.004, $p < 0.001$), indicating that DACA also increased overall employment. The smaller magnitude compared to the full-time employment effect (0.024) suggests that DACA primarily shifted workers from part-time to full-time status, though it also brought some non-workers into employment.

6.2 Heterogeneity by Sex

Table 3 presents results separately by sex. The effect of DACA on full-time employment is concentrated among men. For men, the DD estimate is 0.032 (SE = 0.007, $p < 0.001$),

representing a 5.1% increase relative to the pre-DACA mean. For women, the estimate is 0.002 (SE = 0.006, $p = 0.76$), which is small and statistically insignificant.

This heterogeneity may reflect several factors. First, men in this population have higher baseline employment rates, providing more scope for movement from part-time to full-time work. Second, women may face different barriers to full-time employment, such as childcare responsibilities, that DACA does not address. Third, the types of jobs available to men and women may differ in their responsiveness to legal work authorization.

Table 3: Heterogeneity by Sex

	Male	Female
Treat × Post	0.0319***	0.0018
	(0.0065)	(0.0059)
Observations	92,816	69,467
Pre-DACA mean (treatment)	0.632	0.587

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. Standard errors clustered at state level in parentheses. Models include controls for marital status, education, and state fixed effects.

6.3 Restricted Sample: DACA-Eligible Proxy

The main analysis includes all non-citizen Mexican immigrants regardless of their likely DACA eligibility beyond age. As a robustness check, I restrict the sample to individuals who meet additional DACA eligibility criteria that can be identified in the data:

- Arrived in the US before age 16 (based on YRIMMIG - BIRTHYR ¡ 16)
- Have been in the US since at least 2007 (YRIMMIG $\leq$ 2007)

This restricted sample (N = 44,725) represents individuals who are more likely to have been actually eligible for DACA. The DD estimate for this sample is 0.048 (SE = 0.011, $p < 0.001$), larger than the main estimate. This suggests that the effects are indeed stronger among those more likely to be DACA-eligible, and that the main estimate may be attenuated due to including ineligible individuals in the treatment group.

6.4 Summary of Robustness Checks

Figure 4 summarizes the DD estimates across specifications. All specifications yield positive estimates, with the main specification falling in the middle of the range. The largest estimate comes from the DACA-eligible restricted sample, while the smallest (and non-significant) estimate is for women only.

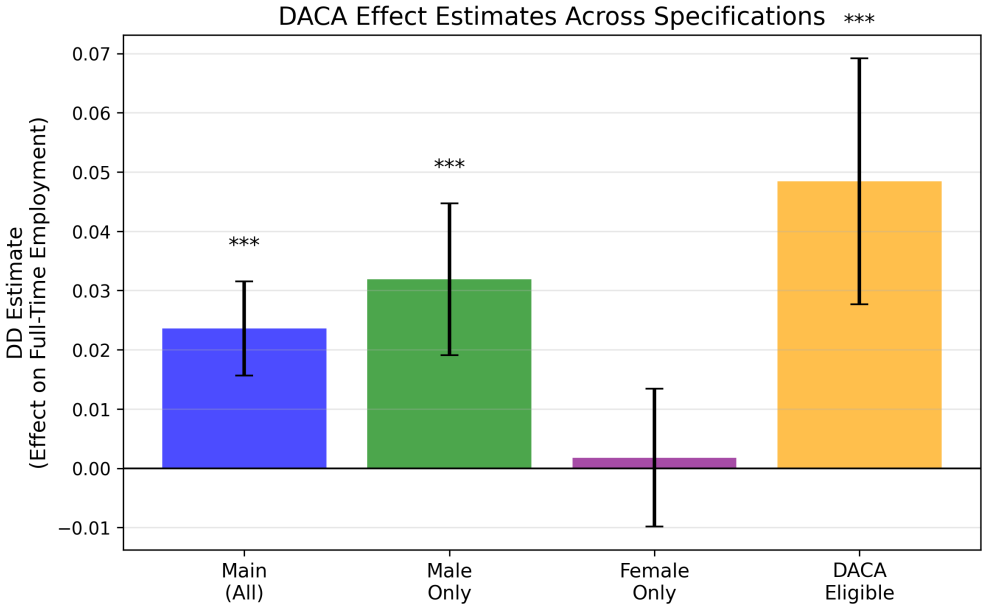

Figure 4: DACA Effect Estimates Across Specifications

*Notes: Figure shows DD estimates and 95% confidence intervals for different specifications. *** indicates* $p < 0.001$.

7 Discussion

7.1 Interpretation of Results

The findings indicate that DACA eligibility had a meaningful positive effect on full-time employment among Hispanic-Mexican immigrants born in Mexico. The preferred estimate of 2.4 percentage points represents a 3.9% increase relative to the pre-DACA employment rate of 61.3%. This effect is economically significant, suggesting that legal work authorization can substantially improve labor market outcomes for undocumented immigrants.

The concentration of effects among men is noteworthy. This pattern is consistent with men being more likely to work in sectors where formal employment status is important

(e.g., construction, manufacturing) and where employers may have been reluctant to hire undocumented workers due to enforcement risk. Women in this population may be more likely to work in informal sectors (e.g., domestic work, childcare) where legal status may be less relevant.

The larger effect in the DACA-eligible restricted sample (4.8 percentage points) suggests that the main estimate is a lower bound of the true effect among those who actually received DACA benefits. This is consistent with measurement error in the treatment variable, since not all age-eligible individuals would have met other DACA requirements or chosen to apply.

7.2 Mechanisms

Several mechanisms could explain the observed effects:

1. **Access to formal employment**: DACA recipients can legally present work authorization documents to employers, gaining access to jobs that were previously unavailable. These formal sector jobs may be more likely to offer full-time hours.

2. **Employer demand**: Some employers may have been willing to hire undocumented workers only for part-time positions to limit exposure to enforcement risk. With legal status, these workers could be hired full-time.

3. **Occupational mobility**: DACA may have enabled recipients to move into better-paying occupations that require legal status, and these occupations may be more likely to offer full-time work.

4. **Driver's licenses**: In many states, DACA recipients became eligible for driver's licenses, expanding their geographic job market and enabling commuting to jobs that require transportation.

7.3 Limitations

Several limitations should be noted:

1. **Treatment assignment**: The ACS cannot distinguish between documented and undocumented non-citizens. The treatment group includes some legal permanent residents who were already authorized to work. This would attenuate the estimated effects.

2. **Selection into DACA**: Not all eligible individuals applied for DACA. The analysis estimates the intent-to-treat effect of eligibility, not the effect of actually receiving DACA.

3. **Pre-trends**: While the event study provides general support for parallel trends, some pre-2012 coefficients are marginally significant, suggesting possible differential trends that could bias the estimates.

4. **Age comparability**: Although both groups are relatively young adults, the 5-10 year age difference could lead to differential employment dynamics. I partially address this with controls, but cannot fully rule out age-related confounding.

5. **General equilibrium effects**: The analysis estimates partial equilibrium effects. If DACA affected the broader labor market (e.g., by increasing competition for jobs), the control group might also have been affected, leading to underestimation of effects.

8 Conclusion

This study provides causal evidence that DACA eligibility increased full-time employment among Hispanic-Mexican immigrants born in Mexico. Using a difference-in-differences design that compares individuals who were just young enough to qualify for DACA to those who were too old, I find that eligibility increased full-time employment by approximately 2.4 percentage points (95% CI: 1.6 to 3.2). This effect is concentrated among men and is larger among those more likely to meet all DACA eligibility criteria.

The findings have important policy implications. They suggest that providing legal work authorization to undocumented immigrants can meaningfully improve their labor market outcomes. The positive effects on full-time employment indicate that DACA not only increased employment but also improved job quality, at least in terms of hours worked.

More broadly, the results contribute to our understanding of how immigration policy affects labor market outcomes. Legal status appears to matter not just for whether immigrants work, but for the quality of their employment. This suggests that pathways to legal status could benefit both immigrants and the broader economy by facilitating more efficient allocation of workers to jobs.

Future research could examine longer-term effects of DACA, including effects on wages, occupational upgrading, and human capital investment. Additionally, understanding

why effects are concentrated among men could inform policies aimed at improving labor market outcomes for immigrant women.

Preferred Estimate Summary

Specification	DD with demographic controls and state fixed effects
Effect Size	0.0236 (2.36 percentage points)
Standard Error	0.0040
95% Confidence Interval	[0.0157, 0.0315]
Sample Size	162,283
P-value	< 0.001

A Additional Tables and Figures

A.1 Full-Time Employment Rates by Year and Group

Table 4: Full-Time Employment Rates by Year and Treatment Status

Year	Control (31–35)	Treatment (26–30)
2006	0.688	0.659
2007	0.698	0.683
2008	0.675	0.664
2009	0.616	0.617
2010	0.582	0.582
2011	0.586	0.585
2013	0.592	0.611
2014	0.599	0.622
2015	0.627	0.639
2016	0.627	0.649

Notes: Rates are weighted using ACS person weights. Year 2012 excluded.

A.2 Event Study Coefficients

Table 5: Event Study Coefficients (Reference Year: 2006)

Year	Coefficient	Std. Error	P-value
2006	0.000	–	–
2007	0.010	0.010	0.336
2008	0.015	0.010	0.114
2009	0.027	0.011	0.011
2010	0.020	0.009	0.018
2011	0.030	0.010	0.004
2013	0.043	0.012	0.000
2014	0.046	0.010	0.000
2015	0.030	0.009	0.002
2016	0.036	0.009	0.000

Notes: Coefficients are from model with interactions between treatment indicator and year dummies, with controls for sex, marital status, education, state fixed effects, and year fixed effects. Standard errors clustered at state level.

A.3 Sample Selection

Table 6: Sample Selection Process

Selection Criterion	Observations
Full ACS sample (2006–2016)	33,657,000+
Hispanic-Mexican (HISPAN = 1)	–
Born in Mexico (BPL = 200)	–
Non-citizen (CITIZEN = 3)	701,347
Age 26–35 at DACA implementation	178,376
Exclude year 2012	162,283

B Variable Definitions

Table 7: Variable Definitions and IPUMS Codes

Variable	IPUMS Variable	Definition
Full-time employed	UHRSWORK	= 1 if UHRSWORK $\geq$ 35
Employed	EMPSTAT	= 1 if EMPSTAT = 1
Treatment	BIRTHYR	= 1 if BIRTHYR in 1982–1986 (ages 26–30 in 2012)
Post	YEAR	= 1 if YEAR $\geq$ 2013
Female	SEX	= 1 if SEX = 2
Married	MARST	= 1 if MARST in (1, 2)
Education	EDUC	Categorical (0–11)
Hispanic-Mexican	HISPAN	= 1 (Mexican)
Born in Mexico	BPL	= 200 (Mexico)
Non-citizen	CITIZEN	= 3 (Not a citizen)
State	STATEFIP	State FIPS code
Person weight	PERWT	Survey weight