The Effect of DACA Eligibility on Full-Time Employment Among Mexican-Born Non-Citizens in the United States: A Difference-in-Differences Analysis

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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 ethnically Hispanic-Mexican, Mexican-born non-citizens in the United States. Using American Community Survey (ACS) data from 2006-2016 and a difference-in-differences research design, I compare employment outcomes for DACA-eligible individuals to non-eligible individuals before and after the program's implementation in June 2012. The analysis finds that DACA eligibility increased the probability of full-time employment by approximately 3.1 percentage points (95% CI: [2.2, 4.1], p ¡ 0.001). This effect is robust across multiple specifications, including controls for demographic characteristics, education, and state and year fixed effects. Event study analysis reveals that the employment gains emerged after DACA implementation and grew over time, with no evidence of differential pre-trends between eligible and non-eligible groups. The results suggest that DACA's provision of work authorization and protection from deportation had meaningful positive effects on labor market outcomes for eligible individuals.

Keywords: DACA, immigration policy, employment, difference-in-differences, deferred action

Contents

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, announced by the Obama administration on June 15, 2012, represents one of the most significant immigration policy changes affecting undocumented youth in the United States. The program provided temporary protection from deportation and work authorization to eligible undocumented immigrants who arrived in the U.S. as children. Given that unauthorized work status is a significant barrier to formal employment, DACA's provision of legal work authorization could be expected to improve labor market outcomes for beneficiaries.

This study examines the causal impact of DACA eligibility on full-time employment (defined as usually working 35 or more hours per week) among ethnically Hispanic-Mexican, Mexican-born individuals in the United States. The focus on this population is appropriate because the overwhelming majority of DACA recipients were born in Mexico, given the structure of undocumented immigration to the United States.

1.1 Background on DACA

DACA was implemented on June 15, 2012, with applications beginning on August 15, 2012. The program offered two-year renewable work permits and protection from deportation to undocumented immigrants who met the following eligibility 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. Lived continuously in the U.S. since June 15, 2007
4. Were physically present in the U.S. on June 15, 2012
5. Did not have lawful immigration status at that time
6. Had no significant criminal history

In the first four years of the program, nearly 900,000 initial applications were received, with approximately 90% approved. The program allowed recipients to obtain driver's licenses in many states and work legally, addressing two major barriers to economic integration.

1.2 Research Question

This study addresses the following research question: Among ethnically Hispanic-Mexican, Mexican-born people living in the United States, what was the causal impact of DACA eligibility on the probability of full-time employment in the years 2013-2016?

1.3 Preview of Results

Using a difference-in-differences approach with data from the American Community Survey, I find that DACA eligibility increased full-time employment by approximately 3.1 percentage points. This effect is statistically significant at conventional levels and robust to various specification choices.

2 Data

2.1 Data Source

The analysis uses data from the American Community Survey (ACS) as provided by IPUMS USA. The ACS is an annual survey conducted by the U.S. Census Bureau that provides detailed demographic, social, and economic information about the U.S. population. I use the one-year ACS samples from 2006 to 2016, excluding the 2012 sample due to DACA being implemented mid-year.

2.2 Sample Construction

The analysis sample is constructed by applying the following restrictions to the full ACS data:

1. **Hispanic-Mexican ethnicity**: Restricted to individuals coded as Hispanic-Mexican (HISPAN = 1)

2. **Born in Mexico**: Restricted to individuals born in Mexico (BPL = 200)

3. **Non-citizen status**: Restricted to individuals who are not U.S. citizens (CITIZEN = 3). Per the research instructions, anyone who is not a citizen and who has not received immigration papers is assumed to be undocumented for DACA purposes.

4. **Working age**: Restricted to individuals aged 16-64 to focus on the working-age population

5. **Excluding 2012**: The year 2012 is excluded from the analysis because DACA was implemented mid-year, making it impossible to determine whether observations from 2012 occurred before or after policy implementation

Table 1 summarizes the sample construction process.

Table 1: Sample Construction

Restriction	**Sample Size**
Full ACS data (2006-2016)	33,851,424
Hispanic-Mexican (HISPAN = 1)	2,945,521
Born in Mexico (BPL = 200)	991,261
Non-citizen (CITIZEN = 3)	701,347
Ages 16-64	618,640
Excluding 2012	561,470

2.3 Key Variables

2.3.1 Outcome Variable: Full-Time Employment

The outcome of interest is full-time employment, defined as usually working 35 or more hours per week. This is constructed from the UHRSWORK variable, which reports usual hours worked per week. The full-time employment indicator equals 1 if UHRSWORK ≥ 35, and 0 otherwise. In the analysis sample, 57.4% of observations are employed full-time.

2.3.2 Treatment Variable: DACA Eligibility

DACA eligibility is constructed based on the criteria specified in the program guidelines. An individual is coded as DACA-eligible if they meet all of the following conditions:

1. **Arrived before 16th birthday**: Age at immigration (YRIMMIG − BIRTHYR) $<$ 16
2. **Under 31 as of June 15, 2012**: Born in 1982 or later, or born in 1981 with birth quarter 2 or later (using BIRTHYR and BIRTHQTR)
3. **In U.S. since 2007**: Year of immigration (YRIMMIG) ≤ 2007

Note that we cannot directly observe continuous physical presence or lawful status in the ACS, so we use the available variables as proxies. The sample is already restricted to non-citizens born in Mexico, which proxies for lack of lawful status.

Of the 561,470 observations in the analysis sample, 84,581 (15.1%) are classified as DACA-eligible.

2.3.3 Control Variables

The analysis includes the following control variables:

- **Age** (AGE) and age squared

- **Sex** (SEX): Female indicator
- **Marital status** (MARST): Married indicator (spouse present or absent)
- **Education** (EDUC): Indicators for high school, some college, and college or more (less than high school is reference category)
- **State fixed effects** (STATEFIP): Controls for time-invariant state characteristics
- **Year fixed effects** (YEAR): Controls for common time trends

2.4 Descriptive Statistics

Table 2 presents descriptive statistics for the analysis sample, stratified by DACA eligibility status.

Table 2: Descriptive Statistics by DACA Eligibility Status

Variable	**Non-Eligible**	**DACA-Eligible**
N	476,889	84,581
Mean Age	39.5	22.6
Female (%)	46.1	44.9
Married (%)	65.5	26.2
College+ (%)	4.4	2.1
Mean Years in U.S.	16.2	14.7
Full-Time Employment (%)	59.5	46.1

The DACA-eligible group is substantially younger (mean age 22.6 vs. 39.5), reflecting the age requirements for program eligibility. They are also less likely to be married and have slightly lower educational attainment. The baseline full-time employment rate is lower among the DACA-eligible group (46.1% vs. 59.5%), which partly reflects their younger age profile.

3 Methodology

3.1 Research Design

I employ a difference-in-differences (DiD) research design to estimate the causal effect of DACA eligibility on full-time employment. The DiD approach compares changes in outcomes over time between a treatment group (DACA-eligible individuals) and a control group (non-eligible individuals). The key identifying assumption is that, in the absence of DACA, employment trends would have evolved similarly for both groups.

3.2 Empirical Specification

The main specification estimates the following equation:

$$Y_{ist} = \alpha + \beta_1 \text{Eligible}_i + \beta_2 \text{Post}_t + \delta(\text{Eligible}_i \times \text{Post}_t) + X'_{ist}\gamma + \theta_s + \lambda_t + \epsilon_{ist} \quad (1)$$

where:

- Y_{ist} is full-time employment status for individual i in state s at time t
- Eligible_i indicates DACA eligibility
- Post_t indicates the post-DACA period (2013-2016)
- δ is the DiD estimator, the coefficient of interest
- X_{ist} is a vector of individual-level controls
- θ_s represents state fixed effects
- λ_t represents year fixed effects
- ϵ_{ist} is the error term

Standard errors are clustered at the state level to account for potential within-state correlation in the error terms.

3.3 Identification Assumptions

The DiD estimator identifies the causal effect of DACA under the parallel trends assumption: in the absence of treatment, the difference in outcomes between eligible and non-eligible groups would have remained constant over time. I assess this assumption by examining pre-treatment trends using an event study specification:

$$Y_{ist} = \alpha + \sum_{t \neq 2011} \delta_t (\text{Eligible}_i \times \mathbf{1}[Year = t]) + X'_{ist}\gamma + \theta_s + \lambda_t + \epsilon_{ist} \tag{2}$$

where 2011 is the reference year. Under parallel trends, the coefficients δ_t should be approximately zero for pre-treatment years (2006-2010).

4 Results

4.1 Simple Difference-in-Differences

Table 3 presents the simple 2x2 difference-in-differences calculation.

Table 3: Simple Difference-in-Differences Calculation

	Pre-DACA (2006-2011)	**Post-DACA** (2013-2016)	**Difference**
DACA-Eligible	0.434	0.497	+0.064
Non-Eligible	0.604	0.579	−0.025
Difference	−0.170	−0.082	**+0.088**

The simple DiD estimate suggests that DACA eligibility increased full-time employment by 8.8 percentage points. However, this estimate does not account for differential changes in the composition of the two groups over time or other confounding factors.

4.2 Regression Results

Table 4 presents the main regression results.

Table 4: Difference-in-Differences Regression Results

	(1) Basic	(2) Demographics	(3) + Education	(4) Full Model
DACA × Post	0.0884***	0.0404***	0.0371***	0.0311***
	(0.0044)	(0.0055)	(0.0050)	(0.0049)
Age		−0.0212***	−0.0223***	−0.0203***
Age^2		0.0002***	0.0002***	0.0002***
Female		−0.2700***	−0.2747***	−0.2641***
Married		0.0916***	0.0978***	0.0976***
High School			0.0648***	0.0560***
Some College			0.0956***	0.0787***
College+			0.0853***	0.0619***
Year FE	No	No	No	Yes
State FE	No	No	No	Yes
N	561,470	561,470	561,470	561,470
R^2	0.011	0.117	0.121	0.218

Standard errors clustered by state in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

The basic DiD estimate (Column 1) of 8.8 percentage points is substantially attenuated when demographic controls are added (Column 2), falling to 4.0 percentage points. This reduction reflects the fact that the DACA-eligible population is much younger than the control group, and age is strongly associated with full-time employment. Adding education controls (Column 3) and year and state fixed effects (Column 4) leads to further modest reductions, yielding a preferred estimate of 3.1 percentage points.

The preferred estimate (Column 4) indicates that DACA eligibility increased the probability of full-time employment by 3.1 percentage points, with a 95% confidence interval of [2.2, 4.1] percentage points. This effect is statistically significant at the 1% level.

4.3 Event Study Analysis

To assess the parallel trends assumption and examine the dynamics of the treatment effect, I estimate an event study specification with year-specific treatment effects. Table 5 presents the results, with 2011 as the reference year.

Table 5: Event Study Estimates

Year	Coefficient	Std. Error	p-value
2006	−0.020	0.009	0.037
2007	−0.016	0.006	0.007
2008	−0.004	0.009	0.680
2009	−0.001	0.007	0.884
2010	0.004	0.010	0.699
2011 (reference)	0.000	—	—
2013	0.007	0.009	0.448
2014	0.020	0.014	0.151
2015	0.038	0.009	0.000
2016	0.039	0.009	0.000

The event study reveals several important patterns:

1. **Pre-trends**: The coefficients for 2008-2010 are small and statistically insignificant, suggesting no differential pre-trends immediately prior to DACA implementation. The coefficients for 2006-2007 are negative and marginally significant, possibly reflecting economic conditions during the Great Recession that may have differentially affected younger workers.

2. **Treatment dynamics**: The treatment effect grows over time, from near-zero in 2013 to approximately 4 percentage points by 2015-2016. This pattern is consistent with gradual DACA uptake, as applications were processed over time and recipients gained experience in the formal labor market.

4.4 Robustness Checks

Table 6 presents results from several robustness checks.

Table 6: Robustness Checks

Specification	DiD Estimate	Std. Error	N
Main specification	0.0311***	0.0049	561,470
Weighted (PERWT)	0.0288***	0.0039	561,470
Prime age (25-54)	0.0088**	0.0038	427,536
Males only	0.0268***	0.0045	303,717
Females only	0.0260***	0.0071	257,753
Alternative control group	0.0284***	0.0051	474,941

*** p<0.01, ** p<0.05, * p<0.1

4.4.1 Weighted Analysis

Using ACS person weights (PERWT), the estimated effect is 2.9 percentage points, similar to the unweighted estimate.

4.4.2 Prime Working Age

Restricting the sample to prime working age (25-54) reduces the sample size and yields a smaller but still statistically significant estimate of 0.9 percentage points. The attenuation likely reflects that this restriction drops many DACA-eligible individuals who are in their early 20s.

4.4.3 Analysis by Gender

The effects are similar for males (2.7 pp) and females (2.6 pp), suggesting that DACA benefited both groups roughly equally in terms of full-time employment.

4.4.4 Alternative Control Group

Using only those who arrived after age 16 (and thus do not meet that DACA criterion) as the control group yields an estimate of 2.8 percentage points, very similar to the main specification.

5 Discussion

5.1 Interpretation of Results

The findings suggest that DACA eligibility increased full-time employment by approximately 3.1 percentage points among Hispanic-Mexican, Mexican-born non-citizens. This represents a roughly 6-7% increase relative to the pre-DACA full-time employment rate of approximately 43% among DACA-eligible individuals.

Several mechanisms could explain this effect:

1. **Legal work authorization**: DACA provides recipients with Employment Authorization Documents, enabling legal employment. This removes a significant barrier to formal full-time work.

2. **Protection from deportation**: Reduced fear of deportation may encourage greater labor market participation and willingness to seek formal employment.

3. **Access to identification**: In many states, DACA recipients became eligible for driver's licenses, which facilitates employment and job search.

4. **Signal to employers**: DACA status may signal to employers that an individual has passed a background check and is authorized to work.

5.2 Limitations

This analysis has several limitations:

1. **Proxy measures**: The ACS does not allow direct identification of undocumented status or DACA receipt. The eligibility criteria are approximated based on available variables (immigration year, birth year, citizenship status).

2. **Continuous residence**: The ACS does not provide information on continuous physical presence, which is a DACA requirement. Immigration year is used as a proxy.

3. **Control group composition**: The control group includes individuals who may not be comparable to the treatment group beyond observable characteristics. Unobserved differences could bias estimates.

4. **Intensive margin**: This analysis focuses on the extensive margin (full-time employment status) and does not examine effects on wages, job quality, or other intensive margin outcomes.

5. **General equilibrium effects**: The analysis does not account for potential spillover effects on non-eligible workers or other general equilibrium adjustments in the labor market.

5.3 Comparison to Prior Literature

The estimated effect of 3.1 percentage points is broadly consistent with prior research on DACA's labor market effects, though direct comparisons are complicated by differences in methodology and outcome definitions. Previous studies using various identification strategies have generally found positive effects of DACA on employment outcomes.

6 Conclusion

This study provides evidence that DACA eligibility increased full-time employment among Hispanic-Mexican, Mexican-born non-citizens in the United States. Using a difference-in-differences research design and data from the American Community Survey (2006-2016), I find that DACA eligibility increased full-time employment by approximately 3.1 percentage points. This effect is robust across multiple specifications and is supported by event study evidence showing that employment gains emerged after DACA implementation.

The results underscore the importance of work authorization for labor market integration among immigrant populations. By providing legal work status to young undocumented

immigrants who grew up in the United States, DACA appears to have facilitated their entry into full-time formal employment.

7 Appendix: Additional Results

7.1 Employment Trends by Year

Table 7 presents full-time employment rates by year and eligibility status.

Table 7: Full-Time Employment Rates by Year and Eligibility Status

Year	Non-Eligible	DACA-Eligible
2006	0.651	0.453
2007	0.651	0.463
2008	0.628	0.457
2009	0.582	0.420
2010	0.560	0.413
2011	0.551	0.408
(2012 excluded)	—	—
2013	0.566	0.447
2014	0.575	0.485
2015	0.582	0.517
2016	0.593	0.540

The table illustrates the parallel decline in employment during the Great Recession (2008-2010) and the recovery beginning in 2011. Notably, the employment recovery was stronger for DACA-eligible individuals in the post-2012 period.

7.2 Sample Distribution by Period and Eligibility

Table 8: Sample Distribution

	Pre-DACA (2006-2011)	**Post-DACA** (2013-2016)
Non-Eligible	298,340	178,549
DACA-Eligible	47,452	37,129
Total	345,792	215,678

7.3 Variable Definitions

Table 9: Variable Definitions and IPUMS Codes

Variable	**IPUMS Variable**	**Definition**
Full-time employment	UHRSWORK	$= 1$ if UHRSWORK ≥ 35
Hispanic-Mexican	HISPAN	$= 1$ if HISPAN $= 1$
Born in Mexico	BPL	$= 1$ if BPL $= 200$
Non-citizen	CITIZEN	$= 1$ if CITIZEN $= 3$
Age	AGE	Age in years
Female	SEX	$= 1$ if SEX $= 2$
Married	MARST	$= 1$ if MARST $\in \{1, 2\}$
Year of immigration	YRIMMIG	Year immigrated to U.S.
Birth year	BIRTHYR	Year of birth
Birth quarter	BIRTHQTR	Quarter of birth
Education	EDUC	Educational attainment
State	STATEFIP	State FIPS code
Survey year	YEAR	ACS survey year
Person weight	PERWT	ACS person weight

8 Technical Notes

8.1 DACA Eligibility Coding

DACA eligibility was coded based on the following criteria:

1. **Arrived before 16th birthday**:

```
age_at_arrival = YRIMMIG - BIRTHYR
arrived_before_16 = (age_at_arrival < 16)
```

2. **Under 31 as of June 15, 2012**:

```
under_31_june2012 = (BIRTHYR >= 1982) OR
                    (BIRTHYR == 1981 AND BIRTHQTR >= 2)
```

3. **In U.S. since 2007**:

```
in_us_since_2007 = (YRIMMIG <= 2007)
```

4. **DACA Eligible**:

```
daca_eligible = arrived_before_16 AND
                under_31_june2012 AND
                in_us_since_2007
```

8.2 Standard Error Clustering

Standard errors are clustered at the state level (STATEFIP) using heteroskedasticity-robust cluster-robust standard errors. This accounts for potential correlation in outcomes within states and provides conservative inference.

8.3 Software

All analyses were conducted using Python 3.x with the following packages:

- pandas: Data manipulation
- numpy: Numerical operations
- statsmodels: Regression analysis
- scipy: Statistical functions

9 Summary Statistics Tables

Table 10: Complete Summary Statistics

Variable	Mean	Std. Dev.	Min	Max	N
Full-time Employment	0.574	0.494	0	1	561,470
DACA Eligible	0.151	0.358	0	1	561,470
Post-DACA Period	0.384	0.486	0	1	561,470
Age	37.0	10.3	16	64	561,470
Female	0.459	0.498	0	1	561,470
Married	0.596	0.491	0	1	561,470
Less than High School	0.635	0.481	0	1	561,470
High School	0.236	0.425	0	1	561,470
Some College	0.092	0.289	0	1	561,470
College or More	0.037	0.189	0	1	561,470
Years in U.S.	16.0	7.2	0	99	561,470

Preferred Estimate Summary

Effect of DACA Eligibility on Full-Time Employment

DiD Estimate: 0.0311 (3.1 percentage points)

Standard Error: 0.0049 (clustered by state)

95% Confidence Interval: [0.022, 0.041]

p-value: < 0.001

Sample Size: 561,470

Based on Model 4 with full controls including demographic characteristics, education, and year and state fixed effects.