

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

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Abstract

This study examines the causal impact 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 data from 2006-2016 and a difference-in-differences design exploiting the age-based eligibility cutoff, I find a positive but statistically insignificant effect of DACA eligibility on full-time employment. The preferred estimate suggests DACA eligibility increased full-time employment probability by approximately 1.9 percentage points (95% CI: -0.4 to 4.3 pp), though this effect is not distinguishable from zero at conventional significance levels. Event study analysis shows relatively flat pre-trends, supporting the parallel trends assumption. Robustness checks across different age bandwidths and subgroups yield qualitatively similar results.

Contents

1	Introduction	4
2	Background and Policy Context	4
2.1	The DACA Program	4
2.2	Eligibility Requirements	5
2.3	Expected Effects on Employment	5
3	Data	6
3.1	Data Source	6
3.2	Sample Construction	6
3.3	Key Variables	7
3.4	Sample Sizes	7
4	Empirical Strategy	8
4.1	Identification	8
4.2	Difference-in-Differences Specification	8
4.3	Age Bandwidth Selection	9
4.4	Event Study Specification	9
5	Results	9
5.1	Summary Statistics	9
5.2	Main Results	10
5.3	Preferred Estimate	12
5.4	Event Study Results	12
6	Robustness Checks	13
6.1	Alternative Bandwidths	14
6.2	Subgroup Analysis	14
6.3	Alternative Outcome	15
6.4	Placebo Test	15
7	Discussion	15
7.1	Interpretation of Results	15
7.2	Comparison with Simple DID	15
7.3	Limitations	16
7.4	Economic Significance	16

8	Conclusion	17
A	Appendix: Variable Definitions	18
B	Appendix: Year-by-Year Effects	19
C	Appendix: Sample Composition by Year	20

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented 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 undocumented immigrants who arrived in the United States as children. By offering legal work authorization, DACA potentially removed significant barriers to formal employment for eligible individuals.

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 eligibility for the Deferred Action for Childhood Arrivals (DACA) program on the probability that the eligible person is employed full-time (working 35 hours per week or more)?*

The identification strategy exploits the sharp age cutoff in DACA eligibility requirements. Specifically, individuals must not have turned 31 years old as of June 15, 2012, to be eligible for the program. This creates a natural experiment where individuals just below the age threshold became eligible for work authorization, while those just above the threshold—who are otherwise similar in their immigration history and demographic characteristics—did not.

Using American Community Survey (ACS) data from 2006-2016 provided by IPUMS USA, I implement a difference-in-differences (DID) design comparing employment outcomes between DACA-eligible individuals (treatment group) and slightly older individuals who meet all other eligibility criteria but exceed the age limit (control group), before and after DACA implementation.

The main finding is a positive but statistically insignificant effect of DACA eligibility on full-time employment. The preferred specification, using a narrow age bandwidth around the cutoff (ages 26-35 in 2012) with state and year fixed effects, yields an estimated treatment effect of approximately 1.9 percentage points, with a 95% confidence interval spanning from -0.4 to 4.3 percentage points. While the point estimate is economically meaningful, representing roughly a 3% increase relative to the baseline full-time employment rate of about 63% in the control group, the statistical uncertainty is too large to rule out zero effect.

2 Background and Policy Context

2.1 The DACA Program

DACA was announced by the Obama administration on June 15, 2012, and applications began to be received on August 15, 2012. The program was created through executive

action rather than congressional legislation. Within the first four years, nearly 900,000 initial applications were received, with approximately 90% approval rates.

DACA provides two primary benefits to eligible recipients:

1. **Deferred Action:** Protection from deportation for a renewable two-year period
2. **Work Authorization:** Legal permission to work in the United States

Additionally, DACA recipients can apply for Social Security numbers and, depending on the state, driver's licenses or state identification cards.

2.2 Eligibility Requirements

To qualify for DACA, individuals must meet the following criteria:

1. Arrived in the United States before their 16th birthday
2. Had not yet turned 31 years old as of June 15, 2012
3. Lived continuously in the United States since June 15, 2007
4. Were physically present in the United States on June 15, 2012
5. Did not have lawful immigration status on June 15, 2012
6. Were currently in school, had graduated from high school, obtained a GED, or were honorably discharged veterans
7. Had not been convicted of a felony, significant misdemeanor, or three or more misdemeanors

The age cutoff at 31 years old provides the key source of variation for identification in this study.

2.3 Expected Effects on Employment

Prior to DACA, undocumented immigrants faced significant barriers to formal employment. Without work authorization, they were limited to informal sector employment, often with lower wages, fewer protections, and less stability. DACA's work authorization benefit was expected to:

- Enable access to formal sector jobs

- Increase employment stability and hours worked
- Improve job-matching by allowing workers to seek positions more aligned with their skills
- Reduce employer discrimination based on documentation status

The theoretical prediction is that DACA eligibility should increase employment, particularly full-time employment, among eligible individuals.

3 Data

3.1 Data Source

The analysis uses data from the American Community Survey (ACS) provided by IPUMS USA. The ACS is a large, nationally representative survey conducted annually by the U.S. Census Bureau. I use the one-year ACS samples from 2006 through 2016, excluding 2012 due to the mid-year implementation of DACA which makes it impossible to distinguish pre- and post-treatment observations within that year.

3.2 Sample Construction

The target population consists of:

- Ethnically Hispanic-Mexican ($HISPAN = 1$)
- Born in Mexico ($BPL = 200$)
- Non-citizens ($CITIZEN = 3$)
- Working age adults (18-45 years old)

The non-citizen restriction serves as a proxy for undocumented status, as the ACS does not directly identify documentation status. While this likely includes some documented non-citizens (e.g., legal permanent residents who have not naturalized), the instruction guidance indicates that non-citizens without immigration papers should be treated as potentially undocumented for DACA purposes.

3.3 Key Variables

Outcome Variable:

- *Full-time employment*: Binary indicator equal to 1 if the respondent usually works 35 or more hours per week ($\text{UHRSWORK} \geq 35$)

Treatment Indicators:

- *DACA eligible*: Indicator for meeting the core eligibility criteria—under 31 on June 15, 2012, arrived in U.S. before age 16, and present in U.S. since at least 2007
- *Post*: Indicator for years 2013-2016 (after DACA implementation)

Control Variables:

- Age and age squared (AGE , AGE^2)
- Female indicator ($\text{SEX} = 2$)
- Married indicator ($\text{MARST} \leq 2$)
- High school education or higher ($\text{EDUC} \geq 6$)
- State fixed effects (STATEFIP)
- Year fixed effects (YEAR)

Weights: All analyses use IPUMS person weights (PERWT) to produce nationally representative estimates.

3.4 Sample Sizes

Table 1 presents the sample construction and final sample sizes.

Table 1: Sample Construction

Criterion	N
Full ACS 2006-2016 (excluding 2012)	33,851,424
Hispanic-Mexican, Mexican-born, non-citizen, ages 18-45	413,906
Arrived before age 16 and by 2007	113,977
Main Analysis Sample (ages 26-35 in 2012)	43,238
Treatment (ages 26-30 in 2012)	25,470
Control (ages 31-35 in 2012)	17,768

Note: Sample restricted to individuals meeting DACA arrival requirements (arrived before age 16 and present in U.S. since 2007) who are non-citizens of Mexican origin.

4 Empirical Strategy

4.1 Identification

The identification strategy exploits the age cutoff in DACA eligibility. Individuals born in 1982 or later (under 31 on June 15, 2012) who meet the other eligibility criteria became eligible for DACA, while those born before 1982 did not. This creates a discontinuity that can be used for causal identification under the assumption that individuals just above and below the cutoff would have experienced parallel trends in employment absent the policy.

The key identifying assumption is that, conditional on meeting the arrival requirements and control variables, individuals just above and below the age-31 cutoff would have followed similar employment trajectories in the absence of DACA. This parallel trends assumption is partially testable using pre-treatment data.

4.2 Difference-in-Differences Specification

The main specification is:

$$Y_{ist} = \alpha + \beta_1 \text{Treat}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Treat}_i \times \text{Post}_t) + X'_{ist} \gamma + \delta_s + \theta_t + \varepsilon_{ist} \quad (1)$$

where:

- Y_{ist} is full-time employment status for individual i in state s at time t
- Treat_i indicates DACA eligibility (age < 31 on June 15, 2012)
- Post_t indicates years 2013-2016
- X_{ist} includes demographic controls (age, age squared, female, married, high school education)
- δ_s are state fixed effects
- θ_t are year fixed effects
- ε_{ist} is the error term

The coefficient of interest is β_3 , which captures the differential change in full-time employment for DACA-eligible individuals relative to the control group after program implementation.

Standard errors are clustered at the state level to account for within-state correlation in outcomes over time, following standard practice in policy evaluation studies.

4.3 Age Bandwidth Selection

To improve comparability between treatment and control groups, I focus on individuals close to the age-31 cutoff. The main analysis uses a bandwidth of 5 years on each side (ages 26-35 in 2012), which balances the trade-off between:

- **Precision:** Wider bandwidths increase sample size and statistical power
- **Comparability:** Narrower bandwidths improve the similarity of treatment and control groups

Robustness checks examine alternative bandwidths (ages 22-38 and ages 28-33).

4.4 Event Study Specification

To assess the parallel trends assumption and examine the timing of effects, I estimate an event study specification:

$$Y_{ist} = \alpha + \beta_1 \text{Treat}_i + \sum_{k \neq 2011} \gamma_k \cdot \mathbf{1}[t = k] + \sum_{k \neq 2011} \lambda_k \cdot (\text{Treat}_i \times \mathbf{1}[t = k]) + X'_{ist} \phi + \delta_s + \varepsilon_{ist} \quad (2)$$

The coefficients λ_k trace out the treatment effect over time, with 2011 serving as the reference year (the last pre-treatment year). Pre-treatment coefficients should be close to zero if the parallel trends assumption holds.

5 Results

5.1 Summary Statistics

Table 2 presents summary statistics for the main analysis sample by treatment status.

Table 2: Summary Statistics by Treatment Status

	Treatment (Ages 26-30)	Control (Ages 31-35)
<i>Demographics</i>		
Mean Age	23.6	31.9
Female (%)	44.5	42.5
Married (%)	28.9	53.2
High School+ (%)	65.4	52.4
<i>Full-Time Employment Rate</i>		
Pre-DACA (2006-2011)	0.525	0.673
Post-DACA (2013-2016)	0.569	0.643
Change	+0.044	-0.030
<i>Sample Sizes</i>		
Pre-DACA	38,248	11,683
Post-DACA	33,099	6,085
Total	71,347	17,768

Note: Statistics calculated using IPUMS person weights. Treatment group includes individuals under 31 on June 15, 2012 who meet arrival requirements. Control group includes individuals ages 31-35 on June 15, 2012 who meet the same arrival requirements.

The summary statistics reveal several important patterns:

1. The treatment group has lower baseline full-time employment (52.5% vs. 67.3%), consistent with younger workers having lower labor force attachment
2. Both groups show evidence of the Great Recession's lingering effects in the pre-period
3. The raw difference-in-differences estimate ($0.044 - (-0.030) = 0.074$) suggests a positive effect of about 7.4 percentage points
4. There are compositional differences between groups (marriage rates, education) that necessitate regression adjustment

5.2 Main Results

Table 3 presents the main difference-in-differences results across specifications.

Table 3: Effect of DACA Eligibility on Full-Time Employment

	(1) Basic DID	(2) + Controls	(3) + State FE	(4) + Year FE
Treat \times Post	0.0590*** (0.0069)	0.0646*** (0.0096)	0.0643*** (0.0097)	0.0194 (0.0119)
Treat	-0.0426*** (0.0054)	-0.0525*** (0.0051)	-0.0527*** (0.0050)	-0.0511*** (0.0048)
Post	-0.0299*** (0.0093)	-0.0212** (0.0100)	-0.0193* (0.0101)	—
Controls	No	Yes	Yes	Yes
State FE	No	No	Yes	Yes
Year FE	No	No	No	Yes
N	43,238	43,238	43,238	43,238

Note: Standard errors clustered by state in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Controls include age, age squared, female, married, and high school education indicators. Sample restricted to ages 26-35 in 2012 who arrived before age 16 and by 2007. All regressions weighted by PERWT.

The results show that:

1. The basic DID estimate (Column 1) is 5.9 percentage points, statistically significant
2. Adding demographic controls (Column 2) increases the estimate slightly to 6.5 percentage points
3. Adding state fixed effects (Column 3) yields a similar estimate of 6.4 percentage points
4. **The preferred specification with year fixed effects (Column 4) shows an estimate of 1.9 percentage points, which is not statistically significant ($p = 0.10$)**

The substantial reduction in the treatment effect when adding year fixed effects suggests that common time trends (e.g., macroeconomic recovery from the Great Recession) were driving some of the observed changes in employment. This underscores the importance of controlling for year effects when evaluating policies implemented during periods of changing economic conditions.

5.3 Preferred Estimate

The preferred estimate from Column 4 of Table 3 can be summarized as:

Preferred Estimate: DACA eligibility is associated with a 1.94 percentage point increase in full-time employment probability.

- Coefficient: 0.0194
- Standard Error: 0.0119
- 95% Confidence Interval: [-0.0039, 0.0427]
- p-value: 0.103
- Sample Size: 43,238

The effect is not statistically significant at the 5% level, but the confidence interval suggests effects could range from a small negative effect (-0.4 pp) to a meaningful positive effect (+4.3 pp).

5.4 Event Study Results

Figure ?? (results in Table 4) presents the event study coefficients, which allow assessment of both pre-trends and the dynamic treatment effects.

Table 4: Event Study Coefficients

Year	Coefficient	Std. Error	95% CI
<i>Pre-Treatment Period</i>			
2006	0.0322	0.0257	[-0.0180, 0.0825]
2007	-0.0082	0.0183	[-0.0441, 0.0277]
2008	0.0242	0.0215	[-0.0179, 0.0663]
2009	0.0035	0.0231	[-0.0417, 0.0487]
2010	-0.0087	0.0250	[-0.0578, 0.0403]
2011	0.0000	—	(reference)
<i>Post-Treatment Period</i>			
2013	0.0238	0.0222	[-0.0198, 0.0674]
2014	0.0192	0.0173	[-0.0147, 0.0531]
2015	-0.0014	0.0207	[-0.0420, 0.0393]
2016	0.0403**	0.0203	[0.0005, 0.0800]

Note: Coefficients from event study regression with 2011 as reference year. All specifications include state fixed effects and demographic controls. Standard errors clustered by state.

Key findings from the event study:

1. **Pre-trends:** The pre-treatment coefficients are generally close to zero and not individually statistically significant, supporting the parallel trends assumption. However, there is some noise in the pre-period estimates.
2. **Immediate effects:** The 2013 and 2014 coefficients are positive but small (2.4 and 1.9 pp) and not statistically significant.
3. **Medium-term effects:** The 2015 coefficient is essentially zero (-0.1 pp).
4. **Longer-term effects:** The 2016 coefficient is larger (4.0 pp) and marginally significant at the 5% level, suggesting possible delayed effects as more eligible individuals obtained work authorization and found employment.

6 Robustness Checks

Table 5 presents results from several robustness checks.

Table 5: Robustness Checks

Specification	Coefficient	Std. Error	N
<i>Panel A: Alternative Bandwidths</i>			
Main (ages 26-35)	0.0194	(0.0119)	43,238
Wider (ages 22-38)	-0.0399***	(0.0060)	77,295
Narrower (ages 28-33)	0.0258	(0.0186)	24,584
<i>Panel B: Subgroup Analysis</i>			
Males only	0.0095	(0.0227)	24,243
Females only	0.0195	(0.0355)	18,995
<i>Panel C: Alternative Outcomes</i>			
Employment (any)	0.0327**	(0.0137)	43,238
<i>Panel D: Placebo Test</i>			
Pre-period placebo (2009-2011)	-0.0282***	(0.0082)	27,666

Note: All specifications include state and year fixed effects and demographic controls. Standard errors clustered by state. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

6.1 Alternative Bandwidths

The results are sensitive to bandwidth choice:

- The wider bandwidth (ages 22-38) yields a negative and significant coefficient, likely reflecting differential age-employment profiles between treatment and control groups
- The narrower bandwidth (ages 28-33) yields a larger positive coefficient (2.6 pp) but with greater uncertainty

This sensitivity suggests caution in interpreting the results and highlights the challenge of separating DACA effects from lifecycle employment patterns.

6.2 Subgroup Analysis

Results are similar for males and females:

- Males: 0.95 pp (not significant)
- Females: 1.95 pp (not significant)

The larger standard errors for subgroup analyses reflect reduced sample sizes.

6.3 Alternative Outcome

When examining any employment (extensive margin) rather than full-time employment, the effect is larger (3.3 pp) and statistically significant at the 5% level. This suggests DACA may have primarily affected whether individuals work at all, with smaller effects on the intensive margin (hours worked conditional on employment).

6.4 Placebo Test

The placebo test examines whether there were “effects” in the pre-treatment period. Using 2009-2011 as a “post” period and earlier years as the pre-period, the placebo coefficient is -2.8 pp and statistically significant. This negative placebo effect is concerning as it suggests potential violations of the parallel trends assumption or that the treatment and control groups were on different trajectories even before DACA. This finding warrants caution in interpreting the main results.

7 Discussion

7.1 Interpretation of Results

The main finding is a positive but statistically insignificant effect of DACA eligibility on full-time employment of approximately 2 percentage points. Several interpretations are possible:

1. **Modest positive effect:** DACA may have had a real but modest positive effect on full-time employment that the data cannot precisely estimate due to limited statistical power.
2. **Null effect:** DACA may have had no meaningful effect on full-time employment, with the point estimate reflecting noise.
3. **Heterogeneous effects:** The average effect may mask important heterogeneity across subgroups or over time. The larger effect in 2016 suggests effects may take time to materialize as recipients find suitable employment.

7.2 Comparison with Simple DID

The simple difference-in-differences calculation (without controls) suggested a larger effect of 7.4 percentage points. The preferred regression estimate is substantially smaller (1.9 pp), highlighting the importance of:

- Controlling for year fixed effects to account for common trends
- Using appropriate comparison groups
- Addressing compositional differences through regression adjustment

7.3 Limitations

Several limitations should be acknowledged:

1. **Proxy for undocumented status:** Using non-citizen status as a proxy for undocumented status introduces measurement error, as some non-citizens are legally present.
2. **Continuous presence requirement:** The data only show year of immigration, not whether individuals were continuously present, potentially misclassifying some ineligible individuals as eligible.
3. **Take-up:** Not all eligible individuals applied for or received DACA. The estimates represent intent-to-treat effects of eligibility, not effects of actual DACA receipt.
4. **Placebo test concerns:** The significant placebo test coefficient raises questions about the parallel trends assumption.
5. **Bandwidth sensitivity:** Results vary with bandwidth choice, suggesting identification is imprecise.
6. **Sample composition:** The control group (ages 31-35) differs from the treatment group in education, marriage rates, and other characteristics that may affect employment trends.

7.4 Economic Significance

While the preferred estimate is not statistically significant, its economic magnitude is worth considering. A 1.9 percentage point increase in full-time employment probability represents:

- Approximately 3% increase relative to baseline ($0.019/0.63 \approx 3\%$)
- If applied to approximately 800,000 DACA recipients, potentially 15,000+ additional full-time workers

However, given the statistical uncertainty, these calculations should be viewed as illustrative rather than definitive.

8 Conclusion

This study examined the effect of DACA eligibility on full-time employment among Mexican-born non-citizens using a difference-in-differences design exploiting the age-based eligibility cutoff. The preferred estimate suggests a positive effect of approximately 2 percentage points, though this effect is not statistically distinguishable from zero.

The results contribute to the literature on immigration policy and labor market outcomes but should be interpreted with caution given:

- The statistical insignificance of the main estimate
- Sensitivity to bandwidth choice
- Concerns raised by the placebo test
- Measurement limitations in identifying the target population

Future research could benefit from:

- Administrative data on actual DACA applications and approvals
- Longer post-treatment periods to assess longer-run effects
- Alternative identification strategies (e.g., state-level variation in DACA implementation or outreach)
- Analysis of other outcomes (wages, job quality, educational attainment)

In summary, while there is suggestive evidence that DACA may have modestly increased full-time employment among eligible individuals, the evidence is not strong enough to draw definitive conclusions. The positive but insignificant estimate is consistent with both a modest beneficial effect and no effect at all.

A Appendix: Variable Definitions

Table 6: Variable Definitions

Variable	IPUMS Code	Definition
<i>Outcome</i>		
Full-time	UHRSWORK	=1 if usual hours worked ≥ 35
Employed	EMPSTAT	=1 if EMPSTAT = 1
<i>Sample Selection</i>		
Hispanic-Mexican	HISPAN	=1
Born in Mexico	BPL	= 200
Non-citizen	CITIZEN	= 3
Year	YEAR	2006-2016, excluding 2012
<i>Treatment Assignment</i>		
Age in 2012	BIRTHYR, BIRTHQTR	2012 - BIRTHYR (adjusted for quarter)
Age at arrival	YRIMMIG, BIRTHYR	YRIMMIG - BIRTHYR
DACA eligible	Computed	Age in 2012 < 31, arrived < 16, YRIMMIG \leq 2007
<i>Controls</i>		
Female	SEX	=1 if SEX = 2
Married	MARST	=1 if MARST ≤ 2
High school+	EDUC	=1 if EDUC ≥ 6
Age	AGE	Age at survey
State	STATEFIP	State FIPS code
Weight	PERWT	Person weight

B Appendix: Year-by-Year Effects

Table 7: Year-by-Year Treatment Effects (vs. 2011)

Comparison	Coefficient	Std. Error	95% CI
2013 vs. 2011	0.0245	(0.0232)	[-0.021, 0.070]
2014 vs. 2011	0.0075	(0.0313)	[-0.054, 0.069]
2015 vs. 2011	-0.0001	(0.0354)	[-0.070, 0.069]
2016 vs. 2011	0.0601*	(0.0333)	[-0.005, 0.125]

Note: Each row shows the DID estimate comparing the indicated year to 2011, using the narrow bandwidth sample (ages 26-35 in 2012). * $p < 0.10$.

C Appendix: Sample Composition by Year

Table 8: Sample Size by Year and Treatment Status

Year	Treatment	Control	Total	Full-Time Rate
2006	2,654	1,885	4,539	0.582
2007	2,813	1,978	4,791	0.587
2008	2,858	1,894	4,752	0.560
2009	2,712	1,905	4,617	0.528
2010	2,665	1,959	4,624	0.523
2011	2,761	2,062	4,823	0.537
2013	2,658	1,671	4,329	0.540
2014	2,705	1,470	4,175	0.545
2015	2,819	1,500	4,319	0.571
2016	2,825	1,444	4,269	0.593
Total	25,470	17,768	43,238	—