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

Replication Study 27

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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 Hispanic-Mexican, Mexican-born individuals in the United States. Using American Community Survey data from 2006–2016 and a difference-in-differences research design, I compare individuals aged 26–30 at the time of DACA implementation (treatment group) to those aged 31–35 (control group), who would have been eligible except for the age cutoff. The analysis finds that DACA eligibility is associated with a statistically significant 6.2 percentage point increase in the probability of full-time employment (95% CI: 3.9–8.5 percentage points). This effect is robust to the inclusion of demographic covariates, state and year fixed effects, alternative age bandwidths, and passes a placebo test using pre-treatment data. Event study analysis confirms the parallel trends assumption, with treatment effects emerging only 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 policy interventions affecting undocumented immigrants in the United States. The program provided eligible individuals with temporary relief from deportation and, crucially, authorization to work legally in the United States for a renewable two-year period. Given that DACA directly addresses legal barriers to formal employment, understanding its impact on labor market outcomes is of considerable policy relevance.

This replication study addresses a specific research question: Among ethnically Hispanic-Mexican, Mexican-born individuals living in the United States, what was the causal impact of DACA eligibility on the probability of full-time employment? Full-time employment is defined as usually working 35 hours per week or more, following standard labor statistics definitions.

The identification strategy exploits the sharp age cutoff in DACA eligibility requirements. To be eligible, individuals must not have reached their 31st birthday as of June 15, 2012. This creates a natural comparison between individuals just below this age threshold (who became eligible) and those just above it (who did not, despite meeting all other criteria). By comparing changes in full-time employment rates between these groups before and after DACA implementation, we can estimate the causal effect of the program under standard difference-in-differences assumptions.

The analysis uses data from the American Community Survey (ACS) for years 2006–2016, providing both pre-treatment (2006–2011) and post-treatment (2013–2016) observations. The year 2012 is excluded due to the mid-year policy implementation.

2 Background

2.1 The DACA Program

DACA was announced by the Obama administration on June 15, 2012, and applications began being received on August 15, 2012. The program offered two-year renewable periods of deferred action from deportation and employment authorization for eligible individuals. In the first four years of the program, nearly 900,000 initial applications were received, with approximately 90% approved.

2.2 Eligibility Requirements

To qualify for DACA, individuals must have:

1. Arrived in the United States before their 16th birthday
2. Not yet had their 31st birthday as of June 15, 2012
3. Lived continuously in the US since June 15, 2007
4. Been present in the US on June 15, 2012 without lawful status

The age cutoff at 31 on June 15, 2012 provides the basis for our identification strategy. Those who were 30 or younger became eligible, while those 31 and older did not qualify solely due to their age.

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 labor markets or employment in establishments willing to hire workers without proper documentation. This typically meant lower wages, fewer hours, and less stable employment.

DACA addressed this directly by providing work authorization. Recipients could legally work, apply for Social Security numbers, and in many states, obtain driver's licenses. These changes would be expected to:

- Expand the set of jobs available to eligible individuals
- Enable transitions from informal to formal employment
- Potentially increase both employment rates and hours worked
- Reduce barriers to full-time employment

3 Data

3.1 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 US Census Bureau that collects detailed demographic, social, economic, and housing information from approximately 3.5 million households each year.

I use one-year ACS samples from 2006 through 2016, providing:

- Six years of pre-treatment data (2006–2011)
- Four years of post-treatment data (2013–2016)

The year 2012 is excluded because DACA was implemented mid-year (June 15) and the ACS does not identify the month of survey response. Including 2012 would contaminate both pre and post periods.

3.2 Sample Construction

The analysis sample is constructed by applying the following restrictions sequentially:

Table 1: Sample Construction

Restriction	Observations	Dropped
Full ACS sample (2006–2016)	33,851,424	—
Hispanic-Mexican ethnicity (HISPAN = 1)	2,945,521	30,905,903
Born in Mexico (BPL = 200)	991,261	1,954,260
Non-citizen (CITIZEN = 3)	701,347	289,914
Arrived before age 16	205,327	496,020
Arrived by 2007	195,023	10,304
Treatment or control age group	49,019	145,004
Exclude 2012	44,725	4,294

3.2.1 Hispanic-Mexican Ethnicity

The IPUMS variable HISPAN identifies Hispanic origin, with value 1 indicating Mexican ethnicity. This includes those who identify as Mexican, Mexican American, Mexicano/Mexicana, or Chicano/Chicana.

3.2.2 Mexican Birthplace

The variable BPL (birthplace) with value 200 indicates birth in Mexico. Combined with Hispanic-Mexican ethnicity, this identifies individuals who are ethnically Mexican and were born in Mexico.

3.2.3 Non-Citizen Status

DACA eligibility requires being undocumented—present in the US without lawful status. The ACS does not distinguish between documented and undocumented non-citizens. Following the approach in the literature, I use non-citizen status (CITIZEN = 3) as a proxy for

undocumented status. This is an imperfect measure but provides a reasonable approximation, particularly within this specific population where undocumented status is common.

3.2.4 Arrival Before Age 16

DACA requires having arrived in the US before one's 16th birthday. I calculate age at immigration as the difference between year of immigration (YRIMMIG) and birth year (BIRTHYR), retaining only those with age at immigration less than 16.

3.2.5 Continuous Residence Since 2007

DACA requires continuous residence since June 15, 2007. Using year of immigration, I retain individuals who arrived in 2007 or earlier (YRIMMIG $\leq$ 2007).

3.2.6 Treatment and Control Groups

Following the research design specification:

- **Treatment group**: Aged 26–30 on June 15, 2012 (birth years 1982–1986)
- **Control group**: Aged 31–35 on June 15, 2012 (birth years 1977–1981)

The control group comprises individuals who met all other DACA eligibility criteria but were excluded solely due to the age cutoff. This provides a natural comparison group with similar characteristics and immigration experiences.

3.3 Variables

3.3.1 Outcome Variable

The outcome is full-time employment, defined as usually working 35 or more hours per week. This is constructed from UHRSWORK (usual hours worked per week):

$$\text{fulltime}_i = \mathbf{1}[\text{UHRSWORK}_i \geq 35]$$

3.3.2 Treatment Variables

- treat_i: Indicator for treatment group (birth year 1982–1986)
- post_t: Indicator for post-DACA period (year $\geq$ 2013)
- treat_post_{it}: Interaction term ($\text{treat}_i \times \text{post}_t$)

3.3.3 Covariates

For robustness checks with covariates:

- Female: SEX = 2
- Married: MARST $\leq$ 2 (married, spouse present or absent)
- High school education: EDUC $\geq$ 6
- State fixed effects: STATEFIP
- Year fixed effects: YEAR

3.4 Sample Characteristics

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

Table 2: Summary Statistics by Treatment Status

Variable	Treatment	Control
N (pre-period)	17,410	11,916
N (post-period)	9,181	6,218
Mean age	26.3	31.4
Female (%)	44.0	43.9
Married (%)	41.9	54.7
High school or higher (%)	62.2	54.3
Mean usual hours worked	29.8	30.2

The treatment and control groups are similar in gender composition but differ in age-related characteristics. The treatment group is younger by design (average age 26.3 vs. 31.4), less likely to be married (41.9% vs. 54.7%), and more educated (62.2% vs. 54.3% with at least high school). These differences reflect both age effects and potential cohort effects in educational attainment.

4 Empirical Strategy

4.1 Difference-in-Differences Design

The analysis employs a difference-in-differences (DiD) research design, comparing changes in full-time employment before and after DACA implementation between the treatment and control groups.

The identifying assumption is that, in the absence of DACA, full-time employment trends would have been parallel between the treatment and control groups. While this assumption is fundamentally untestable, I examine pre-treatment trends to assess its plausibility.

4.2 Estimation

The baseline specification estimates:

$$\text{fulltime}_{it} = \alpha + \beta_1 \text{treat}_i + \beta_2 \text{post}_t + \delta(\text{treat}_i \times \text{post}_t) + \varepsilon_{it} \tag{1}$$

where:

- fulltime_{it} is an indicator for full-time employment
- treat_i is an indicator for the treatment group
- post_t is an indicator for the post-DACA period
- δ is the difference-in-differences estimator—the causal effect of interest

The coefficient δ captures the differential change in full-time employment for the treatment group relative to the control group after DACA implementation.

4.3 Specification Choices

4.3.1 Linear Probability Model

Given the binary outcome, I estimate a linear probability model (LPM). While probit or logit models could be used, the LPM has advantages: coefficients directly represent marginal effects in percentage points, and the DiD coefficient can be interpreted as the average treatment effect without additional transformation.

4.3.2 Survey Weights

The ACS provides person weights (PERWT) that account for the survey sampling design and allow estimates to be representative of the US population. I present both unweighted and weighted estimates, with the weighted specification as the preferred model.

4.3.3 Standard Errors

I use heteroskedasticity-robust standard errors (Huber-White) to account for the inherent heteroskedasticity in linear probability models. Clustering at the individual level is not possible with repeated cross-sectional data.

4.4 Event Study Specification

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

$$\text{fulltime}_{it} = \alpha + \gamma \text{treat}_i + \sum_{k \neq 2011} \lambda_k \mathbf{1}[t = k] + \sum_{k \neq 2011} \theta_k (\text{treat}_i \times \mathbf{1}[t = k]) + \varepsilon_{it} \qquad (2)$$

The coefficients θ_k represent the treatment-control difference in each year relative to 2011 (the reference year). Under the parallel trends assumption, pre-treatment coefficients (θ_{2006} through θ_{2010}) should be close to zero and statistically insignificant.

5 Results

5.1 Descriptive Analysis

Table 3 presents full-time employment rates by treatment status and time period.

Table 3: Full-Time Employment Rates by Group and Period

Group	Pre-DACA	Post-DACA	Change	ΔChange
Treatment (ages 26–30)	0.611	0.634	+0.023	
Control (ages 31–35)	0.643	0.611	−0.032	
Difference-in-Differences				**+0.055**

The simple difference-in-differences calculation reveals a 5.5 percentage point effect. In the pre-DACA period, the control group had higher full-time employment rates (64.3% vs. 61.1%), consistent with older workers being more established in the labor market. After DACA, the treatment group's full-time employment increased by 2.3 percentage points while the control group's decreased by 3.2 percentage points, yielding the 5.5 percentage point DiD estimate.

5.2 Main Results

Table 4 presents the main regression results.

Table 4: Difference-in-Differences Regression Results

	(1) Unweighted	(2) Weighted	(3) With Controls
Treatment × Post	0.0551***	0.0620***	0.0484***
	(0.0098)	(0.0116)	(0.0105)
Treatment	−0.0320***	−0.0372***	−0.0313***
	(0.0058)	(0.0070)	(0.0064)
Post	−0.0323***	−0.0400***	—
	(0.0076)	(0.0088)	
Female			−0.2518***
			(0.0057)
Married			0.1192***
			(0.0061)
High School+			0.0539***
			(0.0061)
State FE	No	No	Yes
Year FE	No	No	Yes
Weights	No	Yes	Yes
N	44,725	44,725	44,725

Robust standard errors in parentheses. *** p < 0.01, ** p < 0.05, * p < 0.1

5.2.1 Preferred Specification

The preferred specification (Column 2) uses survey weights and robust standard errors but no additional covariates. The estimated effect of DACA eligibility on full-time employment is **6.2 percentage points** (SE = 1.16 pp), with a 95% confidence interval of [3.9, 8.5] percentage points. This effect is highly statistically significant ($p < 0.001$).

5.2.2 Interpretation

The coefficient indicates that DACA eligibility increased the probability of full-time employment by approximately 6.2 percentage points. Given the pre-treatment full-time employment

rate of 61.1% in the treatment group, this represents roughly a 10% increase in the likelihood of full-time employment.

5.2.3 Robustness to Covariates

Column 3 adds demographic covariates (gender, marital status, education) and state and year fixed effects. The DiD estimate decreases slightly to 4.8 percentage points but remains highly significant. The reduction suggests that some of the baseline effect may be explained by compositional changes, though the core finding is robust.

The covariate coefficients are intuitive: being female reduces full-time employment probability by 25 percentage points, being married increases it by 12 percentage points, and having at least a high school education increases it by 5 percentage points.

5.3 Event Study Results

Figure **??** would present the event study coefficients graphically. Table 5 reports the point estimates and standard errors.

Table 5: Event Study Coefficients (Treatment × Year Interactions)

Year	Coefficient	Std. Error	p-value
Pre-DACA (Reference: 2011)			
2006	−0.0053	0.0243	0.827
2007	−0.0133	0.0241	0.580
2008	0.0186	0.0247	0.452
2009	0.0169	0.0252	0.503
2010	0.0189	0.0250	0.450
Post-DACA			
2013	0.0595**	0.0263	0.023
2014	0.0696***	0.0266	0.009
2015	0.0427	0.0266	0.108
2016	0.0953***	0.0267	0.000

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

The event study provides strong support for the parallel trends assumption:

1. **Pre-treatment coefficients**: All coefficients for 2006–2010 are small in magnitude (ranging from −0.01 to +0.02) and statistically insignificant. None differ significantly from the reference year 2011. This suggests that treatment and control groups had parallel trends in full-time employment before DACA.

2. **Post-treatment coefficients**: Effects emerge immediately after DACA implementation. The 2013 coefficient (0.060) is statistically significant, and effects generally grow over time, reaching 0.095 in 2016. The one exception is 2015 (0.043), which is positive but not statistically significant.

3. **Timing**: The sharp break between pre and post periods aligns with DACA implementation. There is no evidence of pre-existing differential trends or anticipation effects.

5.4 Subgroup Analysis

Table 6 examines heterogeneity by gender.

Table 6: Subgroup Analysis by Sex

Group	DiD Estimate	Std. Error	N
Males	0.0621***	0.0124	25,058
Females	0.0313*	0.0182	19,667

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

DACA's effect on full-time employment appears larger for males (6.2 percentage points) than for females (3.1 percentage points), though both effects are positive. The difference may reflect gender differences in labor force participation patterns or occupational sorting. However, given the overlapping confidence intervals, this difference should be interpreted cautiously.

6 Robustness Checks

6.1 Alternative Age Bands

As a robustness check, I re-estimate the model using narrower age bands: ages 27–29 (treatment) vs. 32–34 (control). This provides groups more proximate to the eligibility cutoff, potentially improving comparability while reducing sample size.

Table 7: Robustness: Alternative Age Bands

Specification	DiD Estimate	Std. Error	95% CI	N
Main (26–30 vs. 31–35)	0.0620	0.0116	[0.039, 0.085]	44,725
Narrow (27–29 vs. 32–34)	0.0682	0.0149	[0.039, 0.097]	26,792

The narrower bandwidth yields a slightly larger point estimate (6.8 pp vs. 6.2 pp) with a larger standard error due to reduced sample size. The confidence intervals overlap substantially, indicating robustness to this alternative specification.

6.2 Placebo Test

To further assess the validity of the research design, I conduct a placebo test using only pre-DACA data (2006–2011). I artificially designate 2009–2011 as the "post" period and estimate the DiD model on this restricted sample. Under the parallel trends assumption, we should find no significant effect.

Table 8: Placebo Test Results

	DiD Estimate	Std. Error	p-value
Placebo (2009–2011 as "post")	0.0120	0.0135	0.375

The placebo DiD estimate is small (1.2 percentage points) and not statistically significant ($p = 0.375$). This supports the parallel trends assumption—there is no evidence of differential trends between treatment and control groups in the pre-DACA period.

6.3 Specification Checks

The main results are robust across specifications:

- Unweighted vs. weighted estimation (5.5 pp vs. 6.2 pp)
- Without vs. with demographic controls (6.2 pp vs. 4.8 pp)
- Baseline vs. narrow age bands (6.2 pp vs. 6.8 pp)

All specifications yield positive, statistically significant estimates in the range of 4.8–6.8 percentage points.

7 Discussion

7.1 Interpretation of Results

The analysis finds that DACA eligibility increased full-time employment by approximately 6.2 percentage points among Hispanic-Mexican, Mexican-born non-citizens. This effect

is economically meaningful—representing roughly a 10% increase from the pre-treatment baseline—and highly statistically significant.

Several mechanisms could explain this effect:

1. **Legal work authorization**: DACA provides formal work authorization, enabling recipients to seek employment in sectors and firms that require documentation. This expands the set of available jobs, potentially including those more likely to offer full-time hours.

2. **Transition from informal to formal employment**: Pre-DACA, eligible individuals may have worked informally or for employers who did not verify documentation. Post-DACA, they could transition to formal employment, which is more likely to be full-time.

3. **Reduced labor market friction**: Work authorization, combined with the ability to obtain driver's licenses and Social Security numbers in many states, may reduce search frictions and enable better job matching.

4. **Human capital investment**: Knowing they have legal status for at least two years may encourage recipients to invest in job-specific skills, training, or education, making them more valuable employees who are offered more hours.

7.2 Comparison with Control Group Trends

An interesting finding is that full-time employment *declined* in the control group over the same period (from 64.3% to 61.1%). This could reflect:

- Age-related labor force transitions (ages 31–35 $\rightarrow$ 38–42 by 2016)
- Macroeconomic conditions affecting older workers differently
- Secular trends in the informal labor market

The DiD design accounts for any trends common to both groups, but group-specific trends could bias results. The event study evidence against differential pre-trends mitigates this concern.

7.3 Limitations

Several limitations should be acknowledged:

1. **Undocumented status proxy**: The ACS cannot distinguish documented from undocumented non-citizens. Some individuals coded as "non-citizens" may have legal status, diluting the treatment effect. This likely biases estimates toward zero, making the true effect potentially larger.

2. **Intention-to-treat**: The analysis estimates the effect of DACA *eligibility*, not actual DACA receipt. Not all eligible individuals applied for or received DACA. The effect on those who actually received DACA is likely larger.

3. **Age comparability**: The treatment and control groups differ in age by design. While both are working-age adults, age-related differences in labor market behavior may introduce confounding. The parallel trends evidence suggests this is not a major concern.

4. **No clustering**: Standard errors are not clustered, potentially understating uncertainty. However, with repeated cross-sectional data, the appropriate clustering level is unclear.

5. **External validity**: Results apply specifically to Hispanic-Mexican, Mexican-born non-citizens who arrived before age 16 and by 2007. Effects may differ for other potentially DACA-eligible populations.

8 Conclusion

This replication study provides evidence that DACA eligibility significantly increased full-time employment among the target population. The preferred estimate indicates a 6.2 percentage point increase (95% CI: 3.9–8.5 pp), representing a substantial improvement in labor market outcomes.

The findings are robust to multiple specification checks:

- Alternative age bandwidths yield similar estimates
- Results are robust to inclusion of demographic controls and fixed effects
- Event study analysis supports the parallel trends assumption
- Placebo tests show no spurious effects in pre-treatment data

These results suggest that policies providing work authorization to undocumented immigrants can have meaningful positive effects on their labor market outcomes. The legal right to work appears to facilitate transitions into full-time, formal employment.

8.1 Policy Implications

The findings have implications for ongoing debates about immigration policy:

1. DACA appears to have achieved its goal of improving employment outcomes for recipients

2. Work authorization, even when temporary, generates measurable labor market benefits

3. The 31-year-old cutoff excluded individuals who would likely have benefited similarly

Future research could examine other outcomes (wages, job quality, educational attainment) and explore heterogeneity across states with different immigrant policy environments.

Appendix A: Variable Definitions

Variable	IPUMS Name	Definition
Full-time employment	UHRSWORK	Indicator for usually working 35+ hours per week
Treatment group	BIRTHYR	Birth year 1982–1986 (ages 26–30 in 2012)
Control group	BIRTHYR	Birth year 1977–1981 (ages 31–35 in 2012)
Post period	YEAR	Survey year 2013 or later
Hispanic-Mexican	HISPAN	HISPAN = 1
Born in Mexico	BPL	BPL = 200
Non-citizen	CITIZEN	CITIZEN = 3
Age at immigration	YRIMMIG, BIRTHYR	YRIMMIG − BIRTHYR
Female	SEX	SEX = 2
Married	MARST	MARST $\leq$ 2
High school+	EDUC	EDUC $\geq$ 6
Survey weight	PERWT	Person weight from ACS
State	STATEFIP	State FIPS code

Appendix B: Full Sample Construction Details

B.1 Data Source

The analysis uses American Community Survey data from IPUMS USA for years 2006–2016. Only one-year ACS samples are used (not 3-year or 5-year).

B.2 Eligibility Criteria Implementation

Hispanic-Mexican ethnicity: HISPAN = 1 identifies Mexican-origin Hispanics. This includes those identifying as Mexican, Mexican American, Mexicano, or Chicano.

Mexican birthplace: BPL = 200 identifies individuals born in Mexico.

Non-citizen status: CITIZEN = 3 indicates "Not a citizen." This serves as a proxy for undocumented status since the ACS does not distinguish documented from undocumented non-citizens.

Arrived before age 16: Calculated as YRIMMIG − BIRTHYR $<$ 16. Observations with YRIMMIG = 0 (not applicable or missing) are excluded.

Continuous residence since June 15, 2007: Implemented as YRIMMIG $\leq$ 2007. Anyone arriving in 2007 or earlier would have been in the US by June 15, 2007.

Treatment group: Ages 26–30 on June 15, 2012, calculated as birth year in range 1982–1986.

Control group: Ages 31–35 on June 15, 2012, calculated as birth year in range 1977–1981.

B.3 Sample Sizes by Year

Year	Treatment	Control	Total
2006	2,667	1,895	4,562
2007	2,713	1,858	4,571
2008	2,780	1,906	4,686
2009	3,051	2,082	5,133
2010	3,066	2,033	5,099
2011	3,133	2,142	5,275
2013	2,298	1,556	3,854
2014	2,339	1,562	3,901
2015	2,316	1,560	3,876
2016	2,228	1,540	3,768
Total	26,591	18,134	44,725

Appendix C: Additional Results

C.1 Full Regression Output: Preferred Specification

```
Dependent Variable: Full-Time Employment (0/1)
Estimation Method: Weighted Least Squares
Weights: PERWT
Standard Errors: Heteroskedasticity-robust (HC1)

                 Coefficient   Std. Error    t-stat    p-value    95% CI
------------------------------------------------------------------------------
Intercept             0.6509       0.0050    130.88     0.0000   [0.641, 0.661]
treat                -0.0372       0.0070     -5.31     0.0000   [-0.051, -0.023]
post                 -0.0400       0.0088     -4.55     0.0000   [-0.057, -0.023]
treat_post            0.0620       0.0116      5.34     0.0000   [0.039, 0.085]
------------------------------------------------------------------------------

N = 44,725
R-squared = 0.0028
```

C.2 Sample Distribution by State

The sample is concentrated in states with large Mexican immigrant populations:

State	N	Percent
California	15,234	34.1%
Texas	11,876	26.6%
Illinois	2,456	5.5%
Arizona	2,134	4.8%
Florida	1,567	3.5%
Other	11,458	25.6%