The Effect of DACA Eligibility on Full-Time Employment:

An Independent Replication Study

Replication Study 88

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Abstract

This study independently replicates the analysis of the causal effect of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on full-time employment among Mexican-born Hispanic individuals in the United States. Using a difference-in-differences design that compares individuals aged 26–30 (eligible) to those aged 31–35 (ineligible due to age cutoff) before and after DACA's implementation in June 2012, I find that DACA eligibility is associated with a 7.21 percentage point increase in the probability of full-time employment (95% CI: 3.67–10.75 pp, $p < 0.001$). This positive effect is robust across multiple model specifications and supports the hypothesis that legal work authorization improves labor market outcomes for undocumented immigrants.

Contents

1   Introduction

1.1   Background on DACA

The Deferred Action for Childhood Arrivals (DACA) program was enacted by the United States federal government on June 15, 2012. The program allowed a selected set of undocumented immigrants who had arrived unlawfully in the U.S. to apply for and obtain authorization to work legally for two years without fear of deportation. DACA represented a significant policy shift that potentially affected the labor market outcomes of hundreds of thousands of young undocumented immigrants.

1.2   Policy Eligibility Criteria

Individuals were eligible for DACA if they met all of the following criteria:

- Arrived unlawfully in the U.S. before their 16th birthday

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

- Lived continuously in the U.S. since June 15, 2007

- Were present in the U.S. on June 15, 2012 and did not have lawful status at that time

The age cutoff at 31 years old provides a natural comparison group for evaluating the program's effects, as individuals just above this threshold would have been eligible if not for their age.

1.3   Research Question

This study addresses the following research question: **What was the causal impact of eligibility for DACA on the probability of full-time employment among ethnically Hispanic, Mexican-born individuals living in the United States?**

Full-time employment is defined as usually working 35 hours per week or more. The analysis compares individuals aged 26–30 at the time DACA was implemented (the treatment group) to those aged 31–35 (the control group), examining how full-time employment rates changed from before (2008–2011) to after (2013–2016) the policy's implementation.

1.4   Theoretical Motivation

DACA may affect employment through several channels:

1. **Legal work authorization**: DACA allows recipients to obtain Social Security numbers and work legally, removing barriers to formal employment.

2. **Reduced deportation risk**: Deferred action reduces uncertainty and may encourage longer-term employment relationships.

3. **Access to identification**: DACA recipients can obtain driver's licenses in many states, facilitating commuting and job access.

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

Based on these mechanisms, we hypothesize that DACA eligibility should increase the probability of full-time employment among eligible individuals.

2 Data and Sample

2.1 Data Source

The analysis uses data from the American Community Survey (ACS) as provided by IPUMS USA. The provided dataset contains ACS data from 2008 through 2016, excluding 2012 since the treatment timing within that year cannot be determined.

2.2 Sample Construction

The analytic sample consists of ethnically Hispanic, Mexican-born individuals who meet the DACA eligibility criteria except potentially for age:

- **Treatment group (ELIGIBLE = 1)**: Individuals aged 26–30 as of June 15, 2012

- **Control group (ELIGIBLE = 0)**: Individuals aged 31–35 as of June 15, 2012

The sample was pre-constructed in the provided data file, with the ELIGIBLE variable indicating treatment status. Following the instructions, no additional sample restrictions were applied.

2.3 Sample Size

Table 1 presents the sample sizes by year and treatment status.

Table 1: Sample Size by Year and Treatment Group

Year	Control (Ages 31–35)	Treatment (Ages 26–30)	Total
Pre-Treatment Period			
2008	848	1,506	2,354
2009	816	1,563	2,379
2010	851	1,593	2,444
2011	779	1,571	2,350
Post-Treatment Period			
2013	747	1,377	2,124
2014	707	1,349	2,056
2015	623	1,227	1,850
2016	629	1,196	1,825
Total	**6,000**	**11,382**	**17,382**

Note: Pre-treatment period is 2008–2011; post-treatment period is 2013–2016. Year 2012 is excluded from the analysis.

2.4 Variable Definitions

2.4.1 Outcome Variable

- **FT**: Binary indicator for full-time employment, coded as 1 if the individual usually works 35 hours per week or more, and 0 otherwise. Individuals not in the labor force are included as 0 values.

2.4.2 Treatment Variables

- **ELIGIBLE**: Binary indicator equal to 1 for individuals aged 26–30 as of June 2012 (treatment group) and 0 for individuals aged 31–35 (control group).

- **AFTER**: Binary indicator equal to 1 for years 2013–2016 (post-DACA) and 0 for years 2008–2011 (pre-DACA).

- **ELIGIBLE × AFTER**: Interaction term capturing the difference-in-differences estimate.

2.4.3 Control Variables

- **SEX**: Male or Female

- **EDUC_RECODE**: Education level (Less than High School, High School Degree, Some College, Two-Year Degree, BA+)

- **YEAR**: Survey year (used to construct year fixed effects)

- **PERWT**: Person weight from ACS for survey weighting

2.5 Descriptive Statistics

Table 2 presents demographic characteristics by treatment status.

Table 2: Demographic Characteristics by Treatment Status

Characteristic	Control (Ages 31–35)	Treatment (Ages 26–30)
Age at June 2012		
Mean	32.93	28.11
Std. Dev.	1.22	1.43
Sex (%)		
Male	52.93	51.83
Female	47.07	48.17
Education (%)		
Less than High School	0.05	0.05
High School Degree	73.82	70.44
Some College	15.28	17.22
Two-Year Degree	5.08	6.03
BA or higher	5.77	6.26
Marital Status (%)		
Married, spouse present	51.62	41.77
Never married/single	33.70	47.29
Other	14.68	10.94
N	6,000	11,382

Note: Statistics are unweighted. Treatment group is DACA-eligible (ages 26–30); control group is DACA-ineligible due to age (ages 31–35).

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The treatment and control groups are generally similar in terms of sex and education distributions. The main difference is in marital status, where the treatment group has a higher proportion of never-married individuals (47.3% vs. 33.7%), which is expected given the younger age of this group.

3 Empirical Strategy

3.1 Identification Strategy

This analysis employs a difference-in-differences (DiD) design to estimate the causal effect of DACA eligibility on full-time employment. The key identifying assumption is that, in the absence of DACA, the treatment group (ages 26–30) and control group (ages 31–35) would have experienced parallel trends in full-time employment.

The DiD design compares changes in outcomes over time between the treatment and control groups:

$$\text{DiD} = (\bar{Y}_{\text{Treat,Post}} - \bar{Y}_{\text{Treat,Pre}}) - (\bar{Y}_{\text{Ctrl,Post}} - \bar{Y}_{\text{Ctrl,Pre}}) \tag{1}$$

This double-differencing removes:

1. Time-invariant differences between treatment and control groups

2. Common time trends affecting both groups

3.2 Econometric Specification

The basic DiD model is estimated using weighted least squares:

$$FT_{it} = \beta_0 + \beta_1 ELIGIBLE_i + \beta_2 AFTER_t + \beta_3(ELIGIBLE_i \times AFTER_t) + \varepsilon_{it} \tag{2}$$

where:

- FT_{it} is the full-time employment indicator for individual i in year t

- $ELIGIBLE_i$ indicates treatment group membership

- $AFTER_t$ indicates the post-DACA period

- β_3 is the DiD estimate of the DACA effect

The preferred specification includes year fixed effects:

$$FT_{it} = \beta_0 + \beta_1 ELIGIBLE_i + \beta_3(ELIGIBLE_i \times AFTER_t) + \sum_{\tau} \gamma_\tau \mathbf{1}(t = \tau) + \varepsilon_{it} \quad (3)$$

Year fixed effects absorb common time trends and macroeconomic conditions, providing more precise estimates than the simple AFTER indicator.

3.3 Estimation Details

- **Weighting**: All regressions use person weights (PERWT) from the ACS to account for the survey design and produce population-representative estimates.

- **Standard Errors**: Heteroskedasticity-robust standard errors (HC1) are reported throughout.

- **Software**: Analysis conducted using Python 3.14 with statsmodels 0.14.6.

4 Results

4.1 Simple Difference-in-Differences

Table 3 presents the 2×2 table of mean full-time employment rates using survey weights.

Table 3: Mean Full-Time Employment Rates by Treatment Status and Period (Weighted)

Group	Pre-Treatment (2008–2011)	Post-Treatment (2013–2016)	Change
Control (Ages 31–35)	0.6886	0.6629	−0.0257
Treatment (Ages 26–30)	0.6369	0.6860	+0.0491
Difference	−0.0517	+0.0231	
DiD Estimate			**+0.0748**

Note: Means are weighted using ACS person weights (PERWT). The DiD estimate is the change in the treatment group minus the change in the control group.

The simple DiD calculation reveals:

- The control group experienced a slight *decrease* in full-time employment (−2.57 percentage points), likely reflecting economic conditions

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- The treatment group experienced an *increase* in full-time employment (+4.91 percentage points)

- The DiD estimate is **+7.48 percentage points**

4.2 Regression Results

Table 4 presents the main regression results across multiple specifications.

Table 4: Effect of DACA Eligibility on Full-Time Employment: Main Results

	(1) Basic	(2) Weighted	(3) Robust SE	(4) Sex Control	(5) Year FE
ELIGIBLE × AFTER	0.0643***	0.0748***	0.0748***	0.0634***	**0.0721*** **
	(0.0153)	(0.0152)	(0.0181)	(0.0168)	(0.0181)
ELIGIBLE	−0.0434***	−0.0517***	−0.0517***	−0.0409***	−0.0495***
	(0.0103)	(0.0102)	(0.0121)	(0.0112)	(0.0120)
AFTER	−0.0248**	−0.0257**	−0.0257*	−0.0154	—
	(0.0124)	(0.0124)	(0.0147)	(0.0135)	
MALE				0.3321***	
				(0.0082)	
Constant	0.6697***	0.6886***	0.6886***	0.5006***	0.7358***
	(0.0083)	(0.0083)	(0.0096)	(0.0104)	(0.0132)
Year Fixed Effects	No	No	No	No	Yes
Weighting	No	Yes	Yes	Yes	Yes
Robust SE	No	No	Yes	Yes	Yes
Observations	17,382	17,382	17,382	17,382	17,382

Note: Dependent variable is full-time employment (FT). Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Column (5) is the preferred specification.

4.3 Preferred Estimate

The preferred specification is Model (5), which uses weighted least squares with year fixed effects and robust standard errors. The key results are:

> **Preferred Estimate:** DACA eligibility increases the probability of full-time employment by **7.21 percentage points** (SE = 0.0181, 95% CI: [3.67, 10.75], $p < 0.001$).

The effect is:

- **Economically significant**: A 7.21 percentage point increase represents approximately an 11% increase relative to the pre-treatment mean for the treatment group (63.69%).

- **Statistically significant**: The effect is significant at the 1% level with a p-value of 0.0001.

- **Robust**: The estimate is similar across all model specifications (ranging from 5.83 to 7.48 percentage points).

4.4 Additional Model Specifications

Table 5 presents results from specifications with additional controls.

Table 5: Effect of DACA Eligibility: Additional Specifications

	(6) Year FE + Sex	(7) Full Model
ELIGIBLE × AFTER	0.0607***	0.0583***
	(0.0168)	(0.0167)
ELIGIBLE	−0.0388***	−0.0401***
	(0.0112)	(0.0112)
MALE	0.3318***	0.3358***
	(0.0082)	(0.0082)
Year Fixed Effects	Yes	Yes
Education Controls	No	Yes
Observations	17,382	17,382

Note: All models use weighted least squares with robust standard errors. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Education controls include dummies for High School Degree, Some College, Two-Year Degree, and BA+ (omitted category: Less than High School).

Key findings:

- Being male increases the probability of full-time employment by approximately 33 percentage points, a large and highly significant effect.

- Adding sex and education controls slightly attenuates the DACA effect (from 7.21 to 5.83 pp) but it remains large and highly significant.

- The robustness of results across specifications increases confidence in the findings.

5 Robustness Checks and Validity

5.1 Parallel Trends Assessment

The validity of the DiD design depends critically on the parallel trends assumption. Table 6 presents year-by-year full-time employment rates and the treatment-control difference.

Table 6: Year-by-Year Full-Time Employment Rates (Weighted)

Year	Treatment	Control	Difference	Period
2008	0.6799	0.7469	-0.0670	Pre
2009	0.6366	0.6854	-0.0488	Pre
2010	0.6092	0.6902	-0.0810	Pre
2011	0.6249	0.6238	$+0.0011$	Pre
2013	0.6739	0.6571	$+0.0169$	Post
2014	0.6430	0.6419	$+0.0011$	Post
2015	0.6926	0.6901	$+0.0025$	Post
2016	0.7414	0.6662	$+0.0751$	Post
Average Pre	0.6377	0.6866	-0.0490	
Average Post	0.6877	0.6638	$+0.0239$	
Change			$\mathbf{+0.0728}$	

Note: Means are weighted using ACS person weights. The change in the average difference corresponds to the DiD estimate.

Observations on pre-treatment trends:

- The treatment group had consistently *lower* full-time employment rates than the control group in the pre-period (by 5–8 percentage points in 2008–2010).

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- The gap narrowed substantially by 2011, with nearly identical rates.

- In the post-period, the treatment group's rates exceeded or matched the control group.

- This pattern is consistent with a positive DACA effect, though the pre-trend narrowing in 2011 warrants attention.

5.2   Placebo Test

To formally test for pre-trends, I conduct a placebo test using only pre-treatment data (2008–2011), with a fake "treatment" starting in 2010.

Table 7: Placebo Test: Artificial Treatment in 2010 (Pre-Period Only)

	Placebo DiD
ELIGIBLE $\times$ PLACEBO_AFTER	0.0178
	(0.0241)
p-value	0.461
Observations	9,527

Note: PLACEBO_AFTER = 1 for years 2010–2011,
0 for years 2008–2009. Standard errors in parentheses
are heteroskedasticity-robust.

The placebo coefficient is small (1.78 pp) and statistically insignificant ($p = 0.461$), providing support for the parallel trends assumption. This suggests that the treatment and control groups were not diverging differentially before DACA was implemented.

5.3   Heterogeneous Effects by Sex

Table 8 presents separate estimates for males and females.

Table 8: Heterogeneous Effects by Sex

	Female	Male
ELIGIBLE × AFTER	0.0527*	0.0716***
	(0.0281)	(0.0199)
p-value	0.061	0.0003
Observations	8,307	9,075

Note: Each column reports results from a separate weighted DiD regression on the indicated subsample. Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Both sexes show positive effects, with males experiencing a larger and more precisely estimated effect (7.16 pp, $p < 0.001$) compared to females (5.27 pp, $p = 0.061$). The female effect is marginally significant at the 10% level.

5.4 Heterogeneous Effects by Education

Table 9 presents estimates by education level.

Table 9: Heterogeneous Effects by Education Level

	High School	Some College	Two-Year	BA+
ELIGIBLE × AFTER	0.0608***	0.0672	0.1816**	0.1619**
	(0.0214)	(0.0437)	(0.0765)	(0.0714)
p-value	0.005	0.124	0.018	0.023
Observations	12,444	2,877	991	1,058

Note: Each column reports results from a separate weighted DiD regression on the indicated education subsample. Robust standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

The DACA effect appears to be larger for more educated individuals:

- High School Degree: 6.08 pp effect ($p = 0.005$)

- Some College: 6.72 pp effect ($p = 0.124$)

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- Two-Year Degree: 18.16 pp effect ($p = 0.018$)

- BA or higher: 16.19 pp effect ($p = 0.023$)

This pattern suggests that DACA may have had particularly strong effects on individuals with more education, possibly because they had more to gain from legal work authorization in terms of accessing jobs commensurate with their qualifications.

6 Discussion

6.1 Summary of Findings

This replication study finds a statistically significant and economically meaningful positive effect of DACA eligibility on full-time employment. The preferred estimate suggests that DACA eligibility increased the probability of full-time employment by approximately 7.21 percentage points (95% CI: 3.67–10.75), an effect that is robust across multiple model specifications.

6.2 Interpretation

The positive employment effect is consistent with the theoretical mechanisms through which DACA might affect labor market outcomes:

1. **Removal of legal barriers**: DACA recipients can legally work, eliminating the need for informal employment arrangements that often offer fewer hours and lower wages.

2. **Reduced job search friction**: With valid identification and work authorization, DACA recipients can more easily apply for and secure formal employment.

3. **Better job matching**: Legal status may allow workers to seek employment that better matches their skills, potentially leading to longer hours.

4. **Employer preferences**: Employers may prefer to hire workers who can provide valid documentation, reducing discrimination against DACA-eligible workers.

6.3 Comparison to Simple Calculation

The simple 2×2 DiD calculation yields an estimate of 7.48 percentage points, which is very close to the regression-based preferred estimate of 7.21 pp with year fixed effects. This consistency increases confidence in the results.

6.4 Limitations

Several limitations should be noted:

1. **Parallel trends assumption**: While the placebo test supports parallel trends, the narrowing gap in 2011 suggests some caution. The assumption ultimately cannot be directly tested.

2. **Age-based comparison**: Individuals aged 31–35 may differ from those aged 26–30 in ways beyond DACA eligibility. While DiD controls for time-invariant differences, changes in life circumstances (e.g., family formation) may differ by age.

3. **SUTVA concerns**: If DACA affected labor market conditions for the control group (e.g., through labor supply shifts), this could bias estimates.

4. **Measurement of eligibility**: The ELIGIBLE variable is based on age and other criteria, but may include some ineligible individuals or exclude some eligible ones.

6.5 Policy Implications

These findings suggest that DACA had meaningful positive effects on full-time employment for eligible individuals. This has several policy implications:

- Legal work authorization can significantly improve labor market outcomes for undocumented immigrants.

- The effects may be largest for more educated individuals, suggesting complementarities between human capital and legal status.

- Immigration policies that provide work authorization may have substantial economic benefits for recipients.

7 Conclusion

This independent replication study estimates the causal effect of DACA eligibility on full-time employment using a difference-in-differences design. The analysis compares Mexican-born Hispanic individuals aged 26–30 (DACA-eligible) to those aged 31–35 (ineligible due to age) before and after the program's June 2012 implementation.

7.1 Main Finding

DACA eligibility is associated with a 7.21 percentage point increase in the probability of full-time employment (SE $= 0.0181$, 95% CI: $[0.037, 0.108]$, $p < 0.001$, $N = 17,382$). This effect is:

- Statistically significant at the 1% level

- Robust across multiple model specifications

- Supported by placebo tests for parallel trends

- Present for both sexes, with larger effects for males

- Larger for more educated individuals

7.2 Final Remarks

These results provide evidence that DACA had meaningful positive effects on employment outcomes for eligible individuals. The program's legal work authorization appears to have enabled recipients to increase their participation in full-time employment, consistent with the removal of legal barriers to formal labor market participation.

References

1. IPUMS USA, University of Minnesota, `www.ipums.org`

2. U.S. Citizenship and Immigration Services, "Consideration of Deferred Action for Childhood Arrivals (DACA)," 2012.

A Technical Appendix

A.1 Software and Reproducibility

The analysis was conducted using the following software:

- Python 3.14.2

- pandas 2.3.3

- statsmodels 0.14.6

- numpy 2.3.5

- scipy 1.16.3

All analysis code is contained in `analysis.py` and can be executed to reproduce the results from the provided data file.

A.2 Complete Model Summary Table

Table 10: Complete Results: All Model Specifications

Model	Coefficient	Std. Error	p-value	N
1. Basic DiD (Unweighted)	0.0643	0.0153	<0.001	17,382
2. Weighted DiD	0.0748	0.0152	<0.001	17,382
3. Weighted DiD (Robust SE)	0.0748	0.0181	<0.001	17,382
4. With Sex Control	0.0634	0.0168	<0.001	17,382
5. With Year FE (Preferred)	**0.0721**	**0.0181**	<0.001	17,382
6. Year FE + Sex	0.0607	0.0168	<0.001	17,382
7. Full Model	0.0583	0.0167	<0.001	17,382

Note: Dependent variable is full-time employment (FT). All models except (1) use weighted least squares with person weights. Models (3)–(7) use heteroskedasticity-robust standard errors. The preferred specification is Model 5.

A.3 Year Fixed Effects from Preferred Model

The following year fixed effects were estimated in Model 5 (reference year: 2008):

Year	Coefficient	Std. Error
2009	−0.0499	0.0158
2010	−0.0664	0.0158
2011	−0.0774	0.0168
2013	−0.0825	0.0201
2014	−0.1081	0.0205
2015	−0.0590	0.0204
2016	−0.0342	0.0205

The year effects show a general decline in full-time employment through 2014, followed by recovery in 2015–2016, consistent with the post-Great-Recession labor market recovery.