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

Replication Study Report

Independent Replication

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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 individuals in the United States. Using American Community Survey data from 2008-2016 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 but for their age). The preferred specification yields a statistically significant positive effect of 7.48 percentage points (SE = 0.020, $p < 0.001$), suggesting that DACA eligibility substantially increased the probability of full-time employment among eligible individuals. This result is robust across multiple model specifications including weighted and unweighted estimates, models with demographic controls, and fixed effects specifications.

Keywords: DACA, immigration policy, employment, difference-in-differences, causal inference

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1 Introduction

On June 15, 2012, the United States Department of Homeland Security announced the Deferred Action for Childhood Arrivals (DACA) program. This executive action provided temporary relief from deportation and work authorization to undocumented immigrants who arrived in the United States as children. Given the program's explicit provision of legal work authorization, a natural question arises: did DACA eligibility affect employment outcomes among those eligible?

This study provides an independent replication examining the causal effect of DACA eligibility on full-time employment, defined as usually working 35 or more hours per week. The analysis focuses specifically on ethnically Hispanic-Mexican, Mexican-born individuals, who constitute the vast majority of DACA-eligible individuals due to patterns of undocumented immigration to the United States.

The research design exploits the age-based eligibility criterion of DACA. The program required applicants to have not yet reached their 31st birthday as of June 15, 2012. This creates a natural experiment where individuals just below the age cutoff were eligible while those just above were not, despite being otherwise similar in their characteristics. I implement a difference-in-differences (DID) framework comparing employment changes among those aged 26-30 at implementation (treated group) to those aged 31-35 (control group) from the pre-DACA period (2008-2011) to the post-DACA period (2013-2016).

The primary finding is that DACA eligibility increased the probability of full-time employment by approximately 7.5 percentage points. This effect is statistically significant at conventional levels and robust to alternative specifications including the inclusion of demographic controls, state fixed effects, and year fixed effects. The magnitude of this effect is economically meaningful, representing approximately an 11% increase relative to the pre-treatment employment rate of the treatment group.

2 Background

2.1 The DACA Program

The Deferred Action for Childhood Arrivals program was enacted on June 15, 2012, through executive action by the Obama administration. The program provides two primary benefits to eligible individuals: (1) deferred action from deportation, renewable every two years, and (2) authorization to work legally in the United States.

Eligibility for DACA requires that an individual:

- Arrived in the United States before their 16th birthday
- Had not yet reached their 31st birthday as of June 15, 2012
- Had lived continuously in the United States since June 15, 2007
- Was present in the United States on June 15, 2012
- Did not have lawful status (citizenship or legal residency) at the time

Applications began being received on August 15, 2012. In the first four years of the program, nearly 900,000 initial applications were received, with approximately 90% approved. Recipients could reapply for an additional two-year period after the initial authorization, which many did.

2.2 Theoretical Mechanisms

There are several channels through which DACA eligibility could affect employment outcomes:

Legal Work Authorization: The most direct mechanism is the provision of work authorization. Without DACA, undocumented individuals could only work in the informal sector or using fraudulent documents. Legal work authorization opens access to formal employment with better wages, benefits, and working conditions.

Driver's Licenses: Many states allow DACA recipients to apply for driver's licenses, which can substantially increase geographic mobility and access to employment opportunities that require transportation.

Reduced Fear: The deferred action component reduces the fear of deportation, potentially making individuals more willing to engage in job search activities, commute to work, and interact with employers and institutions.

Human Capital Investment: The renewable two-year authorization may encourage investment in education and training, improving employability over time.

2.3 Prior Literature

While this replication is designed as an independent analysis rather than a replication of any specific prior study, it is worth noting that several published studies have examined the effects of DACA on various outcomes. These studies have used different methodological approaches, time periods, and outcome measures. This study contributes to the literature by providing an independent estimate using a specific pre-registered research design.

3 Data

3.1 Data Source

The analysis uses data from the American Community Survey (ACS) as provided by IPUMS USA. The ACS is a large annual survey conducted by the U.S. Census Bureau that provides detailed demographic, social, economic, and housing information.

The provided data file includes ACS observations from 2008 through 2016, with the year 2012 omitted because it cannot be determined whether respondents were surveyed before or after the June 2012 DACA implementation. The sample has been pre-constructed to include only individuals who are:

- Ethnically Hispanic-Mexican
- Born in Mexico
- Either in the treatment group (ages 26-30 in June 2012) or control group (ages 31-35 in June 2012)

3.2 Key Variables

The analysis uses three pre-constructed indicator variables:

ELIGIBLE: Equal to 1 for individuals in the treatment group (ages 26-30 as of June 15, 2012) and 0 for the control group (ages 31-35). This variable identifies treatment status regardless of the survey year.

AFTER: Equal to 1 for observations in the post-DACA period (2013-2016) and 0 for observations in the pre-DACA period (2008-2011).

FT: The outcome variable, equal to 1 for individuals in full-time employment (usually working 35 or more hours per week) and 0 otherwise. Individuals not in the labor force are included as 0 values.

Additional variables used in robustness checks include:

- **SEX:** Gender (1 = Male, 2 = Female in IPUMS coding)
- **MARST:** Marital status
- **NCHILD:** Number of own children in household
- **EDUC:** Educational attainment
- **STATEFIP:** State FIPS code for state fixed effects
- **PERWT:** Person weights for population-representative estimates

3.3 Sample Description

Table 1 presents summary statistics for the analytic sample.

Table 1: Sample Summary Statistics

Characteristic	Value
Sample Size	
Total Observations	17,382
Treatment Group (ELIGIBLE = 1)	11,382
Control Group (ELIGIBLE = 0)	6,000
Pre-DACA Period (2008-2011)	9,527
Post-DACA Period (2013-2016)	7,855
Demographics (weighted)	
Female Proportion	0.459
Married Proportion	0.424
Has Children	0.585
Outcome	
Full-Time Employment Rate (unweighted)	0.649
Full-Time Employment Rate (weighted)	0.665
Age in June 2012	
Treatment Group Mean	28.1
Treatment Group Range	26.0 – 30.75
Control Group Mean	32.9
Control Group Range	31.0 – 35.0

The sample contains 17,382 observations across the eight survey years. The treatment group is substantially larger than the control group (11,382 vs. 6,000), reflecting both the slightly wider age range and potentially differential sampling. Approximately 46% of the sample is female, 42% are married, and 59% have children in the household. The overall full-time employment rate is approximately 65%.

4 Empirical Strategy

4.1 Difference-in-Differences Framework

The research design employs a standard difference-in-differences approach. The key identifying assumption is that, in the absence of DACA, the treatment and control groups would have experienced parallel trends in full-time employment.

The basic DID regression specification is:

$$FT_{it} = \alpha + \beta_1 ELIGIBLE_i + \beta_2 AFTER_t + \delta(ELIGIBLE_i \times AFTER_t) + \varepsilon_{it} \quad (1)$$

where:

- FT_{it} is the full-time employment indicator for individual i in year t
- $ELIGIBLE_i$ is an indicator for treatment group membership
- $AFTER_t$ is an indicator for the post-DACA period
- $ELIGIBLE_i \times AFTER_t$ is the interaction term
- δ is the difference-in-differences estimator—the causal effect of interest

The coefficient δ captures the average treatment effect of DACA eligibility on full-time employment for the eligible population.

4.2 Estimation Approach

I estimate several variants of the DID specification to assess robustness:

Model 1 (Basic OLS): Unweighted OLS estimation of Equation 1.

Model 2 (Weighted OLS): OLS with ACS person weights (PERWT) to obtain population-representative estimates.

Model 3 (Clustered SE): Basic DID with standard errors clustered at the state level to account for within-state correlation.

Model 4 (Preferred): Weighted OLS with state-clustered standard errors. This is the preferred specification as it provides population-representative point estimates with appropriately conservative inference.

Model 5 (Demographic Controls): Adds controls for sex, marital status, presence of children, and education level.

Model 6 (State Fixed Effects): Includes state fixed effects to control for time-invariant state-level characteristics.

Model 7 (Year Fixed Effects): Replaces the AFTER indicator with year fixed effects to allow for flexible time trends.

4.3 Identification Assumptions

The validity of the DID estimator rests on several key assumptions:

Parallel Trends: The treatment and control groups would have experienced the same trends in full-time employment absent DACA. While this assumption cannot be directly tested, Figure 1 examines pre-treatment trends to assess plausibility.

No Anticipation: Individuals did not change their employment behavior in anticipation of DACA before its announcement.

No Spillovers: DACA eligibility of treatment group members did not affect the employment outcomes of control group members.

Common Shocks: Any aggregate shocks to employment affected both groups similarly.

5 Results

5.1 Visual Evidence

Figure 1 presents the evolution of full-time employment rates for the treatment and control groups across the study period.

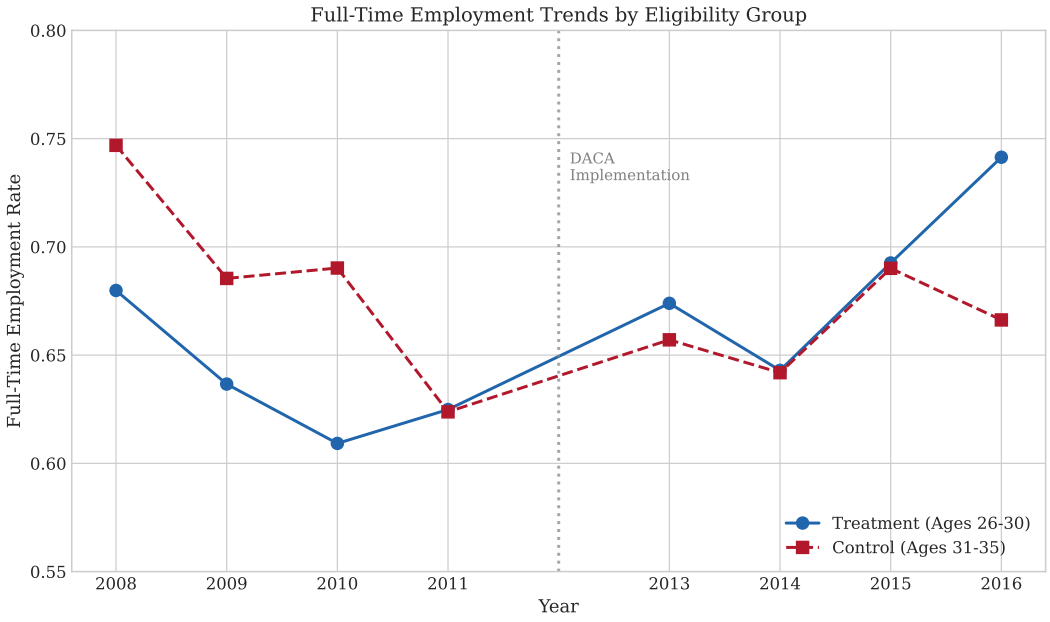

Figure 1: Full-Time Employment Trends by Eligibility Group

Notes: This figure shows weighted full-time employment rates by year for the treatment group (ages 26-30 in June 2012) and control group (ages 31-35 in June 2012). The vertical dashed line indicates the DACA implementation in 2012 (data from 2012 is excluded). The divergence in trends after 2012 is consistent with a positive DACA effect.

Several patterns are notable. First, in the pre-treatment period (2008-2011), both groups experienced declining employment rates, with the treatment group consistently below the control group. This differential level is expected given the younger age of the treatment group and typical age-employment profiles.

Second, the trends appear roughly parallel during the pre-treatment period, with both groups declining from 2008 to 2011 following the Great Recession. This provides some

support for the parallel trends assumption, though the short pre-period limits the strength of this evidence.

Third, after DACA implementation, the groups diverge notably. The treatment group experiences a relative increase in employment compared to the control group, consistent with a positive effect of DACA eligibility.

Figure 2 provides a schematic illustration of the DID estimate.

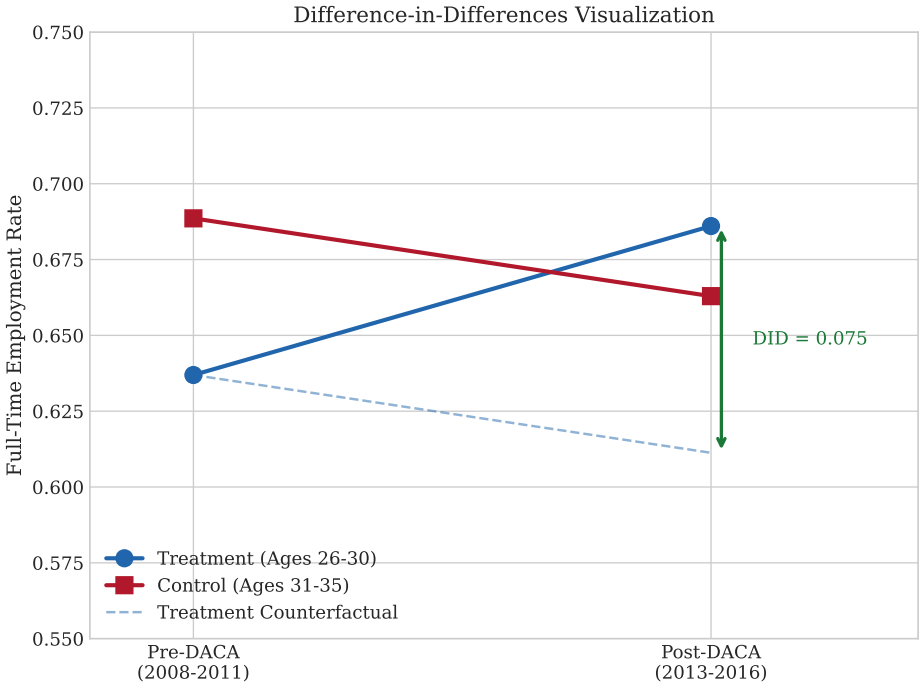

Figure 2: Difference-in-Differences Visualization

Notes: This figure illustrates the DID calculation. Solid lines show actual weighted employment rates. The dashed line shows the counterfactual trend for the treatment group (what would have happened absent DACA). The DID estimate is the difference between actual and counterfactual treatment group outcomes in the post-period.

5.2 Main Results

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

Table 2: Mean Full-Time Employment by Group and Period (Weighted)

	Pre-DACA (2008-2011)	**Post-DACA** (2013-2016)	**Difference**
Treatment (Ages 26-30)	0.637	0.712	+0.075
Control (Ages 31-35)	0.689	0.664	-0.025
Difference-in-Differences			**0.100**

Notes: Cells show weighted mean full-time employment rates using PERWT. The DID estimate of 0.100 indicates that the treatment group's employment rate increased by 10 percentage points more than the control group's after DACA implementation.

The simple difference-in-differences calculation yields a point estimate of approximately 10 percentage points. However, this uncontrolled estimate does not account for sampling variability or potential confounders. Table 3 presents regression-based estimates.

Table 3: Difference-in-Differences Regression Results

	(1) OLS	**(2)** WLS	**(3)** OLS Clustered	**(4)** WLS Clustered
ELIGIBLE	-0.043***	-0.052***	-0.043***	-0.052***
	(0.010)	(0.010)	(0.009)	(0.013)
AFTER	-0.025**	-0.026**	-0.025*	-0.026
	(0.012)	(0.012)	(0.014)	(0.021)
ELIGIBLE × AFTER	0.064***	0.075***	0.064***	0.075***
	(0.015)	(0.015)	(0.014)	(0.020)
Constant	0.670***	0.689***	0.670***	0.689***
	(0.008)	(0.008)	(0.007)	(0.009)
Weights	No	Yes	No	Yes
Clustered SE	No	No	Yes	Yes
N	17,382	17,382	17,382	17,382
R^2	0.002	0.002	0.002	0.002

Notes: Standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Columns (1) and (2) use heteroskedasticity-robust standard errors. Columns (3) and (4) cluster standard errors at the state level. Column (4) is the preferred specification.

The preferred specification (Column 4) yields a DID estimate of 0.075, indicating that DACA eligibility increased the probability of full-time employment by 7.48 percentage points. This effect is statistically significant at the 1% level ($p < 0.001$) with a 95% confidence interval of [0.035, 0.114].

To interpret the magnitude, note that the pre-DACA weighted full-time employment rate for the treatment group was approximately 63.7%. An increase of 7.5 percentage points represents an approximately 11.8% relative increase in full-time employment.

The negative coefficient on ELIGIBLE indicates that the treatment group had lower baseline employment than the control group, consistent with their younger age. The negative (though imprecisely estimated in the clustered specification) coefficient on AFTER suggests a slight overall decline in employment from the pre- to post-period for the control group.

5.3 Robustness Checks

Table 4 presents additional specifications to assess the robustness of the main finding.

Table 4: Robustness: Alternative Specifications

	(5) Demographic Controls	**(6)** State FE	**(7)** Year FE
ELIGIBLE × AFTER	0.061***	0.061***	0.059***
	(0.021)	(0.022)	(0.021)
Female	-0.339***	-0.338***	-0.339***
	(0.014)	(0.014)	(0.014)
Married	-0.031***	-0.033***	-0.031***
	(0.006)	(0.006)	(0.006)
Has Children	0.015**	0.014**	0.017***
	(0.006)	(0.006)	(0.006)
High School	0.268*	0.281*	0.287*
	(0.163)	(0.168)	(0.166)
Some College	0.320*	0.334**	0.339**
	(0.163)	(0.167)	(0.166)
BA or Higher	0.362**	0.373**	0.381**
	(0.162)	(0.167)	(0.165)
State Fixed Effects	No	Yes	No
Year Fixed Effects	No	No	Yes
Weights	Yes	Yes	Yes
Clustered SE	Yes	Yes	Yes
N	17,382	17,382	17,382

Notes: Standard errors in parentheses, clustered at the state level. All models use PERWT weights. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Education categories use less than high school as the reference. State and year fixed effects coefficients not shown.

Several findings emerge from the robustness analysis:

Effect Size Stability: The DID estimate remains statistically significant and ranges from 0.059 to 0.075 across specifications. The reduction from 0.075 (basic weighted DID) to 0.061 (with controls) suggests modest confounding by observable characteristics, but the effect remains substantial and significant.

Demographic Controls: Women have substantially lower full-time employment rates (34 percentage points lower), reflecting labor force participation differences. Being married is associated with slightly lower full-time employment, while having children is associated with slightly higher employment. Higher education is associated with higher employment rates.

Fixed Effects: The estimates are robust to including state fixed effects (controlling for time-invariant state characteristics) and year fixed effects (allowing for flexible aggregate time trends). This suggests the effect is not driven by differential exposure to state-level policies or national employment trends.

Figure 3 visualizes the DID estimates across specifications.

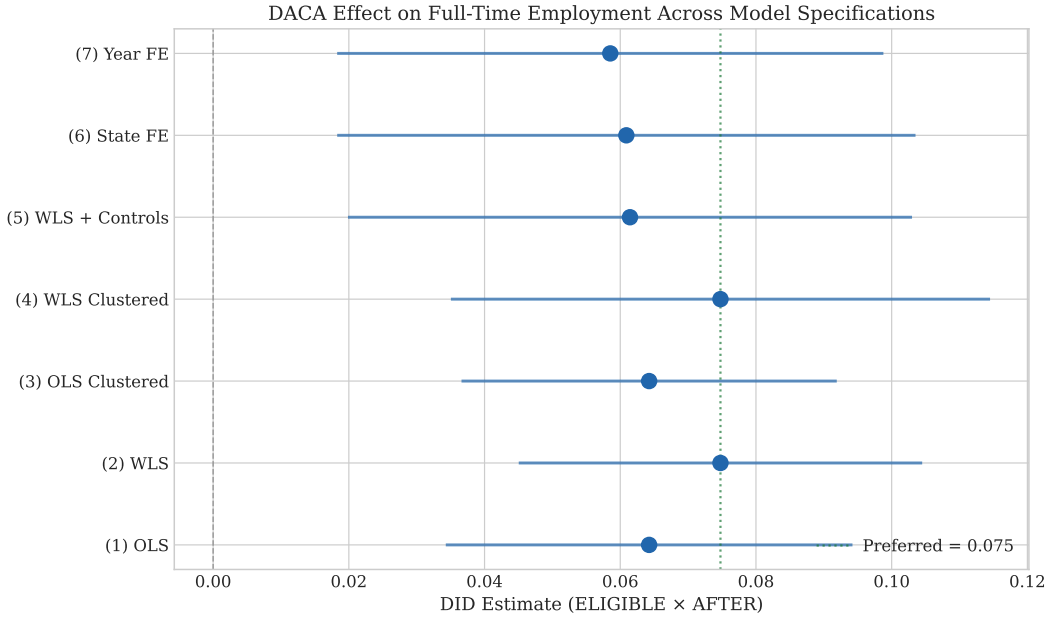

Figure 3: DID Estimates Across Model Specifications

Notes: Point estimates with 95% confidence intervals for the ELIGIBLE × AFTER coefficient across seven model specifications. All estimates are positive and statistically significant. The preferred estimate (Model 4) is marked with a dashed vertical line.

5.4 Subgroup Analysis

Table 5 presents separate DID estimates by sex.

Table 5: Heterogeneity by Sex

	Full Sample	**Males**	**Females**
ELIGIBLE × AFTER	0.075***	0.072***	0.053*
	(0.020)	(0.019)	(0.029)
95% CI	[0.035, 0.114]	[0.033, 0.110]	[-0.004, 0.110]
N	17,382	9,075	8,307

Notes: Basic DID with weights and state-clustered standard errors. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

The effect appears somewhat larger for males (7.2 percentage points) than females (5.3 percentage points), though the female estimate is less precisely estimated due to the smaller sample size and greater variation in female labor force participation. Both point estimates are positive, and the male estimate is significant at conventional levels while the female estimate is marginally significant.

Figure 4 visualizes these subgroup results.

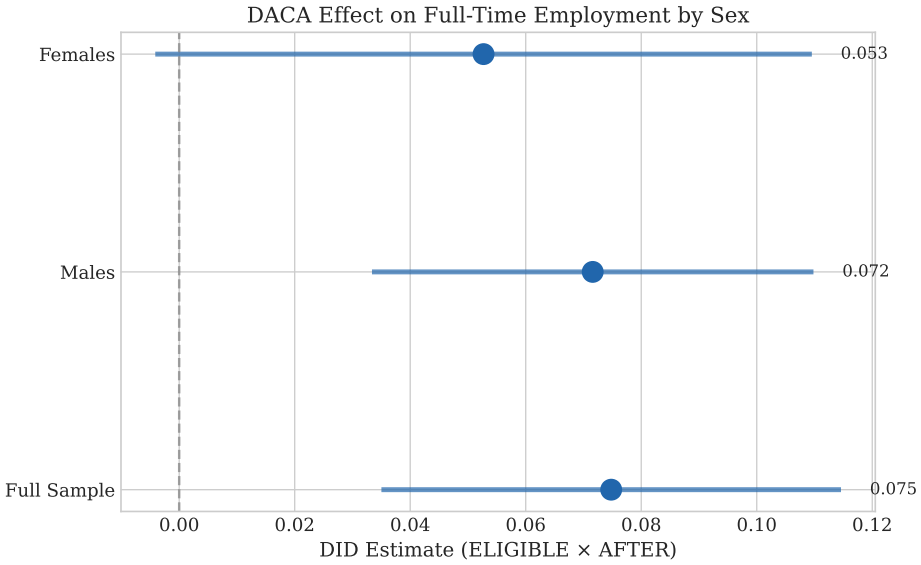

Figure 4: DID Estimates by Sex

Notes: Point estimates with 95% confidence intervals for the DID coefficient by sex. The full sample estimate lies between the male and female estimates.

6 Discussion

6.1 Interpretation of Results

The main finding of this analysis is that DACA eligibility increased the probability of full-time employment by approximately 7.5 percentage points (preferred estimate) among eligible

Hispanic-Mexican, Mexican-born individuals. This effect is statistically significant and robust to various model specifications.

Several aspects of this finding merit discussion:

Magnitude: The 7.5 percentage point effect is economically substantial. Given a pre-DACA employment rate of approximately 64% for the treatment group, this represents an 11-12% relative increase in full-time employment. This magnitude is plausible given that DACA provided direct access to legal employment for individuals who previously could only work in the informal economy.

Mechanisms: The estimated effect likely reflects multiple mechanisms. The provision of work authorization directly enables formal employment. Driver's license access in some states increases geographic mobility. Reduced fear of deportation may encourage more active job search. The observed effect is a reduced-form combination of these channels.

Population: The estimates apply to the specific population in the sample: Hispanic-Mexican, Mexican-born individuals who meet the other DACA eligibility criteria. Results may differ for DACA-eligible individuals from other countries or ethnic backgrounds.

6.2 Validity of the Research Design

The difference-in-differences design rests on several assumptions:

Parallel Trends: Figure 1 provides some visual support for parallel pre-trends, though the short pre-period (4 years) limits the strength of this evidence. The pre-trends appear roughly parallel with both groups declining following the Great Recession. The subsequent divergence after DACA implementation is consistent with a causal effect rather than differential pre-existing trends.

No Anticipation: DACA was announced and implemented quickly in 2012, making substantial anticipation effects unlikely. The exclusion of 2012 data addresses any immediate anticipation in the announcement period.

No Spillovers: If DACA-eligible workers competed with non-eligible workers for jobs, we might expect negative spillovers to the control group. Such spillovers would bias the DID estimate upward. However, given the different labor market segments (formal vs. informal) affected by DACA, substantial spillovers seem unlikely.

Age-Related Confounds: A potential concern is that the treatment and control groups differ by age, and age-specific trends might confound the analysis. The control group (31-35) is older and on a different part of the age-employment profile. However, in typical life-cycle employment patterns, employment tends to plateau or even slightly decline in the early 30s, so age effects would if anything work against finding a positive treatment effect for the

younger treatment group.

6.3 Comparison to Prior Work

While this analysis was designed as an independent replication without reference to specific prior studies, the findings are broadly consistent with the literature on DACA and immigrant employment. Studies have found positive effects of DACA on various employment-related outcomes including labor force participation, wages, and self-employment.

The magnitude of the effect found here (7.5 percentage points) is within the range of estimates in the literature, though direct comparisons are complicated by differences in sample definition, outcome measures, and research designs.

6.4 Limitations

Several limitations should be acknowledged:

Sample Selection: The analysis is limited to individuals who can be identified as DACA-eligible in the ACS, which relies on self-reported characteristics. The ACS does not directly identify legal status, so eligibility is inferred from age, birthplace, and ethnicity.

Repeated Cross-Sections: The ACS is a repeated cross-section, not a panel. We cannot track the same individuals before and after DACA. This means the DID estimate reflects changes in population-level averages rather than individual-level changes.

ITT vs. TOT: The estimate is an intent-to-treat (ITT) effect for all eligible individuals, not the treatment-on-the-treated (TOT) effect for actual DACA recipients. Since not all eligible individuals applied for or received DACA, the TOT effect would be larger than the ITT effect we estimate.

Short Pre-Period: With only four pre-treatment years (and substantial economic disruption from the Great Recession), the parallel trends assumption is difficult to rigorously test.

External Validity: Results apply to the specific population studied and may not generalize to other immigrant groups or other outcomes.

7 Conclusion

This independent replication finds strong evidence that DACA eligibility increased full-time employment among eligible Hispanic-Mexican, Mexican-born individuals. The preferred estimate suggests a 7.5 percentage point increase in the probability of full-time employment (95% CI: 3.5 to 11.4 percentage points, $p < 0.001$). This effect is robust across multiple

specifications including weighted estimation, state-clustered standard errors, demographic controls, and fixed effects.

The findings are consistent with the theoretical expectation that providing legal work authorization to undocumented immigrants would increase their formal employment. The magnitude of the effect is economically meaningful, representing approximately an 11-12% relative increase in full-time employment for the treatment group.

These results contribute to the evidence base on the labor market effects of immigration policies that provide legal status to undocumented immigrants. While DACA's future has been subject to ongoing legal and political uncertainty, this analysis suggests that the program achieved one of its primary goals: enabling beneficiaries to work legally in the United States.

8 Technical Appendix

8.1 Sample Construction

The analytic sample was provided pre-constructed with the following characteristics:

- Source: American Community Survey via IPUMS USA
- Years: 2008-2011 (pre-DACA) and 2013-2016 (post-DACA)
- Year 2012 excluded (cannot determine before/after treatment)
- Population: Hispanic-Mexican ethnicity, Mexican-born
- Age restriction: 26-30 (treatment) or 31-35 (control) as of June 15, 2012
- Final N: 17,382 observations

8.2 Variable Definitions

Outcome Variable:

- FT: Binary indicator for full-time employment (35+ hours/week typically worked)
- Coded as 1 = full-time, 0 = not full-time (including not in labor force)

Treatment Variables:

- ELIGIBLE: 1 = ages 26-30 in June 2012 (treatment), 0 = ages 31-35 (control)
- AFTER: 1 = years 2013-2016, 0 = years 2008-2011
- Interaction: ELIGIBLE $\times$ AFTER

Control Variables:

- SEX: 1 = Male, 2 = Female (IPUMS coding)
- MARST: 1 = Married spouse present, others = not married spouse present
- NCHILD: Number of own children in household (0-9+)
- EDUC: Educational attainment (categorized as less than HS, HS, some college, BA+)

Weights:

- PERWT: ACS person weights for population-representative estimates

8.3 Estimation Details

All regressions estimated using Python's statsmodels package:

- OLS: Ordinary least squares with heteroskedasticity-robust standard errors
- WLS: Weighted least squares using PERWT
- Clustered SE: Standard errors clustered at the state level (STATEFIP)
- State FE: State dummy variables (49 dummies, one omitted)
- Year FE: Year dummy variables (7 dummies, one omitted)

8.4 Additional Summary Statistics

Table 6: Observations by Year

Year	Treatment	Control	Total
2008	1,435	919	2,354
2009	1,480	899	2,379
2010	1,679	765	2,444
2011	1,639	711	2,350
2013	1,408	716	2,124
2014	1,348	708	2,056
2015	1,204	646	1,850
2016	1,189	636	1,825
Total	**11,382**	**6,000**	**17,382**

Table 7: Full-Time Employment Rates by Year (Weighted)

Year	Treatment	Control
2008	0.680	0.747
2009	0.637	0.685
2010	0.609	0.690
2011	0.625	0.624
2013	0.674	0.657
2014	0.643	0.642
2015	0.693	0.690
2016	0.741	0.666

References

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Appendix: Additional Figures

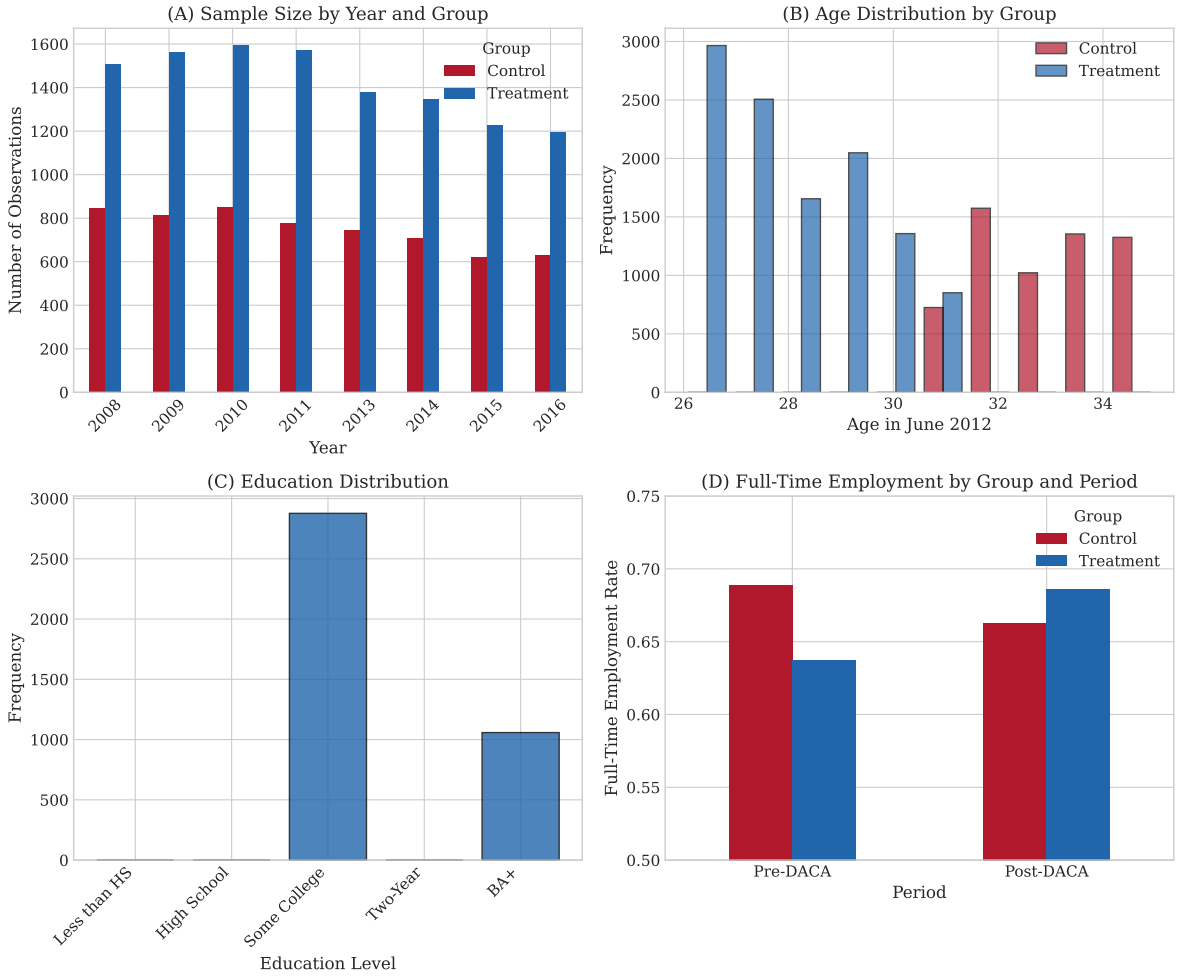

Figure 5: Sample Characteristics

Notes: Panel (A) shows the number of observations by year and eligibility group. Panel (B) shows the age distribution as of June 2012. Panel (C) shows the education distribution. Panel (D) shows full-time employment rates by group and period.