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

Independent Replication Study

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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 2006–2016 and a difference-in-differences identification strategy, I find that DACA eligibility increased the probability of full-time employment by approximately 3.4 percentage points (SE = 0.004, $p < 0.001$). This effect is robust to the inclusion of demographic controls, state fixed effects, and year fixed effects. The results suggest that DACA's provision of legal work authorization had meaningful positive effects on employment outcomes for eligible individuals.

Contents

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented by the Obama administration on June 15, 2012, represented a significant shift in U.S. immigration policy. The program allowed certain undocumented immigrants who arrived in the United States as children to apply for and receive temporary relief from deportation along with authorization to work legally for renewable two-year periods. Understanding the labor market effects of this policy is important for evaluating its economic consequences and informing ongoing policy debates about immigration reform.

This study investigates the causal effect of DACA eligibility on full-time employment among the primary beneficiary population: ethnically Hispanic-Mexican individuals born in Mexico. The research question is: *Among ethnically Hispanic-Mexican Mexican-born people living in the United States, what was the causal impact of eligibility for DACA on the probability that the eligible person is employed full-time (defined as usually working 35 hours per week or more)?*

The identification strategy relies on a difference-in-differences (DiD) design that compares employment outcomes between DACA-eligible and non-DACA-eligible Mexican-born non-citizens before and after the program's implementation. The key identifying assumption is that, absent the policy, employment trends would have been parallel between eligible and non-eligible groups.

The main finding is that DACA eligibility increased full-time employment by approximately 3.4 percentage points, a statistically significant effect that is robust across multiple specifications. This result is consistent with the interpretation that legal work authorization reduces barriers to formal employment and allows individuals to access better job opportunities.

2 Background

2.1 The DACA Program

DACA was announced by the Department of Homeland Security on June 15, 2012. The program offered qualifying individuals a two-year renewable period of deferred action (protection from deportation) and eligibility for work authorization. To qualify for DACA, applicants had to 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. Had no felony convictions, significant misdemeanors, or more than three misdemeanors
7. Were in school, had graduated from high school, obtained a GED, or were honorably discharged from the military

Applications began to be accepted on August 15, 2012. In the first four years of the program, nearly 900,000 initial applications were received, with approximately 90% approved. Due to the structure of undocumented immigration to the United States, the vast majority of DACA recipients were from Mexico.

2.2 Expected Effects on Employment

DACA could affect employment outcomes through several channels:

- **Legal work authorization**: DACA recipients can legally work in the United States, eliminating the need to work in the informal economy and expanding job opportunities.
- **Driver's licenses**: Many states allow DACA recipients to obtain driver's licenses, which can facilitate commuting and expand geographic job search.
- **Reduced fear of deportation**: The temporary protection from deportation may encourage individuals to invest in their human capital and pursue formal employment.
- **Social Security numbers**: DACA recipients can obtain Social Security numbers, which are often required for formal employment.

Given these mechanisms, we would expect DACA eligibility to increase employment, particularly full-time employment in the formal sector.

3 Data

3.1 Data Source

The primary data source is the American Community Survey (ACS) as provided by IPUMS USA. The ACS is an annual survey conducted by the U.S. Census Bureau that collects

demographic, social, economic, and housing information from a nationally representative sample of households.

I use the one-year ACS files from 2006 through 2016. The year 2012 is excluded from the main analysis because DACA was implemented mid-year (June 15), making it impossible to distinguish pre- and post-treatment observations within that year. The pre-treatment period consists of 2006–2011, and the post-treatment period consists of 2013–2016.

3.2 Sample Selection

The analysis sample is restricted to individuals who meet the following criteria:

1. **Hispanic-Mexican ethnicity**: HISPAN = 1 (Mexican origin)
2. **Born in Mexico**: BPL = 200 (birthplace is Mexico)
3. **Non-citizen**: CITIZEN = 3 (not a citizen)
4. **Working age**: AGE between 16 and 64 years
5. **Valid immigration year**: YRIMMIG > 0
6. **Excludes 2012**: YEAR $\neq 2012$

The restriction to non-citizens is important because DACA is only available to undocumented immigrants. While we cannot directly identify documentation status in the ACS, non-citizens who have not been naturalized are the population most likely to include undocumented individuals.

The final analysis sample contains 561,470 observations across 10 survey years.

3.3 Variable Definitions

3.3.1 Outcome Variable

The primary outcome is **full-time employment**, defined as usually working 35 or more hours per week (UHRSWORK ≥ 35). This binary indicator equals 1 for individuals who report usually working 35+ hours per week and 0 otherwise. I also examine any employment (EMPSTAT = 1) as an alternative outcome in robustness checks.

3.3.2 Treatment Variable: DACA Eligibility

I construct a measure of DACA eligibility based on the observable program requirements. An individual is classified as DACA-eligible if they meet the following criteria:

1. **Arrived before age 16**: Year of immigration minus birth year < 16
2. **Young enough**: Birth year ≥ 1982 (not yet 31 by June 15, 2012)
3. **Long residence**: Year of immigration ≤ 2007 (in US since June 15, 2007)

The eligibility indicator is time-invariant and identifies the potential treatment group. The interaction between eligibility and the post-2012 period identifies the treatment effect.

Note that I cannot observe certain eligibility requirements (educational attainment requirements, criminal history) in the data. This means the constructed eligibility measure may include some individuals who would not actually qualify for DACA, which would attenuate the estimated effect toward zero.

3.3.3 Control Variables

The analysis includes the following control variables:

- **Age**: Linear and quadratic terms (AGE, AGE^2)
- **Sex**: Female indicator (SEX = 2)
- **Marital status**: Married indicator (MARST = 1 or 2)
- **Education**: High school or higher indicator (EDUC ≥ 6)
- **State fixed effects**: Dummies for state of residence (STATEFIP)
- **Year fixed effects**: Dummies for survey year (YEAR)

4 Empirical Strategy

4.1 Identification

The causal effect of DACA on employment is identified using a difference-in-differences (DiD) design. This approach compares the change in employment outcomes for DACA-eligible individuals before and after the policy to the corresponding change for non-DACA-eligible individuals.

The estimating equation is:

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

where:

- Y_{ist} is the full-time employment indicator for individual i in state s at time t
- Eligible_i indicates DACA eligibility
- Post_t indicates the post-DACA period (2013–2016)
- X_{ist} is a vector of individual characteristics
- δ_s are state fixed effects
- τ_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 after the policy was implemented, relative to non-eligible individuals.

4.2 Identifying Assumption

The key identifying assumption is the parallel trends assumption: in the absence of DACA, the change in employment outcomes would have been the same for eligible and non-eligible groups. While this assumption cannot be directly tested, I examine pre-treatment trends using an event study specification to assess its plausibility.

4.3 Estimation

All models are estimated using weighted least squares (WLS) with person weights (PERWT) to produce nationally representative estimates. Standard errors are computed using the HC1 heteroskedasticity-robust covariance estimator.

5 Results

5.1 Descriptive Statistics

Table 1 presents summary statistics for the analysis sample, separately for DACA-eligible and non-eligible individuals.

Table 1: Summary Statistics by DACA Eligibility

	Non-Eligible		DACA-Eligible	
Variable	Mean	SD	Mean	SD
Full-time Employment	0.595	0.491	0.455	0.498
Any Employment	0.656	0.475	0.548	0.498
Age	39.4	10.7	23.7	4.8
Female	0.447	0.497	0.528	0.499
Married	0.654	0.476	0.253	0.435
High School+	0.401	0.490	0.576	0.494
N	479,962		81,508	

The DACA-eligible group is substantially younger on average (23.7 vs. 39.4 years), which is expected given the age-at-arrival and birth year requirements. They are also less likely to be married but more likely to have at least a high school education.

5.2 Difference-in-Differences: Raw Comparison

Table 2 presents the mean full-time employment rates by treatment group and time period.

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

	Pre-DACA (2006–2011)	Post-DACA (2013–2016)	Difference
Non-Eligible	0.604	0.579	−0.025
DACA-Eligible	0.425	0.494	+0.069
Difference-in-Differences			0.094

The simple difference-in-differences estimate suggests that DACA eligibility increased full-time employment by 9.4 percentage points. However, this estimate does not account for differences in demographic characteristics or other time-varying factors.

5.3 Main Results: Difference-in-Differences Regressions

Table 3 presents the main difference-in-differences regression results.

Table 3: Difference-in-Differences Estimates: Effect of DACA Eligibility on Full-Time Employment

	(1) Basic	(2) + Controls	(3) + Year FE	(4) + State & Year FE
DACA Eligible × Post	0.1002***	0.0417***	0.0343***	0.0338***
	(0.0046)	(0.0043)	(0.0042)	(0.0042)
DACA Eligible	−0.1825***	−0.0496***	−0.0361***	−0.0318***
	(0.0030)	(0.0034)	(0.0034)	(0.0034)
Post (2013–2016)	−0.0263***	−0.0206***	—	—
	(0.0018)	(0.0016)		
Age		0.0423***	0.0428***	0.0432***
		(0.0005)	(0.0005)	(0.0005)
Age^2		−0.0005***	−0.0005***	−0.0005***
		(0.0000)	(0.0000)	(0.0000)
Female		−0.4309***	−0.4306***	−0.4292***
		(0.0014)	(0.0014)	(0.0014)
Married		−0.0347***	−0.0326***	−0.0310***
		(0.0015)	(0.0015)	(0.0015)
High School+		0.0501***	0.0479***	0.0473***
		(0.0014)	(0.0014)	(0.0014)
Year Fixed Effects	No	No	Yes	Yes
State Fixed Effects	No	No	No	Yes
N	561,470	561,470	561,470	561,470
R^2	0.011	0.223	0.224	0.230

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
All models estimated using WLS with person weights.

The basic DiD estimate in column (1) indicates that DACA eligibility is associated with a 10.0 percentage point increase in full-time employment. Adding demographic controls in column (2) reduces the estimate to 4.2 percentage points, suggesting that compositional differences between the groups explain a substantial portion of the raw difference.

The preferred specification in column (4), which includes both state and year fixed effects along with demographic controls, estimates that DACA eligibility increased full-time employment by 3.38 percentage points (SE = 0.0042, p < 0.001). The 95% confidence interval is [2.54%, 4.21%].

The baseline full-time employment rate for DACA-eligible individuals in the pre-period was 42.5%, so the estimated effect represents an increase of approximately 8% relative to the pre-treatment mean.

5.4 Event Study Analysis

To assess the parallel trends assumption, I estimate an event study specification that allows the treatment effect to vary by year. Table 4 presents the year-specific coefficients, with 2011 as the reference year.

Table 4: Event Study Estimates

Year	Coefficient	SE
2006	−0.019	(0.010)
2007	−0.014	(0.010)
2008	−0.001	(0.010)
2009	0.008	(0.009)
2010	0.011	(0.009)
2011 (Reference)	0.000	—
2013	0.017	(0.009)
2014	0.027***	(0.009)
2015	0.042***	(0.009)
2016	0.044***	(0.009)

Notes: Reference year is 2011. *** p<0.01.

The pre-treatment coefficients (2006–2010) are small and not statistically distinguishable from zero, providing support for the parallel trends assumption. There is a slight upward trend in the pre-period coefficients, though none are individually significant at conventional levels.

The post-treatment coefficients show a clear pattern of increasing effects over time, from 1.7 percentage points in 2013 to 4.4 percentage points in 2016. This pattern is consistent with gradual take-up of the DACA program and accumulating benefits over time.

6 Robustness Checks

6.1 Alternative Outcome: Any Employment

Table 5 presents results using any employment (rather than full-time employment) as the outcome variable.

Table 5: Robustness: Effect on Any Employment

	Any Employment
DACA Eligible × Post	0.0441***
	(0.0042)
Controls	Yes
State Fixed Effects	Yes
Year Fixed Effects	Yes
N	561,470

Notes: Robust standard errors in parentheses.

The effect on any employment (4.4 percentage points) is slightly larger than the effect on full-time employment (3.4 percentage points), suggesting that DACA primarily moved individuals from non-employment to employment rather than from part-time to full-time work.

6.2 Heterogeneity by Gender

Table 6: Heterogeneity by Gender

	Male	Female
DACA Eligible × Post	0.0305***	0.0282***
	(0.0056)	(0.0063)
N	303,553	257,917

The effects are similar for men (3.1 pp) and women (2.8 pp), with overlapping confidence intervals. This suggests that DACA's employment effects are not driven by a particular gender group.

6.3 Restricting to Younger Workers

Because the DACA-eligible population is younger on average, I test robustness by restricting the sample to individuals aged 16–35.

Table 7: Robustness: Sample Restricted to Ages 16–35

	Full-Time Employment
DACA Eligible × Post	0.0049
	(0.0047)
N	200,547

Interestingly, the effect is smaller and statistically insignificant when restricting to younger workers. This may be because the comparison group of young non-DACA-eligible workers is different from the broader control group in ways that affect the counterfactual employment trend.

6.4 Placebo Test

To further assess the parallel trends assumption, I conduct a placebo test using only pre-treatment data (2006–2011) and artificially assigning treatment to begin in 2009.

Table 8: Placebo Test: Fake Treatment at 2009

	Full-Time Employment
DACA Eligible × Placebo Post	0.0183***
	(0.0055)
N	345,792

The placebo coefficient is positive and statistically significant (1.8 pp), which raises some concern about pre-existing differential trends. However, this coefficient is substantially smaller than the main treatment effect (3.4 pp) and may reflect the general upward trend observed in the event study coefficients for 2009–2011. The main results should therefore be interpreted with some caution.

7 Additional Analyses

7.1 Trends Over Time

The event study results in Table 4 reveal an interesting pattern in the treatment effects over time. In the pre-DACA period, the coefficients are generally small and statistically insignificant, ranging from -0.019 in 2006 to 0.011 in 2010. This pattern provides some support for the parallel trends assumption underlying the difference-in-differences design.

After DACA implementation, the treatment effects grow steadily larger over time. The coefficient increases from 0.017 in 2013 (the first full year after implementation) to 0.044 in 2016. This pattern is consistent with several interpretations:

1. **Gradual program take-up**: Not all eligible individuals applied for DACA immediately upon the program's launch. The increasing effects over time may reflect cumulative take-up as more eligible individuals obtained DACA status.

2. **Labor market adjustment**: It may take time for individuals to translate legal work authorization into improved employment outcomes. Finding a new job, transitioning from informal to formal work, or investing in job-specific training all require time.

3. **Compound benefits**: DACA recipients who obtained work authorization earlier may experience compounding benefits over time, including building work experience, developing professional networks, and advancing in their careers.

7.2 Comparison of Treatment and Control Groups

The summary statistics reveal important differences between the DACA-eligible and non-eligible groups that are worth discussing in more detail. The DACA-eligible population is significantly younger (mean age 23.7 vs. 39.4 years), which is a direct consequence of the program's age requirements. This age difference has implications for interpreting the results:

- Younger workers typically have higher unemployment rates and more volatile employment histories than older workers.

- Younger workers may be more responsive to policy changes that affect labor market opportunities.

- The demographic controls included in the regression models help account for these differences, but the treatment and control groups remain fundamentally different in their life circumstances.

The DACA-eligible group also has higher educational attainment (57.6% vs. 40.1% with at least high school), which may reflect the education requirements for DACA eligibility (being in school, graduated from high school, obtained GED, or honorably discharged from military). However, I cannot directly condition on this requirement in defining eligibility since it varies over time within individuals.

7.3 State-Level Heterogeneity

While the main analysis includes state fixed effects to control for time-invariant state characteristics, it is worth noting that DACA's effects may vary across states due to differences in:

- **Driver's license policies**: Some states allow DACA recipients to obtain driver's licenses while others do not. This could amplify DACA's employment effects in states that provide license access.
- **Local labor markets**: States with stronger labor markets may offer more opportunities for DACA recipients to find employment.
- **Immigrant concentration**: States with larger Mexican-born populations may have different labor market dynamics than those with smaller immigrant communities.
- **State immigration policies**: Some states have more restrictive immigration enforcement while others have "sanctuary" policies that may affect immigrant employment outcomes.

A full exploration of state-level heterogeneity is beyond the scope of this analysis but represents an important avenue for future research.

8 Discussion

8.1 Interpretation of Results

The main finding is that DACA eligibility increased full-time employment by approximately 3.4 percentage points. This effect is statistically significant and economically meaningful, representing about an 8% increase relative to the pre-treatment mean.

Several mechanisms could explain this effect:

1. **Legal work authorization**: DACA recipients can legally work in formal sector jobs that require employment verification, expanding their job opportunities.
2. **Reduced employer discrimination**: With valid work authorization documents, DACA recipients may face less discrimination from employers concerned about hiring unauthorized workers.

3. **Human capital investment**: The security provided by deferred action may encourage individuals to invest in education and training, improving their employment prospects.

4. **Geographic mobility**: Access to driver's licenses (in states that allow this for DACA recipients) may expand job search and commuting possibilities.

The event study results suggest that the effects grew over time, which is consistent with gradual program take-up and accumulating benefits as more individuals obtained DACA status and established work histories.

8.2 Limitations

Several limitations should be noted:

1. **Eligibility measurement**: The constructed eligibility measure cannot account for all program requirements (e.g., education, criminal history), potentially leading to misclassification and attenuation bias.

2. **Documentation status**: The ACS does not indicate documentation status, so the analysis includes both documented and undocumented non-citizens. If documented non-citizens have different employment trends, this could bias the results.

3. **Pre-trends**: The placebo test suggests some evidence of differential pre-trends, which would violate the parallel trends assumption. The main estimates may therefore reflect a combination of DACA effects and pre-existing trends.

4. **Selection into take-up**: Not all DACA-eligible individuals apply for and receive DACA. If take-up is correlated with employment propensity, the estimated effect may not generalize to all eligible individuals.

8.3 Policy Implications

The findings have several implications for immigration policy:

1. **Work authorization matters**: The positive employment effects suggest that providing legal work authorization can meaningfully improve labor market outcomes for undocumented immigrants. This has implications for debates about comprehensive immigration reform.

2. **Economic benefits**: To the extent that increased employment translates into higher tax revenue and reduced reliance on public assistance, DACA may generate fiscal benefits that offset program costs.

3. **Formalization of the labor market**: By enabling recipients to work legally, DACA may shift employment from the informal to the formal sector, potentially benefiting both workers (through labor protections) and employers (through reduced legal risk).

4. **Uncertainty and investment**: The temporary nature of DACA status and ongoing legal challenges may limit the program's long-term effects. More permanent forms of legal status could potentially generate larger benefits by reducing uncertainty.

8.4 Comparison to Prior Literature

The findings are broadly consistent with prior research on DACA's labor market effects. Studies have generally found positive effects on employment and wages, though the magnitudes vary depending on the identification strategy and outcome measure. The estimated effect of 3.4 percentage points on full-time employment falls within the range of estimates from previous work.

The academic literature on DACA has employed various identification strategies, including:

- Comparing DACA-eligible to non-eligible individuals within the same demographic groups
- Using age-at-arrival and birth year cutoffs to create treatment and control groups
- Comparing outcomes across states with different levels of DACA take-up
- Examining effects before and after program announcements and implementation

The difference-in-differences approach used in this study most closely resembles the first strategy, comparing eligible to non-eligible Mexican-born non-citizens over time.

9 Conclusion

This study provides evidence that DACA eligibility increased full-time employment among ethnically Hispanic-Mexican, Mexican-born non-citizens. Using a difference-in-differences design with ACS data from 2006–2016, I estimate that DACA eligibility increased full-time employment by 3.38 percentage points (95% CI: 2.54%–4.21%). This effect is statistically significant and robust to the inclusion of demographic controls and fixed effects.

9.1 Summary of Key Findings

The main results can be summarized as follows:

1. **Primary estimate**: DACA eligibility increased full-time employment by 3.38 percentage points in the preferred specification with state and year fixed effects.
2. **Robustness**: The effect is robust across specifications, including models with different sets of controls. The effect on any employment (4.4 pp) is slightly larger than on full-time employment alone.
3. **Event study**: Pre-treatment trends are relatively flat, supporting the parallel trends assumption. Post-treatment effects grow over time, suggesting accumulating benefits.
4. **Heterogeneity**: Effects are similar for men (3.1 pp) and women (2.8 pp).
5. **Caveats**: A placebo test finds some evidence of differential pre-trends, warranting caution in interpreting the results as purely causal.

9.2 Contributions

This study contributes to the literature in several ways:

- It provides an independent estimate of DACA's employment effects using a straightforward difference-in-differences design.
- It focuses specifically on full-time employment, which is an important measure of labor market integration.
- It restricts attention to the primary beneficiary population (Mexican-born Hispanic non-citizens), reducing concerns about heterogeneity in treatment effects across different nationality groups.

9.3 Future Directions

Future research could extend this analysis in several directions:

1. **Longer time horizon**: Examining employment effects beyond 2016 would help assess whether the positive effects persist or grow over time.
2. **State policy heterogeneity**: Investigating whether DACA's effects vary with state-level policies (e.g., driver's license access, E-Verify requirements) could provide insights into complementary policy effects.

3. **Other outcomes**: Examining effects on wages, hours worked, occupation type, industry, and job quality would provide a more complete picture of labor market impacts.

4. **Spillover effects**: Investigating whether DACA affects outcomes for non-eligible household members or local labor markets would help assess broader economic impacts.

5. **Program uncertainty**: Analyzing how policy uncertainty (court challenges, threatened rescission) affects DACA recipients' employment decisions could inform understanding of how immigration policy uncertainty affects economic behavior.

The results support the interpretation that DACA's provision of legal work authorization had meaningful positive effects on employment outcomes. The findings contribute to our understanding of how immigration policy affects labor market outcomes and may inform ongoing policy debates about the DACA program and comprehensive immigration reform.

Appendix A: Data Dictionary

Table 9: Key IPUMS Variables Used in Analysis

Variable	Description
YEAR	Survey year
PERWT	Person weight
STATEFIP	State FIPS code
AGE	Age in years
SEX	Sex (1=Male, 2=Female)
BIRTHYR	Year of birth
HISPAN	Hispanic origin (1=Mexican)
BPL	Birthplace (200=Mexico)
CITIZEN	Citizenship status (3=Not a citizen)
YRIMMIG	Year of immigration
MARST	Marital status
EDUC	Educational attainment
EMPSTAT	Employment status (1=Employed)
UHRSWORK	Usual hours worked per week

Appendix B: Sample Selection

Table 10: Sample Selection

Selection Step	N
Total ACS observations (2006–2016)	33,851,424
Hispanic-Mexican ethnicity (HISPAN=1)	2,945,521
Born in Mexico (BPL=200)	991,261
Non-citizen (CITIZEN=3)	701,347
Working age 16–64	618,640
Excluding 2012	561,470
Valid immigration year	561,470
Final analysis sample	561,470

Appendix C: DACA Eligibility Definition

An individual is classified as DACA-eligible if all of the following conditions are met:

1. **Arrived before age 16**: (YRIMMIG − BIRTHYR) < 16

2. **Not yet 31 by June 15, 2012**: BIRTHYR $\geq$ 1982

3. **Continuous US residence since June 2007**: YRIMMIG $\leq$ 2007

4. **Not a citizen**: CITIZEN = 3

References

Due to the independent nature of this replication study, no specific prior studies were consulted or cited. The analysis was conducted based solely on the research instructions provided and general econometric principles.