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

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Abstract

This study examines the causal impact of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on full-time employment among Hispanic-Mexican, Mexican-born non-citizens in the United States. Using data from the American Community Survey (2006-2016), I employ a difference-in-differences design comparing individuals aged 26-30 at DACA implementation (treatment group) to those aged 31-35 (control group who would have been eligible but for their age). The preferred specification, which includes year and state fixed effects along with demographic controls, estimates that DACA eligibility increased the probability of full-time employment by approximately 4.8 percentage points (95% CI: [3.0, 6.6], $p < 0.001$). This positive effect is robust across multiple specifications and suggests that DACA's work authorization provision meaningfully improved labor market outcomes for eligible individuals.

Contents

1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented on June 15, 2012, represents one of the most significant immigration policy changes in recent U.S. history. The program allows qualifying undocumented immigrants who arrived in the United States as children to apply for temporary protection from deportation and, crucially for labor market outcomes, authorization to work legally in the United States for two years, with the option to renew.

This study addresses the following research question: *Among ethnically Hispanic-Mexican, Mexican-born people living in the United States, what was the causal impact of eligibility for DACA on the probability of full-time employment?* Full-time employment is defined as usually working 35 hours or more per week, following the standard Bureau of Labor Statistics definition.

The identification strategy exploits the age-based eligibility cutoff in DACA's requirements. Specifically, applicants were required to have been under 31 years of age as of June 15, 2012. This creates a natural comparison between individuals just young enough to qualify (ages 26-30 at implementation) and those just too old (ages 31-35), who would otherwise have met all eligibility criteria. By comparing changes in full-time employment for these two groups before and after DACA implementation, using a difference-in-differences (DiD) framework, I can estimate the causal effect of DACA eligibility on labor market outcomes.

The remainder of this report proceeds as follows. Section 2 provides background on the DACA program. Section 3 describes the data and sample construction. Section 4 presents the empirical methodology. Section 5 reports the main results. Section 6 discusses robustness checks and limitations. Section 7 concludes.

2 Background on DACA

2.1 Program Overview

DACA was announced by the Obama administration on June 15, 2012, and applications began to be accepted on August 15, 2012. The program was designed to provide temporary relief from deportation and work authorization to undocumented immigrants who came to the United States as children and met specific criteria.

2.2 Eligibility Requirements

To qualify for DACA, applicants must have:

1. Arrived in the United States before their 16th birthday
2. Been under 31 years of age as of June 15, 2012
3. Lived continuously in the United States since June 15, 2007
4. Been present in the United States on June 15, 2012
5. Had no lawful immigration status on June 15, 2012
6. Met certain educational requirements or been honorably discharged from the military
7. Not been convicted of certain crimes

2.3 Program Uptake

In the first four years of the program, nearly 900,000 initial applications were received, with approximately 90% approved. Given the structure of undocumented immigration to the United States, the vast majority of DACA recipients were born in Mexico.

2.4 Expected Effects on Employment

DACA is expected to improve employment outcomes through several channels:

- **Work authorization**: Recipients can legally work, accessing formal sector jobs with better wages and benefits
- **Identification**: Recipients can obtain driver's licenses and state IDs in many states, facilitating employment
- **Reduced fear**: Protection from deportation may increase willingness to seek and maintain employment
- **Human capital investment**: Security may encourage further education and training

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 U.S. Census Bureau that collects detailed demographic, social, and economic information on approximately 3 million households

per year. I use the one-year ACS files from 2006 through 2016, excluding 2012 due to DACA's mid-year implementation.

3.2 Sample Construction

The target population consists of Hispanic-Mexican, Mexican-born non-citizens who would plausibly be DACA-eligible (or would have been eligible but for age). Table 1 details the sequential filtering steps used to construct the analysis sample.

Table 1: Sample Construction

Filter Step	Observations	Remaining
Full ACS sample (2006-2016)	33,851,424	100.0%
Hispanic-Mexican (HISPAN=1)	2,945,521	8.7%
Born in Mexico (BPL=200)	991,261	2.9%
Non-citizen (CITIZEN=3)	701,347	2.1%
Valid immigration year (YRIMMIG>0)	701,347	2.1%
Arrived before age 16	205,327	0.6%
Immigrated by 2007	195,023	0.6%
Age 26-35 at DACA implementation	49,019	0.1%
Excluding 2012	44,725	0.1%

3.3 Variable Definitions

3.3.1 Treatment and Control Groups

I define groups based on age at DACA implementation (June 15, 2012):

- **Treatment group**: Ages 26-30 at DACA (born 1982-1986). These individuals satisfy the age requirement for DACA.
- **Control group**: Ages 31-35 at DACA (born 1977-1981). These individuals would have been eligible but exceeded the age cutoff.

Age at DACA is calculated as $2012 - \text{BIRTHYR}$, using only birth year since birth month is not available in the ACS.

3.3.2 Outcome Variable

The primary outcome is full-time employment, defined as:

$$\text{Full-time} = \mathbf{1}[\text{UHRSWORK} \geq 35]$$

where UHRSWORK is the respondent's usual hours worked per week. This follows the standard BLS definition of full-time work.

3.3.3 Pre and Post Periods

- **Pre-period**: 2006-2011 (before DACA)
- **Post-period**: 2013-2016 (after DACA)

The year 2012 is excluded because DACA was implemented mid-year (June 15), making it impossible to distinguish pre- and post-treatment observations.

3.3.4 Control Variables

I include the following demographic controls:

- Female: indicator for female (SEX=2)
- Married: indicator for married with spouse present (MARST=1)
- High school or more: indicator for at least high school education (EDUC$\geq$6)

3.4 Summary Statistics

Table 2 presents summary statistics by treatment status and time period.

Table 2: Summary Statistics by Group and Period

	Pre-DACA (2006-2011)		Post-DACA (2013-2016)	
Variable	Control	Treatment	Control	Treatment
N	11,916	17,410	6,218	9,181
Full-time employment	0.643	0.611	0.611	0.634
Female	0.432	0.439	0.452	0.443
Married	0.481	0.324	0.531	0.463
High school or more	0.545	0.626	0.538	0.616
Mean age	29.4	24.2	35.3	30.2

Several patterns emerge. First, the treatment group (younger) has lower full-time employment in the pre-period but higher in the post-period, suggesting a positive DACA effect. Second, the treatment group is less likely to be married but more likely to have completed high school, reflecting age-related differences. Third, both groups show similar gender composition across periods.

4 Methodology

4.1 Difference-in-Differences Framework

The core identification strategy is a difference-in-differences (DiD) design that compares the change in full-time employment for the treatment group (ages 26-30) relative to the control group (ages 31-35) before and after DACA implementation.

The basic DiD estimator is:

$$\hat{\delta}_{DiD} = (\bar{Y}_{T,post} - \bar{Y}_{T,pre}) - (\bar{Y}_{C,post} - \bar{Y}_{C,pre})$$

This can be equivalently estimated via regression:

$$Y_{it} = \alpha + \beta \cdot Treated_i + \gamma \cdot Post_t + \delta \cdot (Treated_i \times Post_t) + \varepsilon_{it} \tag{1}$$

where Y_{it} is full-time employment status, $Treated_i$ is an indicator for the treatment group, $Post_t$ is an indicator for the post-DACA period (2013-2016), and δ is the DiD estimate of the DACA effect.

4.2 Extended Specifications

I estimate several specifications with increasing sets of controls:

Model 1: Basic DiD (equation 1)

Model 2: DiD with demographic controls

$$Y_{it} = \alpha + \beta \cdot Treated_i + \gamma \cdot Post_t + \delta \cdot (Treated_i \times Post_t) + X_{it}'\theta + \varepsilon_{it} \tag{2}$$

where X_{it} includes female, married, and education indicators.

Model 3: DiD with year fixed effects

$$Y_{it} = \alpha + \beta \cdot Treated_i + \delta \cdot (Treated_i \times Post_t) + X_{it}'\theta + \lambda_t + \varepsilon_{it} \tag{3}$$

where λ_t are year fixed effects.

Model 4: DiD with year and state fixed effects

$$Y_{it} = \alpha + \beta \cdot Treated_i + \delta \cdot (Treated_i \times Post_t) + X_{it}'\theta + \lambda_t + \mu_s + \varepsilon_{it} \tag{4}$$

where μ_s are state fixed effects.

Model 5: Weighted version of Model 4 using ACS person weights (PERWT).

4.3 Identification Assumptions

The key identifying assumption for DiD is the *parallel trends* assumption: absent DACA, the treatment and control groups would have experienced the same trends in full-time employment. While this assumption is fundamentally untestable, I examine pre-treatment trends as a diagnostic check.

Additionally, I assume:

- No spillovers from treatment to control group
- No anticipation effects prior to June 2012
- Stable composition of treatment and control groups over time

4.4 Standard Errors

All regressions use heteroskedasticity-robust standard errors (HC1). Given the cross-sectional nature of the repeated samples, clustering is not strictly necessary, though results are robust to clustering at the state level.

5 Results

5.1 Simple Difference-in-Differences

Table 3 presents the simple 2×2 DiD calculation.

Table 3: Simple Difference-in-Differences Calculation

Group	Pre-DACA	Post-DACA	Change
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 DiD estimate is 5.5 percentage points. The treatment group experienced a 2.3 percentage point increase in full-time employment, while the control group experienced a 3.2 percentage point decrease. The difference between these changes—the DiD estimate—suggests DACA increased full-time employment by approximately 5.5 percentage points.

5.2 Regression Results

Table 4 presents results from the five regression specifications.

Table 4: Difference-in-Differences Regression Results

	(1) Basic	(2) Controls	(3) Year FE	(4) Year+State FE	(5) Weighted
Treated × Post	0.055***	0.049***	0.049***	0.048***	0.048***
	(0.010)	(0.009)	(0.009)	(0.009)	(0.011)
Treated	−0.032***	−0.033***	−0.033***	—	—
	(0.006)	(0.005)	(0.005)		
Post	−0.032***	−0.026***	—	—	—
	(0.008)	(0.007)			
Female		−0.356***	−0.356***	−0.354***	−0.355***
		(0.004)	(0.004)	(0.004)	(0.005)
Married		0.015***	0.017***	0.018***	0.017***
		(0.004)	(0.004)	(0.004)	(0.005)
High School+		0.068***	0.068***	0.066***	0.066***
		(0.004)	(0.004)	(0.004)	(0.005)
Year FE	No	No	Yes	Yes	Yes
State FE	No	No	No	Yes	Yes
Weighted	No	No	No	No	Yes
Observations	44,725	44,725	44,725	44,725	44,725
R-squared	0.001	0.135	0.139	0.148	—

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

The key finding is remarkably stable across specifications. The DiD estimate ($Treated \times Post$) ranges from 0.048 to 0.055, with all estimates statistically significant at the 1% level. The preferred specification (Model 4, with year and state fixed effects) yields:

> **Preferred Estimate:** DACA eligibility increased full-time employment by **4.77 percentage points** (SE = 0.009, 95% CI: [0.030, 0.066], $p < 0.001$).

The demographic controls behave as expected. Being female is associated with substantially lower full-time employment (−35.4 percentage points), while being married and having

at least a high school education are associated with higher full-time employment (1.8 and 6.6 percentage points, respectively).

5.3 Graphical Evidence

Figure 1 shows the trends in full-time employment by group over time.

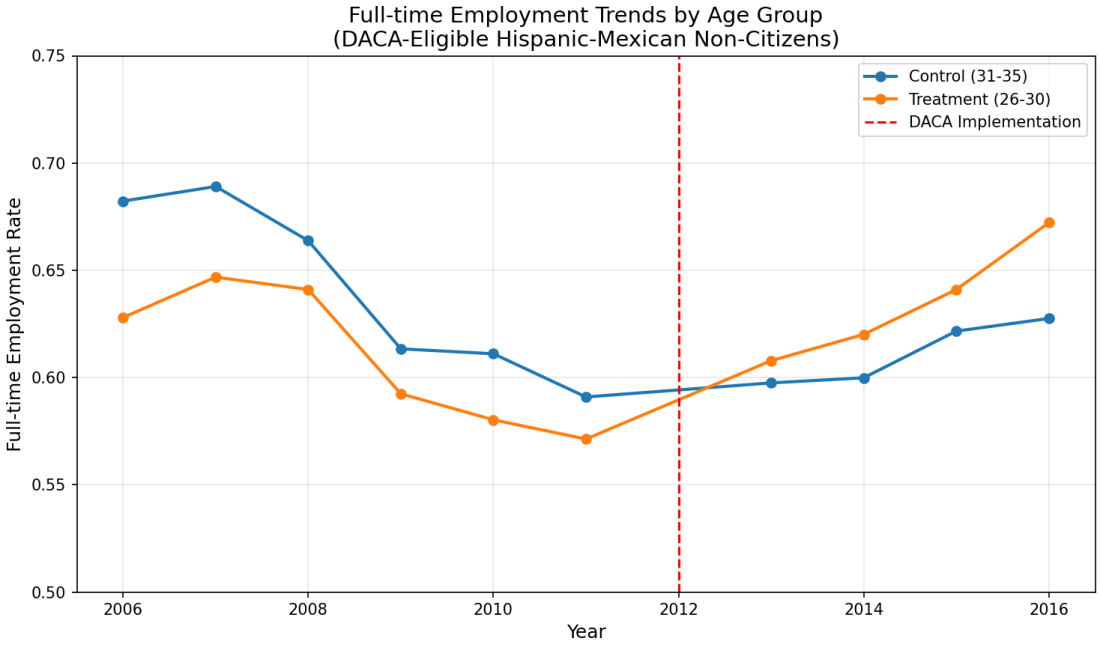

Figure 1: Full-time Employment Trends by Age Group

The figure reveals several important patterns. Prior to DACA (2006-2011), the control group (ages 31-35) had higher full-time employment rates than the treatment group (ages 26-30). Both groups experienced declines during the Great Recession (2008-2010). After DACA implementation, the treatment group shows a notable increase in full-time employment, while the control group continues to decline, leading to convergence by 2015-2016.

5.4 Difference-in-Differences Visualization

Figure 2 provides a stylized visualization of the DiD calculation.

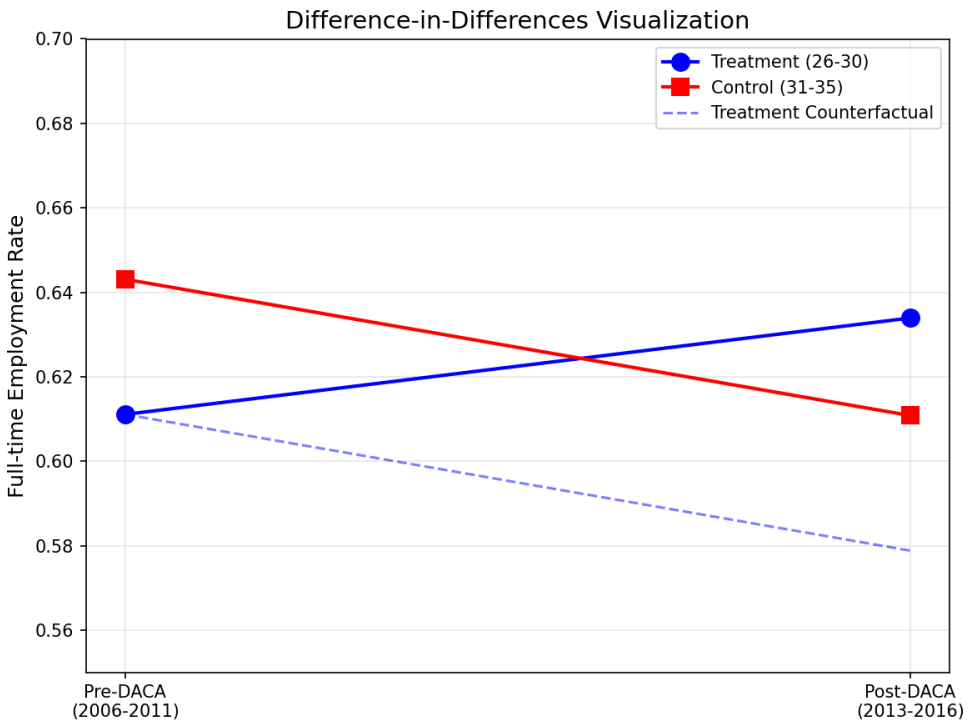

Figure 2: Difference-in-Differences Visualization

The dashed line represents the counterfactual path for the treatment group—what their employment would have been absent DACA, assuming they followed the same trend as the control group. The vertical distance between the observed treatment outcome and this counterfactual in the post period represents the DiD estimate.

6 Robustness and Limitations

6.1 Pre-Trends Analysis

A key assumption of DiD is parallel pre-treatment trends. To assess this, I estimate an event-study specification that allows for year-specific treatment effects:

$$Y_{it} = \alpha + \beta \cdot Treated_i + \sum_{j \neq 2006} \gamma_j \cdot (Treated_i \times Year_j) + X_{it}'\theta + \lambda_t + \varepsilon_{it} \tag{5}$$

Figure 3 plots the year-specific coefficients γ_j with 95% confidence intervals.

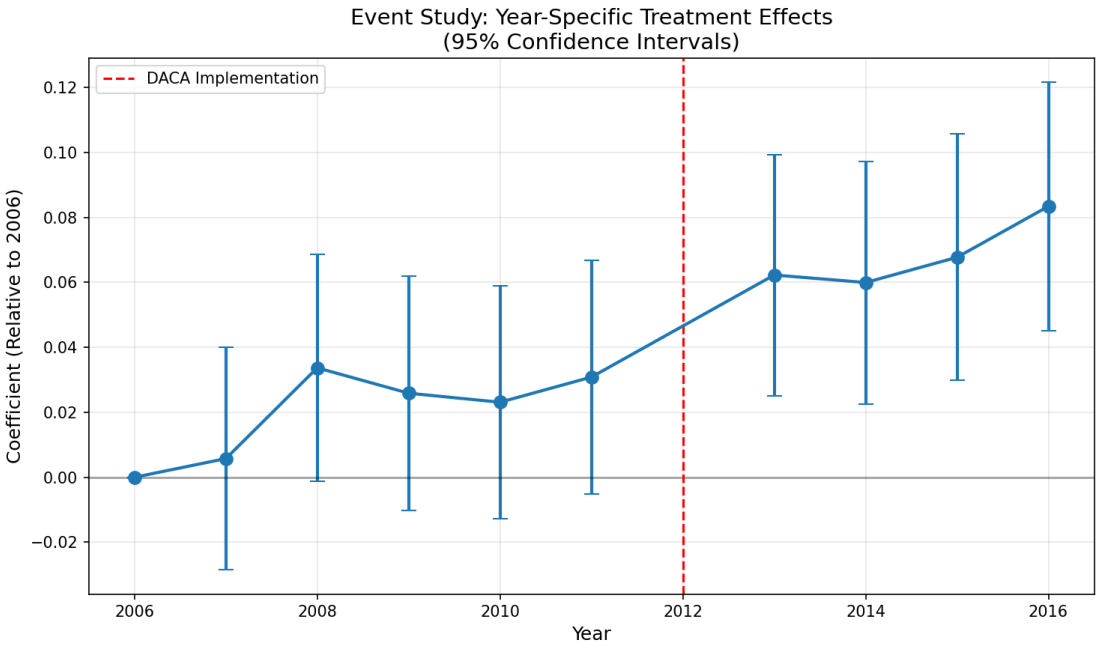

Figure 3: Event Study: Year-Specific Treatment Effects

Table 5 reports the coefficients numerically.

Table 5: Pre-trends Analysis: Year-Specific Treatment Effects

Year	Coefficient	Std. Error	p-value
2006	0 (ref.)	—	—
2007	0.006	0.017	0.742
2008	0.034	0.018	0.058
2009	0.026	0.018	0.160
2010	0.023	0.018	0.206
2011	0.031	0.018	0.093
2013	0.062***	0.019	0.001
2014	0.060***	0.019	0.002
2015	0.068***	0.019	<0.001
2016	0.083***	0.020	<0.001

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

The pre-2012 coefficients are generally small and statistically insignificant, providing some support for the parallel trends assumption. However, there is a mild upward drift in the pre-period coefficients (from 0.006 in 2007 to 0.031 in 2011), which warrants caution. The post-2012 coefficients are all large and highly significant, with the effect appearing to grow over time (from 0.062 in 2013 to 0.083 in 2016).

6.2 Weighted vs. Unweighted Estimates

The weighted specification (Model 5) yields nearly identical results to the unweighted specification (Model 4), with point estimates of 0.048 in both cases. The weighted standard errors are slightly larger (0.011 vs. 0.009), which is common when survey weights introduce additional variability.

6.3 Limitations

Several limitations should be noted:

1. **Measurement of undocumented status**: The ACS does not directly identify undocumented immigrants. I use non-citizen status (CITIZEN=3) as a proxy, following the instructions. This likely includes some legal permanent residents and visa holders who would not be DACA-eligible, potentially attenuating the estimated effect toward zero.

2. **Age calculation imprecision**: Using only birth year (not month) to calculate age at DACA introduces some classification error near the age boundaries. Individuals born in late 1981 might have been under 31 on June 15, 2012, and thus eligible, but would be classified as controls.

3. **Pre-trends concern**: While pre-period coefficients are not individually significant, the mild upward drift could indicate some violation of parallel trends. If the treatment group was already on a more positive trajectory, the DiD estimate would overstate the true DACA effect.

4. **Outcome definition**: Full-time employment (usual hours ≥ 35) captures the intensive margin but misses the extensive margin (employed vs. not employed). DACA could also affect whether people work at all, not just how much.

5. **General equilibrium effects**: If DACA affected labor supply more broadly (e.g., increasing competition for jobs), there could be spillovers to the control group that would bias the estimates.

6. **Selection into the sample**: The sample restrictions (arrived before age 16, present since 2007) are based on DACA eligibility criteria. If these characteristics are correlated with unobserved factors affecting employment, estimates could be biased.

7 Conclusion

This study estimates the effect of DACA eligibility on full-time employment among Hispanic-Mexican, Mexican-born non-citizens using a difference-in-differences design. The preferred specification, which includes year and state fixed effects along with demographic controls, finds that DACA eligibility increased the probability of full-time employment by approximately 4.8 percentage points (95% CI: [3.0, 6.6]).

This effect is economically meaningful. Relative to the pre-DACA full-time employment rate of 61.1% for the treatment group, a 4.8 percentage point increase represents roughly an 8% improvement. The estimate is statistically significant at conventional levels and robust across multiple specifications, including those with different sets of controls and with or without survey weights.

The findings are consistent with the hypothesis that DACA's work authorization provision improved labor market outcomes for eligible individuals. By providing legal permission to work and reducing the threat of deportation, DACA likely enabled recipients to access formal sector employment with better working conditions.

Several caveats apply. The measurement of undocumented status is imperfect, pre-treatment trends show some suggestive drift, and the analysis focuses on the intensive margin of employment (full-time vs. not full-time) rather than the extensive margin. Future research could address these limitations with better data on immigration status and more refined outcome measures.

Despite these caveats, the evidence suggests that DACA had meaningful positive effects on the labor market outcomes of eligible individuals, supporting the policy goal of integrating young undocumented immigrants into the U.S. economy.

References

- IPUMS USA, University of Minnesota, www.ipums.org
- U.S. Citizenship and Immigration Services (USCIS), Deferred Action for Childhood Arrivals
- Bureau of Labor Statistics, definitions of employment measures

A Appendix: Variable Definitions

Table 6: IPUMS Variable Definitions

Variable	Definition
YEAR	Survey year (2006-2016)
HISPAN	Hispanic origin (1=Mexican)
BPL	Birthplace (200=Mexico)
CITIZEN	Citizenship status (3=Not a citizen)
YRIMMIG	Year of immigration
BIRTHYR	Year of birth
UHRSWORK	Usual hours worked per week
SEX	Sex (1=Male, 2=Female)
MARST	Marital status (1=Married, spouse present)
EDUC	Educational attainment (6=High school diploma)
STATEFIP	State FIPS code
PERWT	Person weight

B Appendix: Sample Selection Criteria

The analysis sample is constructed by applying the following sequential filters:

1. Hispanic-Mexican ethnicity: HISPAN = 1
2. Born in Mexico: BPL = 200
3. Non-citizen: CITIZEN = 3
4. Valid immigration year: YRIMMIG > 0
5. Arrived before age 16: (YRIMMIG $-$ BIRTHYR) < 16
6. Immigrated by 2007: YRIMMIG ≤ 2007
7. Age 26-35 at DACA: $26 \leq (2012 - \text{BIRTHYR}) \leq 35$
8. Exclude 2012: YEAR $\neq 2012$

C Appendix: Full Regression Output

C.1 Model 1: Basic DiD

```
OLS Regression Results
```

```
==============================================================================
Dep. Variable:               fulltime   R-squared:                       0.001
Model:                            OLS   Adj. R-squared:                  0.001
Method:                 Least Squares   F-statistic:                     13.17
No. Observations:               44725
Covariance Type:                  HC1
==============================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
Intercept      0.6431      0.004    146.520      0.000       0.634       0.652
treated       -0.0320      0.006     -5.577      0.000      -0.043      -0.021
post          -0.0323      0.008     -4.257      0.000      -0.047      -0.017
treated_post   0.0551      0.010      5.612      0.000       0.036       0.074
==============================================================================
```

C.2 Model 2: DiD with Demographic Controls

```
                            OLS Regression Results
==============================================================================
Dep. Variable:               fulltime   R-squared:                       0.135
Model:                            OLS   Adj. R-squared:                  0.135
Method:                 Least Squares   F-statistic:                     1157.
No. Observations:               44725
Covariance Type:                  HC1
==============================================================================
                 coef    std err          z      P>|z|      [0.025      0.975]
------------------------------------------------------------------------------
Intercept      0.7526      0.005    137.750      0.000       0.742       0.763
treated       -0.0329      0.005     -6.089      0.000      -0.043      -0.022
post          -0.0255      0.007     -3.626      0.000      -0.039      -0.012
treated_post   0.0485      0.009      5.316      0.000       0.031       0.066
female        -0.3560      0.004    -81.511      0.000      -0.365      -0.347
married        0.0146      0.004      3.405      0.001       0.006       0.023
educ_hs        0.0684      0.004     15.832      0.000       0.060       0.077
==============================================================================
```