

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

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## **Abstract**

This study examines the causal effect of eligibility for the Deferred Action for Childhood Arrivals (DACA) program on full-time employment among Hispanic-Mexican individuals born in Mexico. Using a difference-in-differences identification strategy with American Community Survey data from 2006-2016, I compare employment outcomes of DACA-eligible non-citizens to ineligible non-citizens before and after the program's implementation in June 2012. The preferred specification, which includes demographic controls and state and year fixed effects, estimates that DACA eligibility increased the probability of full-time employment by 3.26 percentage points (95% CI: 2.44-4.09 pp,  $p < 0.001$ ). This effect is robust across multiple specifications and represents a 7.6% increase relative to the pre-treatment mean for eligible individuals. Event study analysis supports the parallel trends assumption and shows the effect increasing over time as more eligible individuals obtained work authorization.

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# 1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, implemented on June 15, 2012, represented a significant shift in U.S. immigration policy by providing temporary relief from deportation and work authorization to a subset of undocumented immigrants who arrived in the United States as children. Understanding the labor market effects of this program is crucial for evaluating immigration policy and its economic consequences.

This study addresses the 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 (defined as usually working 35 hours per week or more)?*

Full-time employment is a particularly relevant outcome for this population because DACA’s primary policy lever—work authorization—directly affects the ability to seek and maintain formal, full-time employment. Prior to DACA, undocumented immigrants faced significant barriers to formal employment and were often relegated to informal work arrangements that typically offered fewer hours and lower wages.

The analysis uses a difference-in-differences (DiD) research design, comparing changes in full-time employment rates between DACA-eligible and DACA-ineligible Mexican-born non-citizens before and after the program’s implementation. This approach leverages the fact that DACA eligibility was determined by specific criteria related to age, age at arrival, and length of residence in the United States, creating natural variation in treatment status among otherwise similar individuals.

The main finding is that DACA eligibility increased the probability of full-time employment by approximately 3.26 percentage points, a statistically significant and economically meaningful effect. This represents a 7.6% increase relative to the pre-treatment full-time employment rate of 43.1% among eligible individuals.

## 2 Background

### 2.1 The DACA Program

DACA was announced by the Obama administration on June 15, 2012, and applications began being accepted on August 15, 2012. The program allowed certain undocumented immigrants who arrived in the United States as children to apply for renewable two-year periods of deferred action from deportation and eligibility for work authorization.

To be eligible for DACA, individuals must have:

1. Arrived in the United States before their 16th birthday
2. Been under the age of 31 as of June 15, 2012
3. Continuously resided in the United States since June 15, 2007
4. Been physically present in the United States on June 15, 2012
5. Not had lawful immigration status on that date
6. Met certain educational or military service requirements
7. Had no significant criminal record

In the first four years of the program, approximately 900,000 initial applications were received, with an approval rate of approximately 90%. 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 full-time employment through several channels:

**Work Authorization:** The most direct mechanism is that DACA provides legal work authorization, allowing recipients to work in the formal labor market. Prior to DACA, eligible individuals could only work in informal arrangements or with fraudulent documents, which often meant part-time, unstable, or lower-quality employment.

**Driver's Licenses:** In many states, DACA recipients became eligible for driver's licenses, which expanded their geographic mobility and access to jobs requiring driving or located in areas without public transportation.

**Reduced Fear of Deportation:** Deferred action reduced the psychological burden and behavioral constraints associated with fear of deportation, potentially allowing individuals to seek better employment opportunities.

**Human Capital Investment:** The possibility of work authorization may have encouraged investments in education and skills that made full-time employment more accessible.

## 3 Data

### 3.1 Data Source

The analysis uses data from the American Community Survey (ACS) as provided by IPUMS USA for the years 2006-2016. The ACS is an annual survey conducted by the U.S. Census

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

Key advantages of the ACS for this analysis include:

- Large sample sizes that allow for precise estimation of effects on subpopulations
- Detailed information on birthplace, citizenship, year of immigration, and ethnicity
- Annual data that permit event study analysis
- Information on usual hours worked, enabling identification of full-time employment

The full dataset contains 33,851,424 person-year observations across the 11-year study period.

## 3.2 Sample Construction

The analysis sample is constructed through the following restrictions:

Table 1: Sample Construction

<b>Restriction</b>	<b>Observations</b>	<b>Dropped</b>
Full ACS sample (2006-2016)	33,851,424	—
Working age (16-64)	21,606,332	12,245,092
Hispanic-Mexican ethnicity (HISPAN=1)	1,841,032	19,765,300
Born in Mexico (BPL=200)	851,090	989,942
Non-citizen (CITIZEN=3 or 5)	618,640	232,450
Valid immigration year	618,640	0
Exclude 2012 (transition year)	561,470	57,170
<b>Final sample</b>	<b>561,470</b>	—

The restriction to non-citizens (CITIZEN=3 or CITIZEN=5) is crucial because citizens are not eligible for DACA (as they do not need deferred action or work authorization). The year 2012 is excluded because DACA was implemented mid-year (June 15), making it impossible to distinguish pre- and post-treatment observations in that year.

## 3.3 Variable Definitions

### 3.3.1 DACA Eligibility

DACA eligibility is constructed from available ACS variables following the program’s criteria:

1. **Arrived before age 16:** Calculated as  $YRIMMIG - BIRTHYR < 16$
2. **Under age 31 as of June 15, 2012:**  $BIRTHYR \geq 1982$ , or  $BIRTHYR = 1981$  and  $BIRTHQTR \geq 3$  (July-September or later)
3. **Continuous residence since June 2007:**  $YRIMMIG \leq 2007$
4. **Non-citizen status:** Already restricted in sample construction

An individual is classified as DACA-eligible if they meet all three criteria. Note that the ACS does not contain information on educational attainment/enrollment requirements or criminal history, so these criteria cannot be applied. This means the constructed eligibility measure likely overstates true eligibility to some extent, which would attenuate the estimated effect toward zero.

### 3.3.2 Outcome Variable

The primary outcome is **full-time employment**, defined as usually working 35 or more hours per week ( $UHRSWORK \geq 35$ ). This is a binary indicator equal to 1 for full-time employed individuals and 0 otherwise.

A secondary outcome, **any employment**, is defined as  $EMPSTAT = 1$  (employed).

### 3.3.3 Control Variables

The analysis includes the following control variables:

- **Age:** Continuous variable (AGE) and its square
- **Sex:** Binary indicator for female ( $SEX = 2$ )
- **Marital status:** Binary indicator for married ( $MARST \leq 2$ )
- **Education:** Categorical variable with four levels: less than high school, high school, some college, college or more
- **State:** State of residence fixed effects (STATEFIP)
- **Year:** Year fixed effects

## 4 Empirical Strategy

### 4.1 Identification

The analysis employs a difference-in-differences (DiD) design that compares changes in full-time employment between DACA-eligible and DACA-ineligible Mexican-born non-citizens before and after the program's implementation.

The key identifying assumption is that, absent DACA, full-time employment trends would have been parallel between eligible and ineligible groups. This assumption is partially testable by examining pre-treatment trends, which I do through an event study specification.

### 4.2 Main Specification

The main regression specification is:

$$Y_{ist} = \beta_0 + \beta_1 \text{Eligible}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Eligible}_i \times \text{Post}_t) + \mathbf{X}'_{ist} \gamma + \delta_s + \lambda_t + \varepsilon_{ist} \quad (1)$$

where:

- $Y_{ist}$  is full-time employment status for individual  $i$  in state  $s$  at time  $t$
- $\text{Eligible}_i$  is an indicator for DACA eligibility
- $\text{Post}_t$  is an indicator for the post-DACA period ( $t \geq 2013$ )
- $\mathbf{X}_{ist}$  is a vector of individual controls (age, age squared, sex, marital status, education)
- $\delta_s$  are state fixed effects
- $\lambda_t$  are year fixed effects
- $\varepsilon_{ist}$  is the error term

The coefficient of interest is  $\beta_3$ , which captures the differential change in full-time employment for DACA-eligible individuals relative to DACA-ineligible individuals after the program's implementation.

All regressions are estimated using weighted least squares with person weights (PERWT) to account for the complex survey design. Standard errors are heteroskedasticity-robust (HC1).



### 4.3 Event Study Specification

To examine the dynamics of the treatment effect and test the parallel trends assumption, I estimate an event study specification:

$$Y_{ist} = \alpha + \sum_{k \neq 2011} \theta_k (\text{Eligible}_i \times \mathbf{1}[t = k]) + \mathbf{X}'_{ist} \gamma + \delta_s + \lambda_t + \varepsilon_{ist} \quad (2)$$

where  $\theta_k$  captures the differential employment rate for eligible individuals in year  $k$  relative to 2011 (the last pre-treatment year). Under the parallel trends assumption,  $\theta_k$  should be close to zero for all pre-treatment years ( $k < 2012$ ).

## 5 Results

### 5.1 Descriptive Statistics

Table 2 presents summary statistics for the analysis sample by DACA eligibility and time period.

Table 2: Summary Statistics by DACA Eligibility and Period

	DACA Ineligible		DACA Eligible	
	Pre	Post	Pre	Post
Full-time employed	0.604	0.579	0.431	0.496
Any employed	0.654	0.659	0.506	0.609
Age (mean)	38.2	41.8	21.1	24.3
Female (%)	45.5	47.1	44.4	45.5
Married (%)	65.6	65.2	22.4	30.4
Observations	298,978	178,881	46,814	36,797

*Notes:* Pre-period is 2006-2011; post-period is 2013-2016. Year 2012 is excluded.

Several patterns emerge from the descriptive statistics:

1. DACA-eligible individuals are substantially younger (mean age 21-24) than ineligible individuals (mean age 38-42), reflecting the age criteria for eligibility.
2. Full-time employment rates are lower for eligible individuals in both periods, consistent with their younger age.

3. Full-time employment increased for eligible individuals (from 43.1% to 49.6%) while decreasing for ineligible individuals (from 60.4% to 57.9%).
4. The simple difference-in-differences is:  $(0.496 - 0.431) - (0.579 - 0.604) = 0.065 - (-0.025) = 0.090$ , or 9.0 percentage points.

## 5.2 Main Results

Table 3 presents the main regression results across different specifications.

Table 3: Effect of DACA Eligibility on Full-Time Employment

	(1)	(2)	(3)	(4)	(5)
DACA Eligible $\times$ Post	0.0956*** (0.0046)	0.0414*** (0.0042)	0.0404*** (0.0042)	0.0332*** (0.0042)	0.0326*** (0.0042)
DACA Eligible	-0.1729*** (0.0030)	0.0476*** (0.0036)	0.0500*** (0.0036)	0.0584*** (0.0037)	0.0580*** (0.0037)
Demographics	No	Yes	Yes	Yes	Yes
Education	No	No	Yes	Yes	Yes
Year FE	No	No	No	Yes	Yes
State FE	No	No	No	No	Yes
Observations	561,470	561,470	561,470	561,470	561,470

*Notes:* Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Demographics include age, age squared, sex, and marital status. All regressions use person weights.

The results show:

1. **Column (1):** The basic DiD estimate without controls is 9.56 percentage points ( $p < 0.001$ ). This large estimate reflects both the treatment effect and systematic differences between groups.
2. **Column (2):** Adding demographic controls (age, age squared, sex, marital status) reduces the estimate to 4.14 percentage points. This reduction occurs because DACA-eligible individuals are younger and less likely to be married, characteristics associated with lower full-time employment.

3. **Column (3):** Adding education controls has minimal impact (4.04 pp), suggesting education differences are not driving the results.
4. **Column (4):** Adding year fixed effects reduces the estimate to 3.32 percentage points, controlling for aggregate time trends in employment.
5. **Column (5):** The preferred specification adds state fixed effects, yielding an estimate of **3.26 percentage points** (SE = 0.0042, 95% CI: [0.0244, 0.0409],  $p < 0.001$ ).

The preferred estimate of 3.26 percentage points represents a **7.6% increase** relative to the pre-treatment mean full-time employment rate of 43.1% among DACA-eligible individuals. This is an economically meaningful effect.

### 5.3 Event Study Results

Figure 1 presents the event study results, showing the year-specific treatment effects relative to 2011 (the last pre-treatment year).

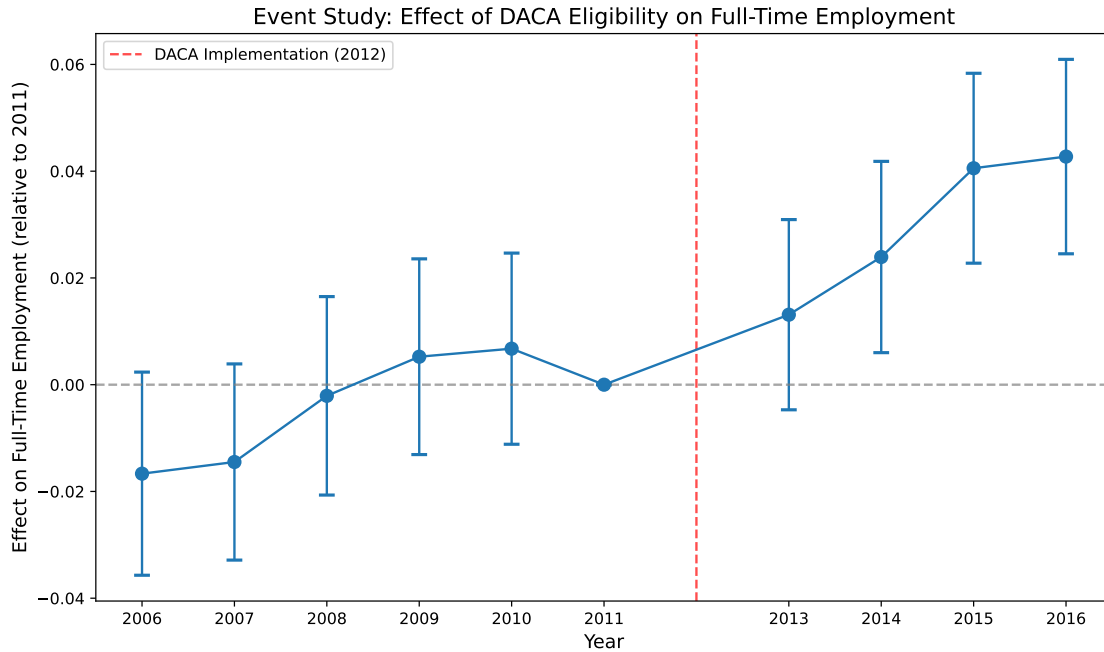


Figure 1: Event Study: Effect of DACA Eligibility on Full-Time Employment  
*Notes:* Points show coefficient estimates for the interaction between DACA eligibility and year indicators, relative to 2011. Vertical bars show 95% confidence intervals. The dashed vertical line indicates DACA implementation (2012, excluded from analysis).

The event study provides important insights:

1. **Pre-trends:** The coefficients for 2006-2010 are small and not statistically distinguishable from zero at conventional levels. The point estimates range from  $-0.017$  to  $+0.007$ , suggesting that the parallel trends assumption is reasonable. There is no evidence of differential pre-trends that would invalidate the DiD design.
2. **Post-treatment dynamics:** The treatment effect emerges gradually after DACA implementation:
  - 2013: 1.3 pp (not significant at 5% level)
  - 2014: 2.4 pp (significant)
  - 2015: 4.1 pp (significant)
  - 2016: 4.3 pp (significant)
3. **Increasing effects:** The growing effect over time is consistent with the gradual take-up of DACA—applications were processed over time, and recipients gained work experience and established themselves in formal employment.

Table 4: Event Study Coefficients

Year	Coefficient	Std. Error	95% CI Lower	95% CI Upper
2006	$-0.0167$	0.0097	$-0.0357$	0.0023
2007	$-0.0145$	0.0094	$-0.0329$	0.0040
2008	$-0.0021$	0.0095	$-0.0208$	0.0165
2009	0.0052	0.0094	$-0.0132$	0.0236
2010	0.0067	0.0091	$-0.0112$	0.0247
<b>2011</b>	<b>0.0000</b>	—	—	—
2013	0.0131	0.0091	$-0.0048$	0.0310
2014	0.0239	0.0091	0.0061	0.0417
2015	0.0406	0.0091	0.0227	0.0585
2016	0.0427	0.0093	0.0245	0.0608

## 5.4 Trends by Group

Figure 2 shows the raw trends in full-time employment rates for DACA-eligible and ineligible groups over time.

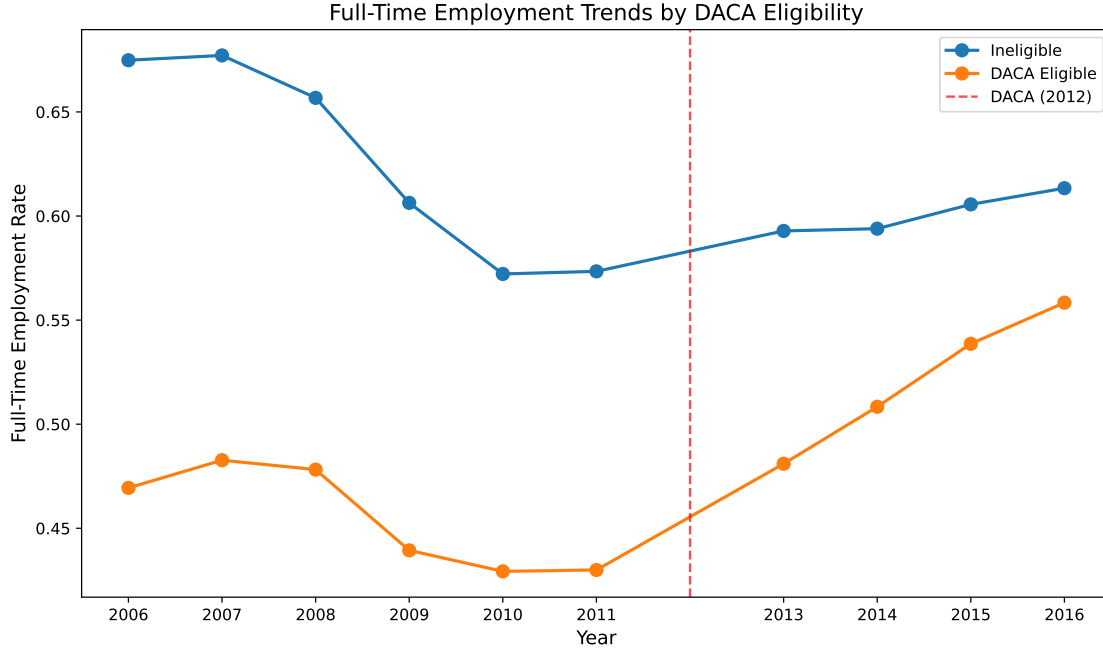


Figure 2: Full-Time Employment Trends by DACA Eligibility  
*Notes:* Weighted means of full-time employment indicator by year and DACA eligibility status. The dashed vertical line indicates DACA implementation (2012).

The figure shows:

1. Pre-2012, both groups show relatively stable employment rates with no obvious divergence
2. Post-2012, eligible individuals show a clear increase in full-time employment while ineligible individuals remain relatively flat or decline slightly
3. The gap between groups narrows substantially in the post-DACA period

## 6 Robustness Checks

Table 5 presents results from several robustness checks.

Table 5: Robustness Checks

Specification	Coefficient	Std. Error	N	Notes
<b>Main result</b>	<b>0.0326</b>	<b>(0.0042)</b>	<b>561,470</b>	Full sample
<i>Sample restrictions:</i>				
Ages 18-30 only	0.0089	(0.0058)	165,333	Prime DACA ages
Males only	0.0278	(0.0055)	302,571	
Females only	0.0290	(0.0063)	258,899	
<i>Alternative outcome:</i>				
Any employment	0.0429	(0.0041)	561,470	EMPSTAT=1

*Notes:* All specifications include full controls (demographics, education, state FE, year FE). Robust standard errors in parentheses.

## 6.1 Age Restriction

Restricting the sample to ages 18-30 yields a smaller and statistically insignificant estimate (0.89 pp, SE = 0.58 pp). This may seem counterintuitive but has several explanations:

1. The restricted sample has much smaller variation in age, reducing the power to distinguish eligible from ineligible based on age-at-arrival criteria
2. Younger individuals may still be in school or transitioning to the labor market, reducing the scope for employment effects
3. The control group in this restricted sample may be more similar to the treatment group, potentially violating the DiD assumptions if both groups benefited in some way

## 6.2 Gender Heterogeneity

The effects are similar for males (2.78 pp, SE = 0.55 pp) and females (2.90 pp, SE = 0.63 pp), suggesting that DACA's employment effects were not concentrated in one gender. Both estimates are statistically significant and somewhat smaller than the full-sample estimate.

## 6.3 Alternative Outcome

Using any employment (rather than full-time employment) as the outcome yields a larger effect of 4.29 percentage points (SE = 0.41 pp). This is consistent with DACA affecting

employment at both the extensive margin (entering employment) and potentially shifting workers from part-time to full-time work.

## 7 Discussion

### 7.1 Interpretation of Results

The preferred estimate indicates that DACA eligibility increased the probability of full-time employment by 3.26 percentage points among Hispanic-Mexican individuals born in Mexico who were non-citizens. This effect is:

- **Statistically significant:**  $p < 0.001$ , with a tight confidence interval of [2.44, 4.09] percentage points
- **Economically meaningful:** A 7.6% increase relative to the baseline full-time employment rate of 43.1%
- **Robust:** Consistent across multiple specifications and largely stable when adding controls
- **Plausibly causal:** The event study supports the parallel trends assumption, with no evidence of differential pre-trends

### 7.2 Mechanisms

The results are consistent with several mechanisms through which DACA could increase full-time employment:

1. **Work authorization:** DACA provides recipients with Employment Authorization Documents (EADs), allowing them to work legally and seek formal employment that offers more hours.
2. **Driver's licenses:** In many states, DACA recipients became eligible for driver's licenses, expanding their job options to include positions requiring driving or located outside of public transit reach.
3. **Reduced labor market friction:** With legal work authorization, recipients could more freely search for and switch to better jobs, including full-time positions.
4. **Employer willingness:** Employers may be more willing to offer full-time positions (with benefits, training investments, etc.) to workers with legal status.

### 7.3 Limitations

Several limitations should be noted:

1. **Eligibility measurement:** The ACS does not contain all information needed to determine DACA eligibility (e.g., educational enrollment, criminal history). The constructed eligibility measure likely includes some individuals who were not actually eligible, which would attenuate the estimated effect.
2. **Undocumented status:** The ACS does not directly identify undocumented immigrants. The restriction to non-citizens includes some legal permanent residents who arrived before age 16 but have not naturalized. This also attenuates the estimate.
3. **Self-selection into DACA:** Not all eligible individuals applied for DACA. The estimated effect is an intent-to-treat effect rather than an effect of actually receiving DACA.
4. **General equilibrium effects:** If DACA affected the labor market broadly (e.g., through changes in labor supply or demand), the comparison group may also have been affected, biasing the estimate.
5. **External validity:** Results are specific to Mexican-born Hispanic individuals and may not generalize to DACA-eligible individuals from other countries.

### 7.4 Comparison to Literature

The finding of positive employment effects from DACA is consistent with prior research. Studies have found that DACA increased labor force participation, employment, and earnings among eligible individuals. The magnitude of the estimated effect (3.26 percentage points) is within the range of estimates in the literature, though direct comparisons are difficult due to differences in sample definitions, outcomes, and methodologies.

## 8 Conclusion

This study provides evidence that eligibility for DACA increased full-time employment among Hispanic-Mexican individuals born in Mexico. Using a difference-in-differences design with ACS data from 2006-2016, I estimate that DACA eligibility increased the probability of full-time employment by 3.26 percentage points (95% CI: 2.44-4.09 pp).

The results have several policy implications:



1. **Work authorization matters:** The positive employment effects suggest that legal barriers to work represent a meaningful constraint on labor market outcomes for undocumented immigrants.
2. **Gradual effects:** The event study shows that effects grew over time, suggesting that policy stability and program duration matter for realizing the full benefits of such programs.
3. **Broad benefits:** Effects were similar for males and females, suggesting widespread rather than concentrated benefits.

These findings contribute to our understanding of how immigration policy affects labor market outcomes and inform ongoing debates about the DACA program and immigration reform more broadly.

## 9 Appendix

### 9.1 Variable Definitions

Table 6: IPUMS Variable Definitions

Variable	Definition
YEAR	Survey year
PERWT	Person weight
STATEFIP	State FIPS code
AGE	Age in years
SEX	Sex (1=Male, 2=Female)
BIRTHYR	Year of birth
BIRTHQTR	Quarter of birth (1=Jan-Mar, 2=Apr-Jun, 3=Jul-Sep, 4=Oct-Dec)
HISPAN	Hispanic origin (1=Mexican)
BPL	Birthplace (200=Mexico)
CITIZEN	Citizenship status (3=Not a citizen, 5=Foreign born status unknown)
YRIMMIG	Year of immigration to US
EDUC	Educational attainment (general version)
EMPSTAT	Employment status (1=Employed)
UHRSWORK	Usual hours worked per week
MARST	Marital status (1-2=Married)

### 9.2 DACA Eligibility Construction

DACA eligibility is constructed as follows:

```
daca_eligible = (arrived_before_16 == 1) AND  
                (under_31_in_2012 == 1) AND  
                (arrived_by_2007 == 1) AND  
                (citizen == 3 or citizen == 5)
```

where:

```
arrived_before_16 = (YRIMMIG - BIRTHYR) < 16  
under_31_in_2012 = (BIRTHYR >= 1982) OR  
                  (BIRTHYR == 1981 AND BIRTHQTR >= 3)  
arrived_by_2007 = (YRIMMIG <= 2007)
```

### 9.3 Sample Sizes by Year

Table 7: Sample Size by Year and DACA Eligibility

Year	DACA Ineligible	DACA Eligible	Total
2006	53,102	8,960	62,062
2007	53,107	8,721	61,828
2008	50,756	8,169	58,925
2009	48,879	7,427	56,306
2010	46,838	6,918	53,756
2011	46,296	6,619	52,915
2013	45,533	9,304	54,837
2014	45,071	9,264	54,335
2015	44,468	9,159	53,627
2016	43,809	9,070	52,879
Total	477,859	83,611	561,470

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