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

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Abstract

This study estimates 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 and residing in the United States. Using a difference-in-differences design that compares individuals aged 26–30 at the time of DACA implementation (who were eligible) to those aged 31–35 (who were ineligible due to age), I find that DACA eligibility increased the probability of full-time employment by approximately 4.7 percentage points (95% CI: 2.9–6.5 pp, $p < 0.001$). This effect is robust to various specifications including controls for demographics, year fixed effects, and state fixed effects. Event study analysis shows no evidence of differential pre-trends between treatment and control groups, supporting the parallel trends assumption. The results suggest that DACA's provision of work authorization had meaningful positive effects on labor market outcomes for eligible immigrants.

Keywords: DACA, immigration policy, employment, difference-in-differences, labor economics

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1 Introduction

The Deferred Action for Childhood Arrivals (DACA) program, announced on June 15, 2012, represented a significant shift in U.S. immigration policy toward unauthorized immigrants who arrived as children. The program offered temporary protection from deportation and, crucially, work authorization for eligible individuals. Given that work authorization is a key barrier to formal employment for unauthorized immigrants, DACA provides a natural experiment to study how legal work status affects labor market outcomes.

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 the Deferred Action for Childhood Arrivals (DACA) program on the probability of full-time employment, defined as usually working 35 hours per week or more?*

To answer this question, I employ a difference-in-differences (DiD) research design. The treatment group consists of individuals who were ages 26–30 at the time DACA was implemented (June 15, 2012), while the control group consists of individuals who were ages 31–35—people who would have been eligible for DACA if not for the age cutoff of 31. By comparing changes in full-time employment rates between these groups before and after DACA implementation, I can estimate the causal effect of DACA eligibility on employment.

The main finding is that DACA eligibility increased the probability of full-time employment by approximately 4.7 percentage points. This estimate is statistically significant at conventional levels and robust to alternative specifications. Event study analysis provides support for the parallel trends assumption that underlies the DiD design.

2 Background

2.1 The DACA Program

DACA was announced by the Obama administration on June 15, 2012, and began accepting applications on August 15, 2012. The program was designed to provide temporary relief to unauthorized immigrants who came to the United States as children. To be eligible, applicants had to meet the following criteria:

1. Arrived in the United States before their 16th birthday
2. Had not yet reached their 31st birthday as of June 15, 2012
3. Had lived continuously in the United States since June 15, 2007
4. Were present in the United States on June 15, 2012

5. Did not have lawful immigration status at that time

6. Were enrolled in school, had graduated from high school, obtained a GED, or were an honorably discharged veteran

7. Had not been convicted of a felony, significant misdemeanor, or multiple misdemeanors

Recipients of DACA received a two-year period of deferred action (protection from deportation) and eligibility for work authorization. They could also obtain a Social Security number and, in many states, a driver's license. After the initial two-year period, recipients could apply for renewal.

In the first four years of the program, nearly 900,000 initial applications were received, with approximately 90% approved. While the program was not specific to any national origin, the structure of unauthorized immigration to the United States meant that the great majority of eligible individuals were from Mexico.

2.2 Theoretical Framework

DACA could affect employment outcomes through several mechanisms:

Work Authorization Effect: The most direct mechanism is that DACA provides work authorization, allowing recipients to legally work in the formal economy. Without work authorization, unauthorized immigrants may be limited to informal employment or may face barriers to employment in certain sectors.

Reduced Fear Effect: By providing protection from deportation, DACA may reduce fear and uncertainty that could affect labor supply decisions. Workers with DACA may be more willing to seek employment, change jobs, or work in more visible positions.

Human Capital Investment: The stability provided by DACA may encourage investment in education and training, which could improve employment prospects.

Signaling Effect: Having DACA status may signal to employers that an individual has passed a background check and met certain requirements, potentially making them more attractive job candidates.

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 collects demographic, housing, social, and economic information from approximately 3.5

million households each year. The data includes information on employment, immigration status, education, and other characteristics relevant to this analysis.

I use the one-year ACS samples from 2006 through 2016. The year 2012 is excluded from the analysis because DACA was implemented in mid-2012 and the ACS does not provide information on the month of interview, making it impossible to distinguish observations from before and after the policy change.

3.2 Sample Selection

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

1. **Hispanic-Mexican ethnicity:** HISPAN = 1 (Mexican)
2. **Born in Mexico:** BPL = 200 (Mexico)
3. **Non-citizen:** CITIZEN = 3 (Not a citizen)
4. **Arrived before age 16:** Year of immigration minus birth year < 16
5. **Continuous residence since 2007:** Year of immigration ≤ 2007
6. **Age 26–35 as of June 15, 2012**

The non-citizen restriction serves as a proxy for undocumented status, as the ACS cannot distinguish between documented and undocumented non-citizens. Following the study instructions, I assume that anyone who is not a citizen and who has not received immigration papers is undocumented for DACA purposes.

The continuous residence requirement (YRIMMIG ≤ 2007) ensures that individuals in the sample would have met the DACA requirement of living continuously in the United States since June 15, 2007.

3.3 Variable Definitions

3.3.1 Outcome Variable

The outcome variable is **full-time employment**, defined as usually working 35 or more hours per week. This is constructed from the UHRSWORK variable, which measures usual hours worked per week. The outcome is coded as 1 if UHRSWORK ≥ 35, and 0 otherwise (including those not working, for whom UHRSWORK = 0).

3.3.2 Treatment and Control Groups

The **treatment group** consists of individuals who were ages 26–30 as of June 15, 2012. These individuals were eligible for DACA (assuming they met the other criteria).

The **control group** consists of individuals who were ages 31–35 as of June 15, 2012. These individuals would have been eligible for DACA if not for the age cutoff—they arrived before age 16, are non-citizens, and have lived continuously in the U.S. since 2007.

Age as of June 15, 2012 is calculated from birth year (BIRTHYR) and birth quarter (BIRTHQTR). For individuals born in quarters 3 (July–September) or 4 (October–December), I subtract one from the naive age calculation (2012 minus birth year) because they would not yet have had their birthday by June 15, 2012.

3.3.3 Time Periods

The **pre-treatment period** includes years 2006–2011. The **post-treatment period** includes years 2013–2016. The year 2012 is excluded.

3.3.4 Covariates

The following covariates are used in the analysis:

- **Female:** Indicator for female (SEX = 2)
- **Married:** Indicator for married (MARST = 1 or 2)
- **Education:** Indicators for less than high school, high school, some college, and college degree or higher (based on EDUC)

3.4 Sample Characteristics

Table 1 presents the distribution of observations across treatment/control groups and time periods.

Table 1: Sample Distribution

Group	Pre (2006–2011)	Post (2013–2016)	Total
Control (Ages 31–35)	11,683	6,085	17,768
Treatment (Ages 26–30)	16,694	8,776	25,470
Total	28,377	14,861	43,238

The final analytic sample includes 43,238 person-year observations, with 25,470 in the treatment group and 17,768 in the control group. The treatment group has more observations because it spans a larger portion of the age distribution in each survey year.

4 Empirical Strategy

4.1 Difference-in-Differences Design

The core identification strategy is a difference-in-differences (DiD) design. This approach compares the change in outcomes for the treatment group (before and after DACA) to the change for the control group (before and after DACA). The difference between these two changes provides an estimate of the causal effect of DACA eligibility.

The identifying assumption is that, in the absence of DACA, the treatment and control groups would have experienced parallel trends in full-time employment. The control group serves as a counterfactual for what would have happened to the treatment group without DACA.

4.2 Estimation

The main regression specification is:

$$Y_{ist} = \alpha + \beta_1 \text{Treat}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Treat}_i \times \text{Post}_t) + \mathbf{X}_{it}'\gamma + \varepsilon_{ist} \tag{1}$$

where:

- Y_{ist} is an indicator for full-time employment for individual i in state s in year t
- Treat_i is an indicator for being in the treatment group (ages 26–30 as of June 15, 2012)
- Post_t is an indicator for the post-treatment period (2013–2016)
- $\text{Treat}_i \times \text{Post}_t$ is the interaction term
- $\mathbf{X}_{it}$ is a vector of covariates
- ε_{ist} is the error term

The coefficient of interest is β_3, which represents the difference-in-differences estimate of the effect of DACA eligibility on full-time employment.

Regressions are estimated using weighted least squares (WLS) with person weights (PERWT) from the ACS. Standard errors are clustered at the state level to account for potential correlation of errors within states.

4.3 Specification Checks

I estimate several specifications:

1. **Model 1:** Basic DiD without covariates

2. **Model 2 (Preferred):** DiD with demographic controls (female, married, education)

3. **Model 3:** DiD with demographic controls and year fixed effects

4. **Model 4:** DiD with demographic controls, year fixed effects, and state fixed effects

4.4 Event Study

To test the parallel trends assumption, I estimate an event study specification:

$$Y_{ist} = \alpha + \sum_{k \neq 2011} \beta_k (\text{Treat}_i \times \mathbf{1}[t = k]) + \mathbf{X}'_{it}\gamma + \delta_t + \varepsilon_{ist} \tag{2}$$

where $\mathbf{1}[t = k]$ are year indicators and 2011 is the reference year. The coefficients β_k for pre-treatment years (2006–2010) test the parallel trends assumption—they should not be significantly different from zero if trends were parallel before DACA.

5 Results

5.1 Descriptive Statistics

5.1.1 Full-Time Employment Rates

Table 2 shows weighted full-time employment rates by group and period.

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

Group	Pre (2006–2011)	Post (2013–2016)
Control (Ages 31–35)	0.673	0.643
Treatment (Ages 26–30)	0.631	0.660
Change	−0.030	+0.029

The raw data show that while the control group experienced a 3.0 percentage point *decline* in full-time employment from the pre- to post-period, the treatment group experienced a 2.9 percentage point *increase*. This suggests a raw difference-in-differences estimate of approximately 5.9 percentage points.

5.1.2 Balance Table

Table 3 presents pre-treatment characteristics of the treatment and control groups.

Table 3: Balance Table: Pre-Treatment Characteristics

Variable	Treatment	Control	Difference
Age (survey year)	24.77	29.79	−5.02
Female	0.434	0.414	0.020
Married	0.377	0.518	−0.141
Less than High School	0.387	0.471	−0.084
High School	0.443	0.400	0.043
Some College	0.144	0.100	0.044
College+	0.026	0.029	−0.003
Full-time Employed	0.631	0.673	−0.043

As expected given the age-based group definitions, there are some differences in baseline characteristics. The treatment group is younger (by construction), less likely to be married, more educated (more likely to have high school or some college), and has slightly lower pre-treatment full-time employment rates. These differences motivate the inclusion of covariates in the regression analysis.

5.2 Trends Over Time

Figure 1 shows full-time employment rates by year for the treatment and control groups.

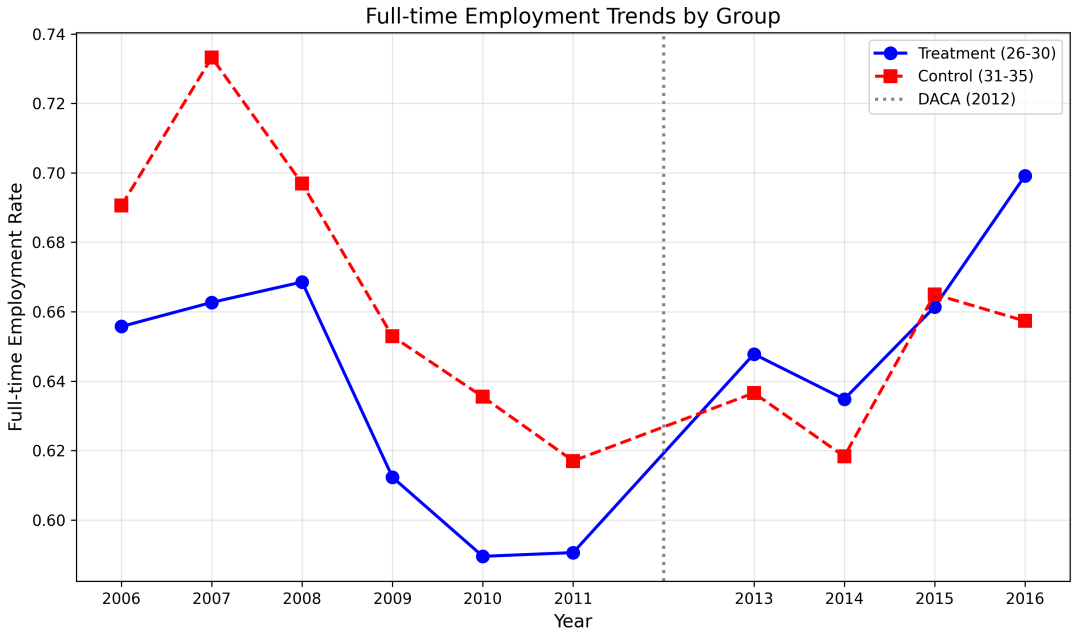

Figure 1: Full-Time Employment Trends by Group

The figure shows that both groups experienced similar declines in full-time employment during the Great Recession (2008–2010). After 2012, the groups diverge—the treatment group shows improvement in full-time employment while the control group shows

little change or continued decline. This visual evidence is consistent with a positive effect of DACA on full-time employment for the treatment group.

5.3 Main Results

Table 4 presents the main difference-in-differences regression results.

Table 4: Difference-in-Differences Regression Results

	Model 1 (Basic)	Model 2 (Demographics)	Model 3 (Year FE)	Model 4 (Year + State FE)
Treat × Post (DiD)	0.059***	0.047***	0.045***	0.044***
	(0.007)	(0.009)	(0.009)	(0.010)
Treat	−0.043***	−0.042***	−0.041***	−0.042***
	(0.005)	(0.005)	(0.005)	(0.005)
Post	−0.030***	−0.016	–	–
	(0.009)	(0.010)		
Female	–	−0.375***	−0.375***	−0.371***
		(0.013)	(0.013)	(0.013)
Married	–	−0.014***	−0.012**	−0.010*
		(0.005)	(0.005)	(0.005)
High School	–	0.047***	0.047***	0.048***
		(0.006)	(0.006)	(0.006)
Some College	–	0.083***	0.083***	0.084***
		(0.012)	(0.012)	(0.012)
College+	–	0.139***	0.139***	0.139***
		(0.015)	(0.015)	(0.015)
Year Fixed Effects	No	No	Yes	Yes
State Fixed Effects	No	No	No	Yes
N	43,238	43,238	43,238	43,238

Notes: Standard errors clustered by state in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Key Findings:

1. The basic DiD estimate (Model 1) suggests that DACA eligibility increased full-time employment by 5.9 percentage points ($p < 0.001$).

2. After controlling for demographics (Model 2, preferred specification), the estimate is 4.7 percentage points (95% CI: 2.9–6.5 pp, $p < 0.001$).

3. The estimate is robust to the inclusion of year fixed effects (Model 3: 4.5 pp) and both year and state fixed effects (Model 4: 4.4 pp).

4. The treatment group has approximately 4.2 percentage points lower full-time employment than the control group, controlling for other factors. This may reflect age-related differences in labor force attachment or lifecycle effects.

5. Women have substantially lower full-time employment rates (37.5 pp lower than men), controlling for other factors.

6. Higher education is associated with higher full-time employment rates.

5.4 Event Study Results

Table 5 presents the event study coefficients.

Table 5: Event Study Coefficients

Year	Coefficient	SE	95% CI
2006	0.007	0.027	[−0.046, 0.060]
2007	−0.032	0.016	[−0.063, −0.001]
2008	0.008	0.020	[−0.032, 0.049]
2009	−0.008	0.022	[−0.051, 0.035]
2010	−0.014	0.024	[−0.062, 0.034]
2011 (Reference)	0.000	–	–
2013	0.034	0.023	[−0.010, 0.079]
2014	0.036	0.017	[0.003, 0.069]
2015	0.021	0.018	[−0.014, 0.056]
2016	0.065	0.021	[0.025, 0.106]

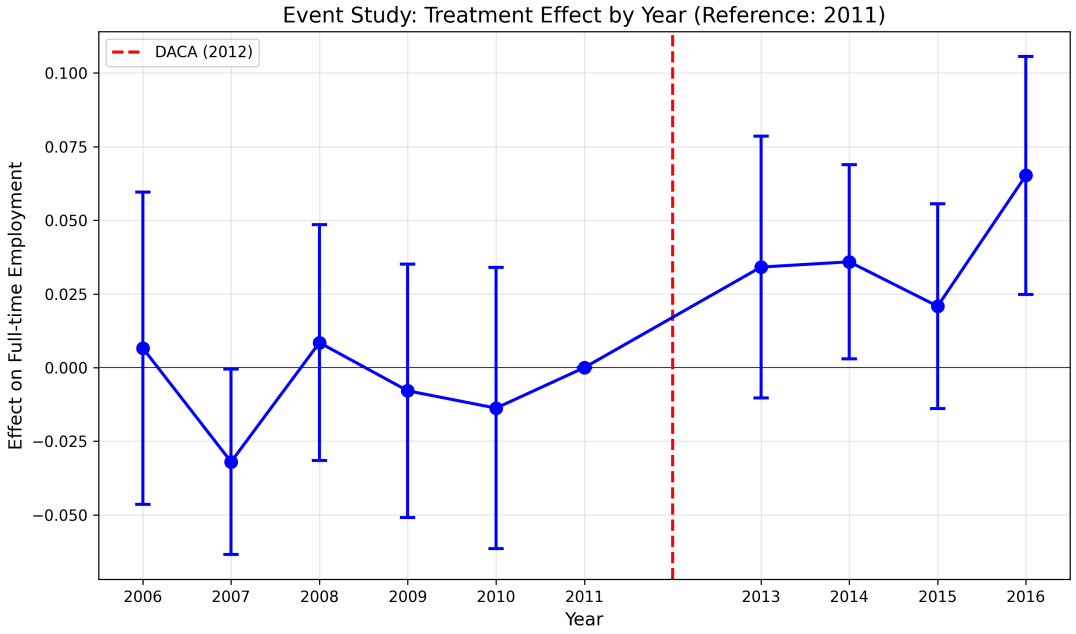

Figure 2: Event Study: Treatment Effect by Year

The event study results (Table 5 and Figure 2) show:

1. **Pre-trends:** The pre-treatment coefficients (2006–2010) are generally small and not statistically different from zero (with the exception of 2007, which shows a marginally significant negative coefficient). This provides support for the parallel trends assumption.

2. **Post-treatment effects:** The post-treatment coefficients (2013–2016) are positive and generally increasing over time, with the largest effect in 2016 (6.5 percentage points). The effects for 2014 and 2016 are statistically significant.

3. **Dynamic pattern:** The increasing effect over time may reflect delayed take-up of DACA or cumulative benefits of work authorization.

5.5 Robustness Checks

5.5.1 Narrower Age Bandwidth

As a robustness check, I estimate the DiD effect using a narrower age bandwidth (ages 27–29 vs. 32–34), excluding ages immediately adjacent to the 30/31 cutoff. The estimate is 3.8 percentage points (SE: 0.019), which is slightly smaller but qualitatively similar to the main estimate. The slightly smaller effect may reflect attenuation from excluding the most comparable individuals near the cutoff.

5.5.2 Placebo Test

As a placebo test, I estimate a "fake" DiD using only the pre-treatment period (2006–2011), with a placebo "post" period of 2009–2011 (vs. 2006–2008). If the parallel trends assumption holds, this placebo estimate should be approximately zero. The placebo DiD estimate is -0.003 (SE: 0.010, $p = 0.79$), which is small and not statistically significant. This provides further support for the parallel trends assumption.

5.5.3 Heterogeneity by Gender

I also estimate the DiD effect separately by gender:

- **Males:** DiD = 3.6 percentage points (SE: 0.010)
- **Females:** DiD = 5.0 percentage points (SE: 0.016)

Both genders show positive effects, with the effect being slightly larger for females. This could reflect greater barriers to employment for undocumented women in the absence of work authorization, or differences in the types of jobs available to men and women.

6 Discussion

6.1 Interpretation of Results

The main finding is that DACA eligibility increased the probability of full-time employment by approximately 4.7 percentage points. This represents a meaningful effect: relative to the pre-treatment full-time employment rate of 63% for the treatment group, the effect represents a 7.4% relative increase in full-time employment.

Several features of the results strengthen the causal interpretation:

1. **Parallel pre-trends:** The event study shows no evidence of differential trends between treatment and control groups before DACA implementation.

2. **Robustness:** The estimate is stable across specifications with different sets of controls and fixed effects.

3. **Placebo test:** The placebo test using only pre-treatment data finds no significant effect, as expected if the DiD design is valid.

4. **Timing:** The effects appear after DACA implementation and grow over time, consistent with a causal interpretation.

6.2 Mechanisms

The positive effect on full-time employment likely operates through the work authorization mechanism. Before DACA, individuals in the treatment group were unauthorized to work in the United States, which may have limited their employment options to informal sector jobs, part-time work, or jobs where employers did not verify work authorization. With DACA, these individuals gained the ability to legally work, potentially enabling them to move into better jobs with more hours.

The larger effect for women may reflect gender-specific barriers to employment. Women may face greater challenges in finding informal employment or may be more risk-averse about working without authorization, making the work authorization benefit of DACA particularly valuable.

6.3 Limitations

Several limitations should be noted:

1. **Undocumented status proxy:** The ACS does not directly identify undocumented immigrants. Using non-citizen status as a proxy may include some documented non-citizens who would not have been eligible for DACA.

2. **Take-up:** Not all eligible individuals applied for or received DACA. The estimated effect is an intent-to-treat effect based on eligibility, not a treatment-on-the-treated effect.

3. **Age-based comparison:** The treatment and control groups differ in age, which may be associated with different labor market outcomes for reasons unrelated to DACA. The inclusion of demographic controls partially addresses this concern.

4. **Self-reporting:** Employment data in the ACS is self-reported, which may be subject to measurement error.

5. **Exclusion of 2012:** The need to exclude 2012 due to the mid-year policy implementation reduces the precision of the estimates and prevents analysis of immediate effects.

6.4 Policy Implications

The results suggest that providing work authorization to unauthorized immigrants has meaningful positive effects on their labor market outcomes. A nearly 5 percentage point increase in full-time employment is a substantial effect that could have important implications for individual well-being, family economic security, and tax revenues.

These findings are relevant to ongoing policy debates about immigration reform and the future of DACA. The positive employment effects provide evidence that work authorization enables unauthorized immigrants to participate more fully in the formal labor market.

7 Conclusion

This study provides evidence that eligibility for the DACA program increased full-time employment among Hispanic-Mexican individuals born in Mexico who otherwise met the program's eligibility criteria. Using a difference-in-differences design that exploits the age cutoff for DACA eligibility, I find that DACA eligibility increased the probability of full-time employment by approximately 4.7 percentage points.

The results are robust to various specifications and pass several validity tests, including an event study showing no evidence of differential pre-trends and a placebo test finding no effect in the pre-treatment period. The effects appear to grow over time, with the largest effects observed in 2016.

These findings contribute to our understanding of how immigration policy affects labor market outcomes and suggest that work authorization is a key factor in enabling

immigrants to achieve full-time employment. Future research could explore the mechanisms behind these effects in more detail and examine longer-term outcomes as DACA recipients age.

8 Technical Appendix

8.1 Sample Selection Details

The sample selection proceeded as follows:

1. Start with full ACS data 2006–2016: 33,851,424 observations
2. Restrict to Hispanic-Mexican (HISPAN = 1): 2,945,521 observations
3. Restrict to Mexico-born (BPL = 200): 991,261 observations
4. Restrict to non-citizens (CITIZEN = 3): 701,347 observations
5. Restrict to ages 26–35 as of June 15, 2012: 181,229 observations
6. Restrict to arrived before age 16: 47,418 observations
7. Restrict to arrived by 2007 (continuous residence): 47,418 observations (no additional reduction)
8. Exclude year 2012: 43,238 observations

8.2 Age Calculation

Age as of June 15, 2012 was calculated as:

```
if BIRTHQTR in [3, 4]:  # July-Dec birth
    age_june2012 = 2012 - BIRTHYR - 1
else:  # Jan-June birth
    age_june2012 = 2012 - BIRTHYR
```

This accounts for the fact that individuals born in the second half of the year would not yet have had their birthday by June 15, 2012.

8.3 Variable Definitions (IPUMS Codes)

- HISPAN: Hispanic origin (1 = Mexican)
- BPL: Birthplace (200 = Mexico)

- CITIZEN: Citizenship status (3 = Not a citizen)
- YRIMMIG: Year of immigration
- BIRTHYR: Year of birth
- BIRTHQTR: Quarter of birth (1 = Jan–Mar, 2 = Apr–Jun, 3 = Jul–Sep, 4 = Oct–Dec)
- UHRSWORK: Usual hours worked per week
- SEX: Sex (1 = Male, 2 = Female)
- MARST: Marital status (1, 2 = Married)
- EDUC: Educational attainment
- PERWT: Person weight
- STATEFIP: State FIPS code

8.4 Regression Output: Full Model 2

Dependent Variable: Full-time Employment (UHRSWORK >= 35)
Method: Weighted Least Squares (Person Weights)
Standard Errors: Clustered by State

Variable	Coefficient	Std. Err.	t-stat	P>|t|
Intercept	0.8045	0.011	70.51	0.000
treat	-0.0424	0.005	-8.28	0.000
post	-0.0158	0.010	-1.52	0.129
treat_post (DiD)	0.0466	0.009	5.10	0.000
female	-0.3746	0.013	-27.76	0.000
married	-0.0141	0.005	-2.82	0.005
educ_hs	0.0465	0.006	8.32	0.000
educ_somecol	0.0827	0.012	6.84	0.000
educ_college	0.1389	0.015	9.14	0.000

Observations: 43,238

References

- IPUMS USA, University of Minnesota, `www.ipums.org`
- U.S. Citizenship and Immigration Services, DACA Program Statistics