DACA's association with birth outcomes among Mexican-origin mothers in the United States

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Abstract

The 2012 Deferred Action for Childhood Arrivals (DACA) program granted work authorization and protection from deportation to more than 800,000 young, undocumented immigrants who arrived to the United States as minors. We estimate the association between this expansion of legal rights and birth outcomes among 72,613 singleton births to high-school-educated Mexican immigrant women in the United States from June 2010 to May 2014, using birth records data from the National Center for Health Statistics. Exploiting the arbitrariness of the upper-age cutoff for DACA eligibility and using a difference-in-differences design, we find that DACA was associated with improvements to the rates of low birthweight and very low birthweight, birthweight in grams, and gestational age among Mexican immigrant mothers.

In 2012, the Obama administration created the Deferred Action for Childhood Arrivals (DACA) program, which granted some undocumented immigrants who came to the United States as minors work authorization and protection from deportation. As of December 2019, more than 825,000 initial DACA applications had been approved (USCIS 2020). DACA reduces two major sources of stress in the lives of undocumented immigrants: the threat of deportation and the inability to work legally (Abrego 2018; Gonzales, Terriquez, and Ruszczyk 2014; Patler and Pirtle 2018). Studies have found that DACA increased high school graduation, employment, and public service receipt, reduced poverty, and improved the mental and self-rated health of participants (Amuedo-Dorantes and Antman 2016, 2017; Bae 2020; Hamilton, Patler, and Savinar 2020; Kuka, Shenhav, and Shih 2020; Patler et al. 2019; Pope 2016; Venkataramani et al. 2017, 2018).

By reducing deportation threat and providing new economic opportunities, DACA may also improve the health of infants born to DACA participants. The threat of deportation through immigration enforcement is a known stressor (Ayón 2020) that affects the health of pregnant women and their newborns (Novak, Geronimus, and Martinez-Cardoso 2017; Ro, Bruckner, and Duquette-Rury 2020; Torche and Sirois 2019). Deportation threat also inhibits social service usage and undermines confidence in U.S. institutions, with direct and indirect consequences for health (Cruz Nichols, LeBrón, and Pedraza 2018; Toomey et al. 2014; Watson 2014).

An estimated 256,000 U.S.-born children have at least one parent who is a DACA participant (Svajlenka 2019). Two studies have found health improvements among children of DACA participants (Hainmueller et al. 2017; Patler et al. 2019). Through stress reduction and improvements to socioeconomic status, mothers who participate in DACA may have a healthier pregnancy and birth. DACA may also affect birth planning and timing (Kuka, Shenhav, and Shih

2019). Births after DACA may be healthier because participants planned and achieved pregnancies within a broader set of opportunities.

In this study, we consider how DACA affected the health of participants' children at the start of their lives by examining two standard birth outcomes, birthweight and gestational age. We exploit the arbitrariness of the upper-age cutoff for DACA eligibility to identify DACA's impact on birth outcomes among Mexican immigrant women in the United States.

Research design

We analyze data from June 2010- May 2014 U.S. birth records provided by the National Center for Health Statistics (2018), as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. We conduct a difference-in-differences (DID) analysis, in which we compare the difference in birth outcomes to DACA-eligible mothers (the treatment group) before and after DACA (the treatment) was announced, to the difference in birth outcomes to DACA-ineligible mothers (the control group) before and after DACA. Because DACA may affect both stress during pregnancy and pregnancy planning, we compare births across three periods: (1) pre-DACA: births before the DACA announcement in June 2012; (2) post-DACA period 1: births conceived before but born after DACA was announced; and (3) post-DACA period 2: births conceived after DACA was announced. DID analyses control for time trends common to all mothers and for group differences common across time. The model estimates the treatment effect with an interaction term between the treatment group and the post-policy periods under the assumption that the treatment group would have followed the same trend as the control group had the treatment not occurred.

The birth records files include four characteristics of mothers that allow us to approximate DACA eligibility: mother's birthplace, mother's state of residence, mother's age, and mother's highest level of education.[1] We limit the analytic sample to Mexican-born mothers who reside in the United States and have at least a high school degree, who are most likely to be eligible for DACA (MPI 2020). We further limit all analyses to singleton births between 22 and 44 weeks of gestation.

We use the DACA eligibility upper-age criterion (<31 on June 15, 2012) to define the treatment and control groups.[2] The treatment group includes mothers who were just below the upper-age cutoff for DACA eligibility, 29-30 years old at the time of the birth. Ideally, we would compare 29-30-year-old mothers to 31-32-year-old mothers, but as Figure 1 shows, mother's age relates to eligibility by date of birth over the post-DACA period: eligible mothers could turn 31 as early as June 16, 2012, 32 in the second half of 2013, and 33 in the second half of 2014. Furthermore, we know mother's age at the time of the birth, but we do not know her birthdate. Therefore, we cannot determine the eligibility of 31-year-old mothers who gave birth in the second half of 2012 or first half of 2013.

[1] The Department of Homeland Security limited DACA eligibility to undocumented immigrants who (1) were resident in the United States from June 15, 2007 to June 15, 2012; (2) were between the ages of 15 and 30 on June 15, 2012; (3) arrived in the United States before June 15, 2007 at the age of 16 or younger; (4) had completed high school or GED, were enrolled in school, or were active military or honorably discharged veterans; and (5) had not been convicted of a felony, significant misdemeanor, or three or more other misdemeanors, and did not otherwise pose a threat to national security or public safety. Birth records do not include information about mother's legal status, year or age of arrival, current enrollment in school, military service, or criminal record.

[2] We do not use the lower-age cutoff because births to 14 year olds are rare and unlikely to follow similar patterns as births to older mothers (Martin et al. 2019).

[Figure 1 about here]

To balance the model assumption of similarity between the control and treatment groups with an interest in examining births conceived after the announcement of the program, we use 33-34-year-olds as the control group, which includes (full-term) births conceived through August 2013 and born through May 2014. [3] Our analytic sample includes 72,613 births.

We examine low birthweight (LBW), defined as birthweights of less than 2,500 grams; very low birthweight (VLBW, < 1,500 grams); birthweight in grams; and birthweight in grams at the 6th, 50th, and 93rd percentiles, representing the distributional cut points for LBW, median birthweight, and macrosomia. We also examine preterm birth (<37 weeks gestation); gestational age in weeks; and small for gestational age (SGA), or birthweights below the 10th percentile of birthweight at each completed week of gestation from 22 to 44 weeks. For LBW, VLBW, preterm birth, and SGA, we employ linear probability regressions with robust standard errors to obtain unbiased coefficients under heteroscedasticity; logistic regression models (not shown but available upon request) produce similar results. For birthweight in grams and gestational age in weeks, we employ ordinary least square regressions. For birthweight at the 6th, 50th, and 93rd percentiles, we use conditional quantile regression; unconditional quantile regression (not shown but available upon request) produces similar results.

The models presented below control for birth and mother characteristics that are unlikely mediators of DACA's impact on health, including child sex, parity, whether the mother is

[3] We estimated the same models using alternate control groups: (1) births to 32-33 year olds through May 2013 and (2) births to 34-35 year olds through May 2015. The results to (1) showed no effects of DACA on births through May 2013. The results to (2) were consistent with those presented here. An alternate design would be to compare Mexican-born women to similarly-aged U.S.-born women, but these groups violate the DID model's assumption of similar time trends in the pre-DACA period.

married, and whether the father is Hispanic. In the Appendix, we show nested models, including one with no controls and a third, fully-mediated model, including controls for whether the mother has obtained a Bachelor's degree or higher, whether the birth was paid for by Medicaid, and three characteristics of the mother's county of residence: the percent of households below the federal poverty line, median household income, and the rate of immigration detainers issued in the 12-month period prior to the birth per 1,000 people.[4] The nested models show no evidence of mediation by covariates.

Results

Table 1 describes the characteristics of singleton births in the United States to high-school-educated Mexican-born mothers between June 2010 and May 2014, comparing DACA-eligible (29-30 year old) mothers to ineligible (33-34 year old) mothers. Group differences are small and correspond to age. Infants of eligible (i.e. younger) mothers have better birth outcomes, but eligible mothers experience slightly greater disadvantage. There are few county-level differences. Mexican-born mothers in our sample live in counties that are 17.7% poor, have a median income of $54,000, and where local law enforcement issued 1.6 ICE detainers per 1,000 people in the year prior to the birth.

[Table 1, Figure 2 about here]

[4] County economic characteristics come from the Census Small Area Income and Poverty Estimates (SAIPE) Program. We obtained the county detainer data from the Transactional Records Access Clearinghouse at Syracuse University. Detainers hold a person suspected of an immigrant violation, who would otherwise be released after apprehension by local law enforcement, until Immigration and Customs Enforcement (ICE) can assume custody. The detainer rate approximates local immigration enforcement.

Figure 2 shows birth outcomes for eligible and ineligible mothers by three-month period from June 2010-May 2014. The graphs show that the groups follow parallel time trends prior to the DACA announcement for all birth outcomes. For some outcomes, especially LBW, VLBW, and birthweight at the 6th percentile, a noticeable gap emerges between eligible and ineligible women after DACA is announced and particularly in the period that begins nine months after the announcement of DACA.

[Table 2 about here]

We estimate the summary impact of the policy with the DID analysis, shown in Table 2. Table 2 shows condensed results for the model with no potential mediators; Appendix Table 1 shows full regression coefficients across three nested models. Consistent with Figure 2, the results show that DACA was not associated with birth outcomes for births in utero at time of the announcement (post-period 1), but DACA was associated with improvements to some outcomes for births conceived after DACA was announced (post-period 2). For these births, DACA was associated with a one percentage-point decrease in the proportion LBW (Model 1) and .04 percentage-point decrease in VLBW (Model 2). These correspond to a 28.8-gram increase in average birthweight (Model 3). The conditional quantile regressions show that improvements were concentrated among births at the bottom of the birthweight distribution (Models 4a-4c): DACA was associated with an average increase of 79 grams at the 6th percentile, 25 grams at the 50th, and no difference in birthweight at the 93rd percentiles. DACA was not associated with preterm births (Model 5) or small for gestational age (Model 7) but was associated with .09 weeks longer average gestational age (Model 6).

[Figure 3 about here]

Figure 3 illustrates the conditional quantile regression estimates of DACA's impact in the second post period across the birthweight distribution, adding results from a regression using the standard birthweight cut points of the 10^{th}, 25^{th}, 75^{th}, and 90^{th} percentiles. The figure makes clear that DACA's association with birthweight was concentrated at the lower end of the distribution.

Conclusion

This study supports the theory that expansions of legal rights can lead to immediate and important improvements in the health of beneficiaries and their children (Hainmueller et al. 2017; Patler et al. 2019). Our analysis of births to Mexican-born mothers in the United States between 2010 and 2014 shows that DACA was associated with substantially improved birth outcomes for births conceived in the 9-month period following the announcement of DACA. Birth conceived to eligible mothers after the DACA announcement experienced lower risk of low birthweight and very low birthweight and larger average birthweight. These benefits were concentrated among births at the lower end of the birthweight distribution, meaning that births at greatest risk of poor outcomes benefited the most from the program. Given the association between birth outcomes and later life health and development, we can assume that DACA also reduced those concomitant risks (Boardman et al. 2002; Hack and Borawski 2002). We did not find evidence that the policy impacted births in utero at the time of the announcement, perhaps because such pregnancies were exposed to DACA for shorter time periods.

Our results are specific to mothers who were just below and above the upper-age criteria for DACA eligibility from June 2012 through May 2014. The arbitrariness of the DACA upper age cutoff for eligibility allowed us to identify DACA's impact by comparing two groups who

are otherwise relatively similar to each other, but the results may not generalize to other DACA-eligible age groups. By virtue of their age, our sample disproportionately includes married mothers having their second or third-or-higher birth (cf. Martin et al. 2019). DACA may affect birth timing and pregnancy health differently for younger mothers, but different research designs are necessary to identify those effects.

We could not directly measure DACA eligibility in the data. Because some number of women in our treatment group are documented or are undocumented but do not meet the other criteria for DACA, our estimate of DACA's impact is conservative. In other words, the true effect of DACA on maternal and infant health is likely larger among the eligible population than what we estimated.

In June 2020, the U.S. Supreme Court determined that the Trump administration had not provided sufficient legal justification to terminate DACA; however, this or a future presidential administration could still do so. Legislation to provide permanent legal status for DACA recipients and other immigrants would put an end to the stressful uncertainty that the temporary executive action creates (e.g., Patler et al. 2019). Congress should consider evidence of DACA's direct and intergenerational health benefits in developing a permanent program with a route to citizenship for undocumented immigrants. Hundreds of thousands of U.S.-born children, and many more immigrants, would benefit from such a law.

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Ethics and Consent

This study conducts secondary analysis on fully de-identified data.

Conflict of Interest

The authors declare that they have no conflict of interest.

Author Contributions

All authors made substantial contributions to the analysis, edited all drafts, and approved the version to be published.

Data Availability

The data in this study are available through application to the National Center for Vital Statistics and the Transactional Records Access Clearinghouse at Syracuse University, and via download from the Census Bureau's Small Area Income and Poverty Estimates (SAIPE) Program at data.census.gov. Readers may contact the corresponding author for replication code.

Table 1: Characteristics of singleton births to high-school educated, Mexican-born mothers eligible and ineligible for DACA by age, in the U.S. from June 2010-May 2014

	DACA-eligible mothers (age 29-30)	DACA-ineligible mothers (age 33-34)
Infant variables		
Low birthweight (%)	5.2	6.1
Very low birthweight (%)	0.8	1.1
Birthweight (mean)	3345 (2.3)	3342 (3.3)
Small for gestational age (%)	7.9	7.9
Preterm birth (%)	10.1	11.3
Weeks gestation (mean)	38.7 (.01)	38.5 (.01)
Male (%)	50.9	51.2
Parity (%)		
First	22.9	16.9
Second	35.1	29.1
Third or higher	42.0	53.9
Father Hispanic (%)	92.0	90.2
Mother variables		
BA or higher (%)	16.0	20.3
Married (%)	69.3	73.7
Birth paid for by Medicaid (%)	54.1	49.6
County variables		
Percent households below federal poverty line (mean)	17.7 (.02)	17.7 (.03)
Median household income (mean)	53750 (53)	53812 (72)
Detainer rate (mean)	1.6 (.01)	1.6 (.01)
Observations	**43101**	**29512**

Sources: NCHS, 2010-2014 Natality-All County Files; Census SAIPE; TRAC

Table 2. DID regression estimates of the association between DACA and birth outcomes among singleton births to DACA-eligible (age 29-30) and ineligible (33-34) high-school-educated, Mexican-born mothers in the United States between June 2010 and May 2014

	(1) LBW		(2) VLBW		(3) BW grams	
	Coeff.	(SE)	Coeff.	(SE)	Coeff.	(SE)
DACA Elig	-0.008**	(0.002)	-0.002	(0.001)	7.2	(5.7)
DACA Post 1	0.000	(0.004)	0.000	(0.001)	-5.4	(8.4)
DACA Post 2	0.015***	(0.003)	0.007***	(0.002)	-39.6***	(7.5)
DACA Elig x Post 1	0.002	(0.005)	-0.002	(0.002)	3.9	(10.9)
DACA Elig x Post 2	-0.010*	(0.004)	-0.004*	(0.002)	28.8**	(9.6)
Constant	0.067***	(0.004)	0.009***	(0.002)	3263.8***	(9.6)
Observations	72,613		72,613		72,613	
R-squared	0.003		0.002		0.018	

	(4a) BW grams - 6%		(4b) BW grams - 50%		(4c) BW grams - 93%	
	Coeff.	(SE)	Coeff.	(SE)	Coeff.	(SE)
DACA Elig	47.0***	(17.6)	2.0	(5.2)	-29.0**	(9.1)
DACA Post 1	-7.0	(34.4)	1.3	(6.7)	-24.0	(19.6)
DACA Post 2	-104.7***	(27.8)	-26.7***	(7.7)	-36.1*	(15.4)
DACA Elig x Post 1	5.0	(42.9)	-2.7	(7.8)	16.9	(22.0)
DACA Elig x Post 2	79.0**	(31.0)	25.3*	(10.1)	24.4	(19.0)
Constant	2,671.0***	(120.0)	3,049.7***	(197.2)	3,702.8***	(70.1)
Observations	72,613		72,613		72,613	
R-squared	0.006		0.0125		0.0165	

	(5) Preterm		(6) Weeks gestation		(7) SGA	
	Coeff.	(SE)	Coeff.	(SE)	Coeff.	(SE)
DACA Elig	-0.009**	(0.003)	0.11***	(0.02)	-0.003	(0.003)
DACA Post 1	-0.004	(0.005)	0.05	(0.03)	0.001	(0.004)
DACA Post 2	0.013**	(0.004)	-0.11***	(0.03)	0.003	(0.004)
DACA Elig x Post 1	-0.008	(0.006)	0.04	(0.04)	0.007	(0.005)
DACA Elig x Post 2	-0.009	(0.005)	0.09*	(0.04)	-0.004	(0.005)
Constant	0.085***	(0.005)	38.95***	(0.04)	0.125***	(0.005)
Observations	72,613		72,613		72,613	
R-squared	0.004		0.009		0.009	

*** p<0.001, ** p<0.01, * p<0.05

Note: All models control for child sex, parity, mother married, and father Hispanic. See Appendix Table 1 for unadjusted models and models adjusted for potential mediators.

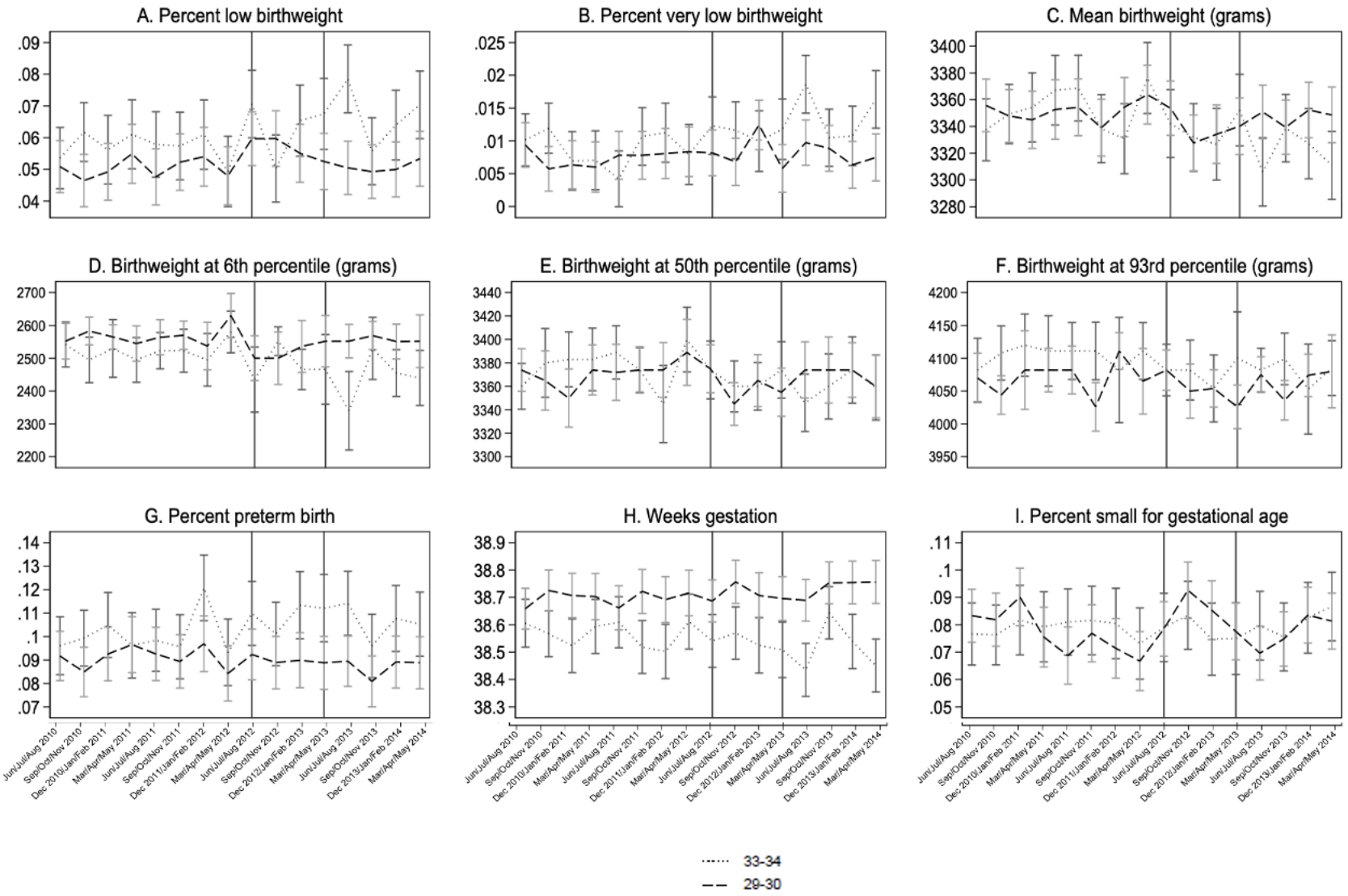
Sources: NCHS, 2010-2014 Natality-All County Files

Figure 1. Eligibility for DACA based on mother's age at and date of birth of child

Mother's age at child's birth	Date of birth of child										
	June 15, 2012	Sept 15, 2012	Dec 15, 2012	March 15, 2013	June 15, 2013	Sept 15, 2013	Dec 15, 2013	March 15, 2014	June 15, 2014	Sept 15, 2014	Dec 15, 2014
29	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible
30	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible
31	Inelig	?	?	?	?	Eligible	Eligible	Eligible	Eligible	Eligible	Eligible
32	Inelig	Inelig	Inelig	Inelig	Inelig	?	?	?	?	Eligible	Eligible
33	Inelig	Inelig	Inelig	Inelig	Inelig	Inelig	Inelig	Inelig	Inelig	?	?
34	Inelig	Inelig	Inelig	Inelig	Inelig	Inelig	Inelig	Inelig	Inelig	Inelig	Inelig
35	Inelig	Inelig	Inelig	Inelig	Inelig	Inelig	Inelig	Inelig	Inelig	Inelig	Inelig

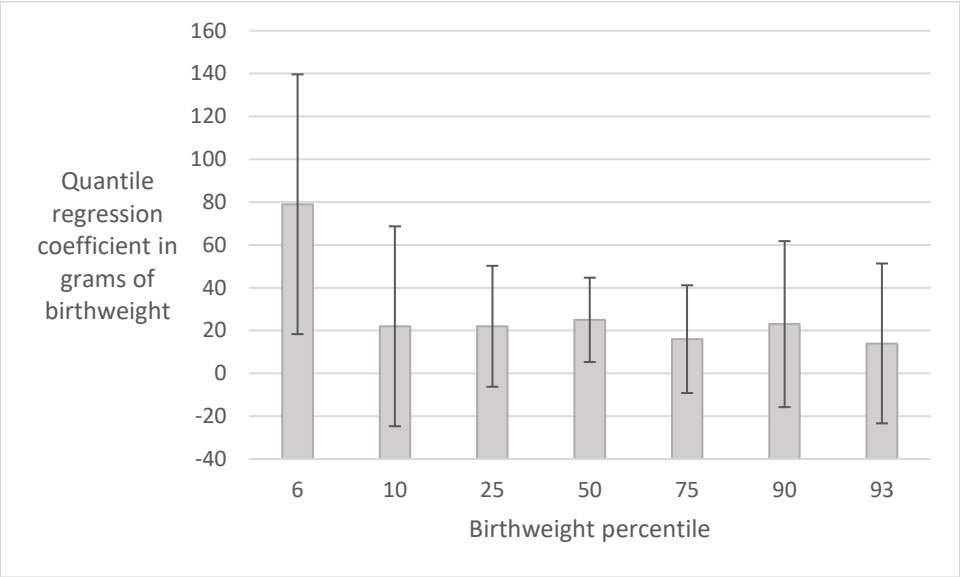
Note: the upper-age eligibility criterion is 30 on June 15, 2012. Mother's birthdate is unknown. Cells with a question mark indicate that mothers of that age giving birth in those periods may be eligible, depending on her birthdate.

Figure 2. Unadjusted birth outcomes by three-month period among singleton births to DACA eligible (29-30 year old) and ineligible (33-34 year old) high school-educated Mexican-born women, from June 2010-May 2014, in the United States



Note: the vertical lines mark the announcement of DACA and nine months after
Source: NCHS, 2010-2014 Natality-All County Files

Figure 3. Quantile regression estimates of DACA's impact on birthweight of infants conceived and born after the DACA announcement, at seven points on the birthweight distribution



Note: presented are regression coefficients of the interaction between DACA eligibility and the second post-DACA period.
Source: NCHS, 2010-2014 Natality-All County Files

Appendix Table 1. Full regression coefficients across three nested DID models estimating the association between DACA and nine birth outcomes among singleton births to DACA-eligible (age 29-30) and ineligible (33-34) high-school-educated, Mexican-born mothers in the United States between June 2010 and May 2014

A. LBW

	Model 1		Model 2		Model 3	
	Coeff.	SE	Coeff.	SE	Coeff.	SE
DACA Elig	-0.006**	(0.002)	-0.008**	(0.002)	-0.008***	(0.002)
DACA Post 1	0.000	(0.004)	0.000	(0.004)	0.000	(0.004)
DACA Post 2	0.014***	(0.003)	0.015***	(0.003)	0.014***	(0.003)
DACA Elig * Post 1	0.002	(0.005)	0.002	(0.005)	0.002	(0.005)
DACA Elig * Post 2	-0.011*	(0.004)	-0.010*	(0.004)	-0.010*	(0.004)
Infant male			-0.002	(0.002)	-0.002	(0.002)
Parity 2			-0.017***	(0.003)	-0.018***	(0.003)
Parity 3+			-0.018***	(0.002)	-0.019***	(0.003)
Father Hispanic			0.007*	(0.003)	0.006	(0.003)
Mother married			0.000	(0.002)	0.001	(0.002)
Mother has BA+					-0.005*	(0.002)
Medicaid paid L&D					-0.001	(0.002)
County % poor					0.064*	(0.032)
County median income					0.000	(0.000)
County detainer rate					0.000	(0.000)
Constant	0.057***	(0.002)	0.067***	(0.004)	0.048***	(0.014)
Observations	72,613		72,613		72,613	
R-squared	0.001		0.003		0.003	

B. VLBW

	Model 1		Model 2		Model 3	
	Coeff.	SE	Coeff.	SE	Coeff.	SE
DACA Elig	-0.001	(0.001)	-0.002	(0.001)	-0.002	(0.001)
DACA Post 1	0.000	(0.001)	0.000	(0.001)	0.000	(0.001)
DACA Post 2	0.006***	(0.002)	0.007***	(0.002)	0.007***	(0.002)
DACA Elig * Post 1	-0.002	(0.002)	-0.002	(0.002)	-0.002	(0.002)
DACA Elig * Post 2	-0.004*	(0.002)	-0.004*	(0.002)	-0.004*	(0.002)
Infant male			0.000	(0.001)	0.000	(0.001)
Parity 2			-0.004***	(0.001)	-0.005***	(0.001)
Parity 3+			-0.005***	(0.001)	-0.005***	(0.001)
Father Hispanic			0.003**	(0.001)	0.003*	(0.001)
Mother married			0.000	(0.001)	0.001	(0.001)
Mother has BA+					-0.003***	(0.001)
Medicaid paid L&D					0.000	(0.001)
County % poor					0.010	(0.013)
County median income					0.000	(0.000)
County detainer rate					0.000	(0.000)
Constant	0.009***	(0.001)	0.009***	(0.002)	0.009	(0.006)
Observations	72,613		72,613		72,613	
R-squared	0.001		0.002		0.002	

C. BW in grams

	Model 1		Model 2		Model 3	
	Coeff.	SE	Coeff.	SE	Coeff.	SE
DACA Elig	-3.5	(17.97)	7.2	(5.7)	6.8	(5.8)
DACA Post 1	-4.8	(16.15)	-5.4	(8.4)	-4.3	(8.4)
DACA Post 2	-38.2***	(30.68)	-39.6***	(7.5)	-37.9***	(7.5)
DACA Elig * Post 1	-8.0	(26.47)	3.9	(10.9)	4.4	(10.9)
DACA Elig * Post 2	74.0*	(34.84)	28.8**	(9.6)	28.9**	(9.6)
Infant male			99.9***	(4.0)	99.9***	(4.0)
Parity 2			84.6***	(5.7)	83.4***	(5.8)
Parity 3+			122.6***	(5.4)	120.7***	(5.7)
Father Hispanic			-54.3***	(7.3)	-53.6***	(7.4)
Mother married			-3.9	(4.5)	-2.0	(4.6)
Mother has BA+					-4.2	(5.7)
Medicaid paid L&D					6.0	(4.5)
County % poor					-303.1***	(74.8)
County median income					0.0	(0.0)
County detainer rate					1.2	(0.9)
Constant	3353.8***	(4.4)	3263.8***	(9.6)	3335.3***	(31.9)
Observations	72613.0		72613.0		72613.0	
R-squared	0.000		0.018		0.019	

D. BW in grams at 6th percentile

	Model 1		Model 2		Model 3	
	Coeff.	SE	Coeff.	SE	Coeff.	SE
DACA Elig	37.0*	(18.0)	47.0***	(13.7)	46.8**	(15.6)
DACA Post 1	-4.8	(16.2)	-7.0	(28.7)	-3.8	(29.5)
DACA Post 2	-103.0***	(30.7)	-104.7***	(22.0)	-106.2***	(29.7)
DACA Elig * Post 1	2.3	(26.5)	5.0	(30.8)	0.5	(28.7)
DACA Elig * Post 2	74.0*	(34.8)	79.0**	(29.0)	82.1**	(25.1)
Infant male			26.7*	(12.6)	27.250+	(14.0)
Parity 2			112.0***	(21.6)	112.7***	(16.4)
Parity 3+			125.3***	(18.1)	134.1***	(17.3)
Father Hispanic			-39.3	(24.4)	-33.2	(23.2)
Mother married			10.0	(10.9)	1.6	(13.1)
Mother has BA+					37.2**	(13.7)
Medicaid paid L&D					5.5	(13.5)
County % poor					-421.1+	(218.9)
County median income					0.0	(0.0)
County detainer rate					3.2***	(0.7)
Constant	2523.0***	(13.0)	2671.0***	(146.0)	2755.6***	(126.4)
Observations	72613.0		72,613		72,613	
R-squared	0.002		0.006		0.007	

E. BW in grams at 50th percentile

	Model 1		Model 2		Model 3	
	Coeff.	SE	Coeff.	SE	Coeff.	SE
DACA Elig	0.0	(2.8)	2.0	(6.9)	3.0	(4.9)
DACA Post 1	0.0	(6.7)	1.3	(8.3)	1.9	(5.9)
DACA Post 2	-19.0*	(8.1)	-26.7***	(6.9)	-23.7**	(8.4)
DACA Elig * Post 1	-2.0	(9.2)	-2.7	(9.3)	-3.9	(8.6)
DACA Elig * Post 2	19.0	(9.7)	25.3*	(10.7)	20.8	(10.8)
Infant male			112.3***	(4.0)	111.9***	(5.0)
Parity 2			73.7***	(5.9)	69.9***	(7.0)
Parity 3+			112.3***	(5.6)	107.5***	(7.8)
Father Hispanic			-54.0***	(8.6)	-52.6***	(8.0)
Mother married			-9.0	(5.8)	-6.8	(4.6)
Mother has BA+					-7.7	(4.8)
Medicaid paid L&D					4.5	(3.6)
County % poor					-249.2**	(78.1)
County median income					0.0	(0.0)
County detainer rate					1.1	(1.0)
Constant	3374.0***	(2.5)	3049.7***	(146.7)	3093.3***	(150.0)
Observations	72613.0		72,613		72,613	
R-squared	0.000		0.013		0.013	

F. BW in grams at 93rd percentile

	Model 1		Model 2		Model 3	
	Coeff.	SE	Coeff.	SE	Coeff.	SE
DACA Elig	-51.0***	(9.7)	-29.0**	(10.1)	-31.6***	(8.0)
DACA Post 1	-29.0**	(10.8)	-24.0	(17.1)	-22.6*	(10.0)
DACA Post 2	-29.0***	(7.4)	-36.1*	(14.0)	-33.8*	(16.0)
DACA Elig * Post 1	23.0	(16.2)	16.9	(20.1)	17.3	(15.9)
DACA Elig * Post 2	23.0*	(10.7)	24.4	(18.8)	23.3	(18.5)
Infant male			135.8***	(7.2)	137.3***	(7.9)
Parity 2			75.2***	(8.9)	69.1***	(9.7)
Parity 3+			126.0***	(10.2)	109.2***	(9.0)
Father Hispanic			-58.2***	(13.7)	-66.5***	(14.2)
Mother married			-17.9***	(5.3)	-6.6	(8.7)
Mother has BA+					-42.1***	(9.1)
Medicaid paid L&D					21.2*	(8.5)
County % poor					-208.4	(137.0)
County median income					0.0	(0.0)
County detainer rate					-0.5	(1.2)
Constant	4111.0***	(6.4)	3702.8***	(136.2)	3765.8***	(144.5)
Observations	72613.0		72,613		72,613	
R-squared	0.008		0.017		0.018	

G. Preterm birth

	Model 1		Model 2		Model 3	
	Coeff.	SE	Coeff.	SE	Coeff.	SE
DACA Elig	-0.010**	(0.003)	-0.009**	(0.003)	-0.010**	(0.003)
DACA Post 1	-0.004	(0.005)	-0.004	(0.005)	-0.004	(0.005)
DACA Post 2	0.014***	(0.004)	0.013**	(0.004)	0.014**	(0.004)
DACA Elig * Post 1	-0.008	(0.006)	-0.008	(0.006)	-0.008	(0.006)
DACA Elig * Post 2	-0.010	(0.005)	-0.009	(0.005)	-0.009	(0.005)
Infant male			0.014***	(0.002)	0.014***	(0.002)
Parity 2			-0.004	(0.003)	-0.006	(0.003)
Parity 3+			0.006*	(0.003)	0.003	(0.003)
Father Hispanic			0.014***	(0.004)	0.011**	(0.004)
Mother married			-0.01***	(0.002)	-0.008**	(0.003)
Mother has BA+					-0.009**	(0.003)
Medicaid paid L&D					0.002	(0.002)
County % poor					0.074+ +	(0.042)
County median income					0.000	(0.000)
County detainer rate					0.000	(0.001)
Constant	0.101	(0.002)	0.085***	(0.005)	0.081***	(0.017)
Observations	72,613		72,613		72,613	
R-squared	0.001		0.004		0.005	

H. Weeks gestation

	Model 1		Model 2		Model 3	
	Coeff.	SE	Coeff.	SE	Coeff.	SE
DACA Elig	0.13***	(0.02)	0.12***	(0.02)	0.12***	(0.02)
DACA Post 1	0.059	(0.03)	0.06	(0.03)	0.06	(0.03)
DACA Post 2	-0.11***	(0.03)	-0.11***	(0.03)	-0.10***	(0.03)
DACA Elig * Post 1	0.04	(0.04)	0.04	(0.04)	0.05	(0.04)
DACA Elig * Post 2	0.09*	(0.04)	0.09*	(0.04)	0.09*	(0.04)
Infant male			-0.16***	(0.02)	-0.16***	(0.02)
Parity 2			-0.18***	(0.02)	-0.18***	(0.02)
Parity 3+			-0.21***	(0.02)	-0.21***	(0.02)
Father Hispanic			-0.15***	(0.03)	-0.13***	(0.03)
Mother married			0.01	(0.02)	0.01	(0.02)
Mother has BA+					0.03	(0.02)
Medicaid paid L&D					0.01	(0.02)
County % poor					-1.60***	(0.29)
County median income					0.00*	(0.00)
County detainer rate					0.00	(0.00)
Constant	38.57	(0.02)	38.95***	(0.04)	39.37***	(0.12)
Observations	72613.00		72613.00		72613.00	
R-squared	0.002		0.009		0.009	

I. SGA

	Model 1		Model 2		Model 3	
	Coeff.	SE	Coeff.	SE	Coeff.	SE
DACA Elig	0.000	(0.003)	-0.003	(0.003)	-0.003	(0.003)
DACA Post 1	0.001	(0.004)	0.001	(0.004)	0.001	(0.004)
DACA Post 2	0.003	(0.004)	0.003	(0.004)	0.003	(0.004)
DACA Elig * Post 1	0.007	(0.005)	0.007	(0.005)	0.007	(0.005)
DACA Elig * Post 2	-0.004	(0.005)	-0.004	(0.005)	-0.004	(0.005)
Infant male			-0.035***	(0.002)	-0.035***	(0.002)
Parity 2			-0.035***	(0.003)	-0.036***	(0.003)
Parity 3+			-0.045***	(0.003)	-0.046***	(0.003)
Father Hispanic			0.005	(0.004)	0.004	(0.004)
Mother married			0.001	(0.002)	0.002	(0.002)
Mother has BA+					-0.002	(0.003)
Medicaid paid L&D					0.000	(0.002)
County % poor					0.037	(0.038)
County median income					0.000	(0.000)
County detainer rate					0.000	(0.000)
Constant	0.078***	(0.002)	0.125***	(0.005)	0.121***	(0.016)
Observations	72,613		72,613		72,613	
R-squared	0.000		0.009		0.009	

*** p<0.001, ** p<0.01, * p<0.05

Sources: NCHS, 2010-2014 Natality-All County Files; Census SAIPE; TRAC