

I Wish I Were Born in Another Time: Unintended Consequences of Immigration Enforcement on Birth Outcomes*

Hoa Vu[†]

October 18, 2023

Abstract

This paper studies the effects of Secure Communities (SC), a wide-ranging immigration enforcement program, on infant health outcomes in the United States. Using administrative birth certificate data together with event study and triple-difference designs, I find that SC increases the incidence of very low birth weight by 21% for infants of foreign-born Hispanic mothers, who were most likely to be affected by immigration enforcement. There is suggestive evidence that the results are consistent with (i) changes in maternal stress induced by deportation fear and (ii) inadequate prenatal nutrition. A back-of-the-envelope calculation suggests that this unintended social cost of immigration enforcement ranges from \$872 million to \$1.59 billion annually.

Keywords: Secure Communities, immigration enforcement, infant health.

JEL Classification: I10, I12, I14, I18, K00, K37

* I am grateful to David Slusky for continuous guidance and encouragement and to Crystal Yang, Delia Furtado, Ludovica Gaze, Donna Ginther, Sarah Miller, Dan Millimet, Van Pham, Tsvetan Tsvetanov, and Carly Urban for their valuable comments and suggestions. I thank Charlie Brown, Mike Muller-Smith, Jim Sullivan, and seminar participants at the University of Kansas, Kansas State University, the Kansas Health Economics Conference 2020, H2D2 Research Day 2020, EMCON 2020, APPAM 2020, SEA 2020, V Workshop on Immigration, Health and Wellbeing 2021, NBER Health Care Program Meeting Fall 2021, and ASHEcon 2022 for helpful comments and discussions. I also thank the staff at the National Vital Statistics System who provided me with both data and general guidance. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. The data that support the findings of this study are available from National Center for Health Statistics. Restrictions apply to the availability of these data, which were used under license for this study. All errors are my own.

[†]School of Education and Social Policy, Northwestern University, 2120 Campus Dr, Evanston, Illinois 60208. Email: hoa.vu@northwestern.edu.

1 Introduction

Immigration enforcement has been a contentious issue in recent years, with significant changes in policy and increased enforcement efforts. However, little research has been done to understand the impact of particular immigration enforcement policies on the health of infants in immigrant communities. This is an important area of study as the health and well-being of infants can have a long-lasting impact on their development and future success (Almond et al., 2018). Therefore, it is essential to investigate the effects of individual immigration enforcement policies on infant health to understand the potential consequences of these policies and inform policy decisions that can improve the health and well-being of these vulnerable populations.

In this paper, I evaluate the impact of the most restrictive national immigration policy in the U.S. on birth outcomes of U.S.-born Hispanic infants. In particular, I examine the impact of the Secure Communities (SC) program, which was implemented between 2008 and 2014, and resulted in the deportation of nearly 450,000 immigrants.¹ The SC program was a federal immigration enforcement program that aimed to identify and deport non-citizens with criminal records. It was implemented in many jurisdictions across the country and was widely criticized for leading to the deportation of many individuals who did not have serious criminal records.

To identify the potential unintended consequences of SC on Hispanic infants' birth outcomes, I exploit a quasi-experimental staggered rollout of SC across counties due to various technological constraints.² Specifically, I collect the data on the SC activation date at the county level and merge these data with administrative birth certificate data from 2005–2016. Doing this allows me to estimate a triple-difference model comparing birth outcomes of His-

¹See <https://trac.syr.edu/phptools/immigration/secure/>.

²However, the adoption of SC was found to be correlated with the proximity of a county to the Mexican border and whether the county had a 287(g) agreement with Immigration and Customs Enforcement (Cox and Miles, 2013). Potential issues resulting from these correlations will be discussed and addressed in Section 5.4.

panic infants to non-Hispanic infants, in counties that activated SC relative to counties that had not yet activated.

I show that SC has adverse consequences on the incidence of very low birth weight (VLBW, birth weight $< 1,500$ grams) and low birth weight (LBW, birth weight $< 2,500$ grams) of Hispanic infants. Based on relative conservative estimates, infants born to mothers who are likely undocumented (defined as Hispanic non-citizen high school dropouts)³ are 21% more likely to be born VLBW and are 11.8% more likely to be born LBW, compared to non-Hispanic infants as a result of the policy. Compared to other traumatic experiences affecting birth weights, exposure to SC is as large as the effect of losing a family member (Persson and Rossin-Slater, 2018).

I examine the validity of my identification strategy using a placebo test. In particular, I reproduce the analysis, but instead of focusing on infants of foreign-born Hispanic mothers as the potential treated group, I focus on a population group that I know *ex ante* should not be affected by immigration enforcement: infants of Cubans or Puerto Ricans.⁴ I find no effects on this population: all estimated coefficients are indistinguishable from zero and are statistically insignificant. I find similar null results when using non-Hispanic Black or non-Hispanic White citizens as placebo groups. My results are also robust to a variety of modeling and specification choices, and to implementing a version of Sun and Abraham (2021)’s approach to address potential biases that can occur in two-way fixed effects specifications in staggered rollout designs.

There are many possible ways exposure to immigration enforcement can affect birth outcomes. I discuss evidence in favor of two possible mechanisms: (i) maternal stress due

³I follow the literature defining likely undocumented immigrants as Hispanic foreign-born high school dropouts. This is not a perfect proxy but is the standard method on estimating undocumented population in the U.S. (see Warren, 2014; Capps et al., 2018; Passel and Cohn, 2018, for a discussion). Indeed, around 80% of unauthorized immigrants are from Latin America in 2016 according to the Pew Research Center’s estimation (Passel and Cohn, 2018).

⁴Specifically, I estimate a difference-in-differences specification for a sample of infants of Cubans or Puerto Ricans, before versus after SC activation, between treatment and control counties.

to fear induced by immigration enforcement and (ii) worse prenatal nutrition due to lower participation in safety net programs and lower rates of employment among undocumented immigrants. I also rule out some important potential channels including changes to migration and engagement in adverse maternal behavior such as smoking.

This paper contributes to three strands of literature. The first is a growing literature on the direct effects of SC on immigrants and its spillover effects on citizens. Evidence shows that SC does not have any impact on crime rates ([Miles and Cox, 2014](#)), increases the poverty risk and the likelihood of being in foster care for Hispanic youth ([Amuedo-Dorantes et al., 2018](#); [Amuedo-Dorantes and Arenas-Arroyo, 2018](#)), decreases safety net program participation of non-citizens ([Watson, 2014](#); [Padraza and Zhu, 2014](#); [Vargas and Pirog, 2016](#)) and Hispanic citizens ([Alsan and Yang, 2022](#)). SC also reduces rates of employment among low-skilled non-citizen males ([East et al., 2019](#)) and high-skilled citizen mothers ([East and Velasquez, 2020](#)), and worsens the mental health of Hispanic immigrants ([Wang and Kaushal, 2019](#)).

In addition to the aforementioned studies, a contemporaneous study conducted by [Amuedo-Dorantes et al. \(2022\)](#) examined the collective impact of various immigration enforcement policies on infant health. While [Amuedo-Dorantes et al. \(2022\)](#) provide compelling evidence on the causal effects of immigration laws, it prompts legitimate questions about the extent to which these findings pertain to each specific immigration enforcement law and the magnitude of their individual effects. This paper advances this literature in two ways. First, I provide causal evidence on the individual effects of Secure Communities on birth outcomes. This aims to demonstrate the complete impact of SC. Second, I conduct heterogeneity analyses based on sanctuary counties, deportation rates, and fear levels, aiming to shed light on two potential mechanisms through which SC could affect infant health: (i) maternal stress due to deportation fear and (ii) inadequate nutrition during pregnancy. Given that SC was reactivated in 2017, knowing the spillover impact of local immigrant enforcement on future

citizens’ health would allow policymakers to make more informed decisions or design and create different types of policies.⁵

The second strand is the literature on understanding why inequality persists ([Piketty and Saez, 2003](#); [Nolan et al., 2012](#); [Kennedy-Moulton et al., 2023](#)). I contribute to this literature by providing novel evidence that anti-immigration policies may be a crucial and understudied mechanism through which early life health disparities perpetuate persistent economic inequality between different groups of people.

The third strand is a large literature on both the short- and long-term effects of fetal stress exposure on birth and adult outcomes, recently reviewed by [Almond and Currie \(2011\)](#). The stressors can come from impacts on (i) physical health such as malnutrition ([Almond and Mazumder, 2011](#); [Almond et al., 2011](#); [Hoynes et al., 2011](#); [Rossin-Slater, 2013](#); [Hoynes et al., 2016](#)), intimate partner violence ([Currie et al., 2022](#)), pollution ([Almond et al., 2009](#); [Sanders, 2012](#); [Isen et al., 2017](#)), diseases ([Almond, 2006](#); [Barreca, 2010](#)), and famine ([Almond et al., 2010](#); [Scholte et al., 2015](#)); or from (ii) impacts on both mental and physical health such as the loss of a loved one ([Black et al., 2016](#); [Persson and Rossin-Slater, 2018](#)), terrorist attacks ([Berkowitz et al., 2003](#); [Lauderdale, 2006](#); [Camacho, 2008](#)), and natural disasters ([Tan et al., 2009](#); [Simeonova, 2011](#); [Torche, 2011](#); [Currie and Rossin-Slater, 2013](#)). I add to this literature by providing novel evidence on using in utero exposure to an anti-immigration policy to identify the effects of maternal stress on birth outcomes.

The rest of the paper proceeds as follows. I provide further detail regarding the literature and the background of SC in [Section 2](#). [Section 3](#) and [Section 4](#) discuss data and empirical framework. I discuss results on birth outcomes, placebo tests, mechanisms, and robustness checks in [Section 5](#), and [Section 6](#) concludes.

⁵In 2021, President Biden rescinded executive order 13768 which reinstated Secure Communities. Nonetheless, Secure Communities continues to function as a data-sharing program, sharing biometric data of individuals arrested with both the FBI and DHS to identify potential immigration violations and is currently referred to as the “Criminal Apprehension Program” on this [ICE webpage](#).

2 Background and Literature

2.1 Policy Background

Secure Communities (SC) is one of the largest deportation programs in the U.S. history.⁶ The program was started in October 2008 and was temporarily suspended in October 2014 but was reactivated in January 2017. To build deportation capacity, SC relies on partnership between U.S. Immigration and Customs Enforcement (ICE), the Federal Bureau of Investigation (FBI), and local law enforcement agencies. The program objective is to help ICE arrest and remove individuals who violate federal immigration laws, including those who are convicted of serious criminal offenses. From 2008 to 2014, ICE deported over 450,000 immigrants under SC.

The deportations of people with minor offenses or no offense creates fear among immigrant groups. Ordinarily, the fingerprints of county and state arrestees are only submitted to the FBI; however under SC, the prints go to ICE as well. Fingerprint matching databases have made it much easier to determine whether an arrested individual is, for instance, unlawfully present in the country. Technically, any arrested non-citizens can be subject to deportation (including legal immigrants and green card holders). For undocumented immigrants, even minor offenses can trigger deportations. Indeed, nearly half of the deportees under SC had only minor offenses (such as public drunkenness or jaywalking) or no offense at all.⁷ This has been argued to increase fear and decrease participation in public benefit programs.⁸

While SC only directly affects those who are arrested and the overwhelming majority of arrestees are male, it is important to recognize that it can also have indirect consequences on the health behaviors and stress levels of pregnant women. There are at least two potential

⁶For comprehensive reviews of SC, see [Cox and Miles \(2013\)](#) and [Alsan and Yang \(2022\)](#).

⁷See <https://trac.syr.edu/phptools/immigration/secure/> for more information.

⁸See [DHS Community Resilience Task Force Report](#), [Watson \(2014\)](#), [Padraza and Zhu \(2014\)](#), and [Vargas and Pirog \(2016\)](#).

mechanisms through which SC can impact pregnant women’s well-being and their infants.

Firstly, although pregnant women may not face direct deportation risks, the enforcement actions aimed at their spouses or family members can create a pervasive climate of fear and uncertainty within their communities. This atmosphere of fear can significantly contribute to increased stress levels among pregnant women, adversely affecting both their own health and that of their infants.

Secondly, SC can result in the arrest and deportation of undocumented immigrants, including males who often serve as the primary breadwinners in their families. The loss of income and potential job loss due to deportation can have profound economic implications for families, including pregnant women. The ensuing financial strain and the fear of losing stability can further contribute to heightened stress levels, ultimately impacting the maternal health and birth outcomes.

Therefore, although the direct impact of SC on pregnant women may be less pronounced compared to those directly targeted, it is crucial to consider the indirect effects and the complex interplay of social, economic, and psychological factors. These aspects play a significant role in understanding the potential influence of SC on the stress levels and birth outcomes of pregnant women affected by the policy.

2.2 Immigration Enforcement and Birth Outcomes

The existing evidence on the birth outcome effects of fetal stress exposure to immigration enforcement is limited. Only a few recent studies appear to examine the impacts of immigration enforcement policies on birth outcomes of U.S.-born infants. [Novak et al. \(2017\)](#) use birth certificate data for all births in Iowa from 2006 to 2010 to study the impact of a 2008 federal immigration raid in Postville, Iowa on birth outcomes. Using a modified Poisson regression, the authors find that the raid was associated with a 24% increase in risk of LBW for infants born to Hispanic mothers compared with the same period one year

earlier. While this study was primarily descriptive, it is the first evidence on adverse consequences of an immigration raid on infant health. [Torche and Sirois \(2018\)](#) examine the effects of the passage of a restrictive immigration bill - Arizona’s Senate Bill 1070 on birth outcomes of Latina women in Arizona. Using a difference-in-differences model, the authors find that exposure to Arizona’s SB 1070 increased the low birth weight incidence among Latina immigrant women. [Tome et al. \(2021\)](#) explore the effect of Section 287(g)⁹ of the Immigration and Nationality Act on birth outcomes in Mecklenburg County, North Carolina. Using long-form birth certificate data from the North Carolina Detailed Birth Records, the authors use two identification strategies: difference-in-differences and triple-difference case control regression analysis. They find that 287(g) was associated with a 3.5 percentage point increase in the incidence of LBW infants. These are case studies of a particular state (Arizona), county (Mecklenburg, North Carolina), or city (Postville, Iowa), therefore, the results obtained from these polices are not generalizable nationally or to SC - a national immigration enforcement program.

In addition to the aforementioned studies, a contemporaneous study conducted by [Amuedo-Dorantes et al. \(2022\)](#) examines the impact of various immigration enforcement policies on the likelihood of low birth weight among likely undocumented mothers. [Amuedo-Dorantes et al. \(2022\)](#) examine the effects of multiple immigration enforcement policies together, including SC, E-Verify, 287(g) agreements, and omnibus immigration laws.¹⁰ The authors

⁹Both SC and 287(g) identify and deport undocumented immigrants who have been arrested by local officers and deputies. The difference between SC and 287(g) is that SC is an automated fingerprint matching system that screens criminal aliens for removal that is run by ICE. While under 287(g), undocumented immigrants who have been arrested are screened by *local* officers in that jurisdiction.

¹⁰The relative importance of these laws in shaping U.S. immigration policy can be understood in the context of their impact on immigration enforcement and border control. Secure Communities, in operation from 2009 to 2014 and reinstated from 2017 onwards, have also contributed to immigration policy by streamlining the sharing of information between local law enforcement and federal immigration authorities. This has facilitated the identification and deportation of individuals with criminal backgrounds or immigration violations ([ICE’s website](#)).

The 287(g) Agreements, first implemented from 2002 to 2012 and later reinstated from 2017 onwards, have played a significant role by allowing local law enforcement agencies to collaborate with federal immigration authorities. These agreements enable the identification and detention of undocumented immigrants, thereby

constructed an enforcement index that captures the number of these laws and employed a difference-in-differences methodology to estimate their collective effect on infant health. While [Amuedo-Dorantes et al. \(2022\)](#) provides compelling evidence on the causal effects of immigration laws, it prompts legitimate questions about the extent to which these findings pertain to each specific immigration enforcement law and the magnitude of their individual effects.

Significantly, there is empirical evidence indicating that the impact of these policies varies, with SC, recognized as one of the largest deportation programs in U.S. history ([Cox and Miles, 2013](#)), exerting a more pronounced influence on outcomes than other policies. For instance, in a study examining the impact of immigration enforcement policies on the mental health of Latino immigrants, [Wang and Kaushal \(2019\)](#) presented findings in Table 2, demonstrating that SC had a stronger effect than 287(g) agreements, notably increasing the proportion of Latino immigrants reporting fair or poor health.

In terms of the effects on birth outcomes, [Amuedo-Dorantes et al. \(2022\)](#) found a 6 percent increase in the likelihood of low birth weight associated with a one standard deviation increase in the enforcement index. In contrast, this study’s findings reveal a substantial 11.8 percent increase specifically attributed to SC (as shown in column 2 of Table 1). Some may attribute these differences in effect sizes to variations in sample characteristics or estimation methodologies, while others may draw reasonable conclusions from the evidence presented by [Wang and Kaushal \(2019\)](#) and posit that SC may indeed have more pronounced effects on birth outcomes compared to other policies, and that its effect might be obscured when multiple policies are examined collectively.

enhancing immigration enforcement efforts at the local level ([ICE’s website](#)).

Omnibus Immigration Laws, enacted from 2010 onwards, have been pivotal in shaping comprehensive immigration policy. These laws encompass various aspects of immigration, including border security, visa regulations, and pathways to citizenship, reflecting the government’s broader approach to immigration reform ([NCSL’s website](#)).

E-Verify, established in 2006 and still in operation today, has significantly impacted employment-related immigration enforcement. Mandated for many employers, E-Verify verifies workers’ eligibility, thereby reducing employment opportunities for undocumented immigrants (([E-Verify’s website](#))).

To further explore this, I conducted an analysis comparing the impacts of SC, 287(g) agreements, and E-Verify on birth outcomes, as presented in Table A.4. The results from this analysis indicate that 287(g) agreements and E-Verify exhibit relatively weaker effects on birth outcomes, with estimated coefficients showing smaller magnitudes and statistical insignificance. This supports the notion that SC policies may have a more substantial impact on birth outcomes when compared to other immigration enforcement laws.

Another advantage of studying SC individually is that it allows for a more straightforward interpretation of the impact of immigration enforcement policies on birth outcomes. Analyzing SC independently enables us to discern the results based on its implementation status, whereas interpreting the implications of a one standard deviation increase in the enforcement index can be more challenging to grasp.

In addition, this study contributes to the literature by conducting heterogeneity analyses based on sanctuary counties, deportation rates, and deportation fear levels. These analyses offer further differentiation and allow us to explore how the effects of SC may vary across different contexts. By delving into these heterogeneity analyses, we gain a more comprehensive understanding of the mechanisms through which SC affects infant health.

3 Data

This paper uses several data sources to measure birth outcomes and maternal outcomes as well as information about the activation of SC.

SC rollout data: I have obtained information about the SC rollout dates as well as the monthly number of detainees, or “immigration holds”¹¹, and the monthly number of removals under SC from ICE public records and Transactional Records Access Clearinghouse (TRAC)

¹¹An ICE detainer is a written request that a local jail or other law enforcement agency detain an individual for an additional 48 hours to provide ICE agents extra time to decide whether to take the individual into federal custody for removal purposes.

Immigration.¹² Figure 1 shows the rollout of SC across counties in the U.S. The figure shows there are crucial variations in the SC activation, both across counties and through time, which I exploit in identifying the effects of SC on birth outcomes.

One relevant question is whether SC was associated with the number of removals. Figure A.1 shows the total number of detainees per year. There is an abrupt increase in the number of detainees immediately following SC activation in 2008. This serves as evidence that SC was associated with the increasing number of removals.

Vital Statistics Natality data: To measure birth outcomes, I use restricted access 2005–2016 natality data from the National Center for Health Statistics. The natality data are the largest and most complete data source on births to U.S.- and foreign-born women. Data on the month, year, and county of birth allow me to link the birth data to SC activation dates in a given county. The data include infants’ characteristics such as birth weight, gender, plurality, and gestational length. There are also demographic variables, including age, race, education, marital status, and birthplace of mothers.

County population data: I use the Surveillance, Epidemiology, and End Results (SEER) population data to construct a fertility rate that is defined as the number of births per 1,000 women ages 15–44. First, the SEER population data are used to estimate the population of women ages 15–44 by county-race-year. These population counts are then combined with births by county-race-month-year to construct the fertility rate, which is the number of births per 1,000 women age 15 to 44.

4 Empirical Framework

To examine the causal effect of SC on birth outcomes of likely undocumented immigrants, I use the SC program’s staggered rollout across the counties. My main specification is a

¹²TRAC is a data gathering, data research, and data distribution organization at Syracuse University. See <https://trac.syr.edu/aboutTRACgeneral.html> for more details.

triple-difference model comparing Hispanic infants to non-Hispanic groups (first difference), before versus after the SC activation (second difference), in treated versus control counties (third difference). Specifically, I estimate the model with county, month, and year of birth fixed effects as follows:

$$Y_{icsmy} = \alpha + \beta_1(SC_{cmy} \times HISP_i) + \beta_2 SC_{cmy} + \beta_3 HISP_i + \gamma_1 X_i + \gamma_2 Z_{sy} + \gamma_3 Z_{csy} + \delta_s \cdot t + \mu_c + \theta_m + \lambda_y + \epsilon_{icsmy} \quad (1)$$

for each individual i in county c , state s , for birth month m , and birth year y . Y_{icsmy} is the outcome of interest. SC_{cmy} is the SC activation treatment variable and equals one if i 's conception date is after the SC activation and zero otherwise. $HISP_i$ is an indicator for Hispanic ethnicity. X_i is a vector of individual control variables for maternal and infant characteristics, including four dummies for mother's age, three dummies for mother's race, a dummy for mother's marital status, a dummy for singleton birth, and a dummy for male birth. Z_{st} contains annual state-year level controls including unemployment rate and percentage of population who are Hispanic, Black, White, and female ages 15–44. Z_{cst} includes race-by-county unemployment changes during the Great Recession to account for differential impacts of the recession by race. The term $(\delta_s \cdot t)$ is a state-specific time trend where $t = \text{year} - 2005$.¹³ Standard errors are clustered at the county level (Bertrand et al., 2004).

County (μ_c) and year (λ_t) fixed effects are included to capture national shocks and time-invariant unobserved heterogeneity that might affect birth outcomes. Month of birth (θ_m) fixed effects are included in my preferred specification to adjust for monthly shocks that affect birth outcomes such as changes in weather conditions. The coefficient β_1 provides an estimate of the triple difference, which describes the effect of SC on birth outcomes of

¹³I included state-specific time trends because there may be concerns that Hispanics residing in states where a greater number of counties implemented SC earlier were experiencing deteriorating birth outcomes due to factors unrelated to SC. I have also conducted a robustness check which examines the results after excluding state-specific time trends in Table A.6. These robustness results align closely with the preferred results that include state-specific time trends.

Hispanic infants relative to all non-Hispanic infants (both Blacks and Whites), compared to counties that have not yet activated SC.

I derive the main estimation sample using the following criteria: First, I follow [Alsan and Yang \(2022\)](#) and [East et al. \(2019\)](#) in excluding border counties since SC programs were activated in those counties early and this selection in activation could bias my results.¹⁴ I also follow [Alsan and Yang \(2022\)](#) in excluding Illinois, Massachusetts, and New York, as governors in these states attempted to opt out by ending their memorandum of agreement with the Department of Homeland Security regarding SC activation in the spring of 2011.¹⁵ Next, I require counties to have at least 30 births per year to prevent estimation problems associated with thinness in the data. I also exclude births in states/years with missing values for maternal education due to the use of unrevised birth certificate forms. Finally, I restrict the sample to Hispanic, non-Hispanic Black, and non-Hispanic White infants of foreign-born mothers with less than a high school degree.¹⁶

To measure the spillover effect of SC on birth outcomes of U.S.-born Hispanic infants, I would ideally like to directly examine birth outcomes of infants of undocumented mothers. However, there are no available data that allow for precise identification of undocumented mothers at the individual level. Therefore, I follow the literature defining likely undocumented immigrants as Hispanic non-citizen high school dropouts.¹⁷ This is an important

¹⁴The border counties I exclude from all analyses are as follows: San Diego County, CA; Imperial County, CA; Yuma County, AZ; Pima County, AZ; Santa Cruz County, AZ; Cochise County, AZ; Hidalgo County, NM; Luna County, NM; Dona Ana County, NM; El Paso County, TX; Hudspeth County, TX; Jeff Davis County, TX; Presidio County, TX; Brewster County, TX; Terrell County, TX; Val Verde County, TX; Kinney County, TX; Maverick County, TX; Webb County, TX; Zapata County, TX; Starr County, TX; Hidalgo County, TX; and Cameron County, TX.

¹⁵The results remain robust even when including Illinois, Massachusetts, and New York, as demonstrated in Table A.7

¹⁶To ensure that the results are not erroneously influenced by selective sample attrition resulting from missing maternal education data, I adopted the methodology employed by [Amuedo-Dorantes et al. \(2022\)](#). In particular, I conducted a robustness check by focusing solely on counties that were observed consistently in each month across the entire sample period in Table A.5. The findings of this robustness check closely align with the main results.

¹⁷This is the standard method on estimating undocumented population in the U.S. (see [Warren \(2014\)](#); [Capps et al. \(2018\)](#); [Passel and Cohn \(2018\)](#) for a discussion). Indeed, around 80% of unauthorized immi-

limitation and may not accurately reflect immigration status for some members in my sample. For example, a mother who was born outside of the U.S. but was granted citizenship through naturalization causes me to misclassify that individual was undocumented. In general, I expect that this misclassification will bias my estimates toward zero.

I supplement the triple-difference model with an event study style model to see if there is a systematic difference in birth outcomes for Hispanic infants before the SC activation across counties. This also allows me to evaluate the dynamics impacts of SC. The event study specification is the following:

$$Y_{icsmy} = \alpha + \sum_{\substack{r=-5 \\ r \neq -1}}^4 \beta_1^r \cdot \mathbf{1}[r = t] \cdot HISP_i + \sum_{\substack{r=-5 \\ r \neq -1}}^4 \beta_2^r \cdot \mathbf{1}[r = t] + \gamma_1 X_i \\ + \gamma_2 Z_{sy} + \gamma_3 Z_{csy} + \delta_s \cdot t + \mu_c + \theta_m + \lambda_y + \epsilon_{icsmy}, \quad (2)$$

where $\mathbf{1}[r = t]$ is an indicator for each period (the year prior to SC activation, $r = -1$, is omitted). The coefficients of interest, β_1^r , describe the effects of SC on birth outcomes of Hispanic infants in the year before and after SC activation relative to non-Hispanic infants after adjusting for model covariates. These estimates are intention-to-treat effects of SC on infant health relative to the year before SC began ($r = -1$). All the controls and fixed effects are the same as in Equation (1).

4.1 Identifying Assumption

My identification relies on a key assumption that “the event” (in this case, SC activation) is uncorrelated with other determinants of changes infant health. I verify the validity of this identification assumption in two ways. First, I implement a variant of Fisher’s permutation

grants are from Latin America in 2016 according to the Pew Research Center’s estimation ([Passel and Cohn, 2018](#)).

or randomization inference test (Fisher, 1935).¹⁸ To implement this exercise, I estimate Equation (1) 1,000 times by randomly assigning a placebo SC activation year for each county. Figure 3 plots the histogram of placebo estimates along with vertical solid lines representing my actual triple-difference estimates. The dashed lines are the 5th and 95th percentile of the placebo estimates. The permutation tests indicate that Secure Communities activation had a significant and unique impact on the infant health outcomes of foreign-born Hispanic mothers.

I then test whether predicted birth outcomes are correlated with SC activation. Using pre-period data, I regress birth outcomes on a large set of observable characteristics and use the estimated coefficients to predict birth outcomes for each infant in the sample.¹⁹ Figure A.2 corresponds to the event study estimates of Equation (2) for the *predicted* likelihood of VLBW and LBW births. In contrast to the main event study estimates in Figure 2(a) and 2(c), the coefficients are insignificant and show no trend breaks in the predicted birth outcomes.

Migration: Another concern arises from the possibility of undocumented families relocating in response to immigration enforcement. This selective migration could pose a threat to the identification strategy, particularly if it results in only lower socioeconomic status individuals remaining in the county that activated SC. I test this channel using data from the American Community Survey Integrated Public Use Microdata Series data (Ruggles et al., 2019) and show the results in Table 4.²⁰ The results suggest that SC is not associated with migration rates of Hispanic families relative to non-Hispanic families. This is consistent with Alsan and Yang (2022) and East et al. (2019) who find there were not big migration changes

¹⁸This test has been suggested and used by Conley and Taber (2011), Agarwal et al. (2014), Cohen and Schpero (2018), Alsan and Yang (2022), Grossman and Slusky (2019), and Kuka et al. (2020).

¹⁹The set of characteristics include gender, year, month, week of birth, indicators for maternal age dummies, indicators for mother being married, and maternal race dummies.

²⁰The “smallest” geography available in the public use data is the Public Use Microdata Areas (PUMA). Because data on the SC activation dates are at the county level, I use crosswalks provided by the Missouri Census Data Center to calculate the population-weighted average of the county values from the PUMA values.

as a result of SC. Thus, I believe that migration changes are unlikely driving my results on birth outcomes.

5 Results

5.1 Effects on Birth Outcomes

Figures 2(a) and 2(c) correspond to the event study estimates described in Equation (2). These figures present the effects of SC on Hispanic infants relative to non-Hispanic infants in each of the five years leading up to a SC activation and four years after the SC activation. The year before the event ($t = -1$) corresponds to an omitted category and is thus normalized to zero by construction.

Figures 2(a) and 2(c) show that in the five years prior to the activation, there is no difference of either the likelihood of a VLBW birth or a LBW birth between Hispanic infants and non-Hispanic infants. On the contrary, these likelihoods start to diverge a few years after the activation: relative to non-Hispanic infants, the risk of VLBW and LBW of Hispanic infants are larger. Specifically, by four years after the SC activation, Hispanic infants have a 21% higher probability of VLBW and a 11.8% higher probability of LBW, compared to non-Hispanic infants.

Table 1 presents the triple-difference results on SC's effects on indicators for VLBW, LBW, premature birth, average birth weight, and average gestation length. In line with the event studies, I find that SC led to statistically significant increases in the likelihood of a VLBW birth and a LBW birth. The magnitudes of the coefficients imply that SC is associated with a 21.1% increase in VLBW (column 1) and a 11.8% increase in LBW (column 2). Compared to other traumatic experiences affecting birth weights, exposure to SC is as large as the effect of losing a family member as estimated in [Persson and Rossin-Slater \(2018\)](#).

My estimates also suggest that in utero exposure to immigration enforcement leads to a negative effect on average birth weight of 12 grams (column 4 of Table 1). However, much of this effect is driven by impacts at births that are already at risk or more vulnerable (Figure A.3).²¹ This finding is consistent with Persson and Rossin-Slater’s (2018) study on stress due to family bereavement on birth outcomes. Due to the smaller findings for the average birth weight, average gestation length, and prematurity, I continue to focus only on VLBW and LBW for the remainder of the analysis.

5.2 Placebo Test

A possible concern is that the characteristics of counties that implemented SC early may be linked to factors that influence birth outcomes. I explore this concern by examining whether SC activation is associated with the birth outcomes of infants who are not expected to be affected by immigration enforcement. In particular, I reproduce the analysis, but instead of focusing on infants of foreign-born Hispanic mothers as the potential treated group, I focus on a population group that I know *ex ante* should be immune from deportation and SC activation: infants of Cubans and Puerto Ricans. Figures 2(b) and 2(d) correspond to difference-in-differences estimates for a subsample of infants of White citizen mothers, before versus after SC activation, between treatment and control counties.²² Figures 2(b) and 2(d) show that all effects are close to zero and statistically insignificant. For infants of Cubans and Puerto Ricans, the likelihood of VLBW or LBW in the five years prior and four years after SC activation follows the same trajectories. I find similar results when using non-Hispanic

²¹Following Almond et al. (2011), figure A.3 further examines the impacts of exposure to immigration enforcement on the distribution of birth weight. Each dot on the solid line is the percentage impact (coefficient/mean) of SC activation to the probability that birth weight is below a given threshold: 1,500, 2,000, 2,500, 3,000, 3,250, 3,500, 3,750, 4,000, and 4,500 (grams). These percentage impacts are around zero until the birth weight threshold 3,000 and start increasing below threshold 3,000. All percentage impacts are significantly different from zero after threshold 2,500. This figure shows that the effects on birth weight are larger for births at the lower end of the birth weight distribution.

²²Note that this is a separate difference-in-differences on a subsample of non-Hispanic White citizens, not the β_2 coefficients of Equation (1).

Black or non-Hispanic White citizens as placebo groups in Figure A.5.

In sum, all the placebo tests reveal precise null effects, confirming that the negative impacts of immigration enforcement do not simply seem to arise by chance.

5.3 Mechanisms

In this section, I discuss some potential mechanisms that may explain SC's effects on birth outcomes of infants of Hispanic immigrant mothers documented in the previous section.

Maternal stress due to deportation fear: A growing body of evidence suggests that uncertainty about the future and fear surrounding intensified immigration enforcement are associated with poorer self-reported health and mental health, chronic stressors, cardiovascular risk, and inflammation (Vargas et al., 2017; Torres et al., 2018; Martínez et al., 2018; Wang and Kaushal, 2019), which in turn could increase the risk for VLBW and LBW births. Biological pathways for this influence is that stress increases cortisol, norepinephrine, and inflammation, which affect the fetal environment (see Field et al., 2004; Kinsella and Monk, 2009, for recent reviews). Specifically, maternal stress has been shown to be associated with higher fetal heart rate, higher fetal activity, higher fetal movement, and lower fetal sleep (DiPietro et al., 1996; Allister et al., 2001; Dieter et al., 2008).

I build on these works of public health and medical scholars to test the hypothesis that maternal stress resulting from deportation fear is a probable mechanism. First, I find that the effects of SC is smaller in sanctuary counties, where cooperation with the federal government's efforts to enforce immigration law is limited.²³ This finding is presented in columns 2 and 6 of Table 2). Second, the effects of SC are more pronounced among infants born in counties with higher deportation rates. I determine the deportation rate for each county by

²³In particular, following Alsan and Yang (2022), I exploit data on a list of sanctuary counties, obtained via a Freedom of Information Act request filed by the Immigrant Legal Resource Center. See https://www.ice.gov/doclib/ddor/ddor2017_02-04to02-10.pdf for a list of sanctuary counties. I then estimate Equation 1 specifically for sanctuary counties.

dividing the number of deportations recorded in Transactional Records Access Clearinghouse (TRAC) Immigration data by the number of Hispanic non-citizen high school dropouts in that county, as reported by the American Community Survey. I then estimate Equation 1 for counties that have a high rate of deportations (determined as being above the median value). The results in columns 3 and 7 of Table 2 show that the effects are more pronounced among infants born in counties with a higher rate of deportation. Third, following Alsan and Yang (2022), I found the impact of SC is more significant on infants who are born in regions experiencing an escalating sense of fear regarding deportation (columns 4 and 8 of Table 2). This level of fear is measured at the Census division level using the 2013 Pew Research Center survey of Hispanics data.²⁴ Fourth, using the Google Trends data, I replicate the findings of Alsan and Yang (2022) on the relationship between SC activation and deportation-related search term in both English and Spanish such as deportation, deportacion, immigration, inmigracion, immigration lawyer, abogados de inmigracion in Table A.1. The analysis reaffirmed the findings of Alsan and Yang (2022), demonstrating that SC activation is linked to a rise in normalized deportation-related searches. This observation aligns with the notion of increased awareness, if not fear, regarding the potential consequences associated with the SC program.

Poor prenatal nutrition: While maternal stress is a viable mechanism, lower participation in safety net programs and employment likelihood may also be a critical mechanism due to worse prenatal nutrition. Indeed, a growing literature on the impacts of SC finds that the program reduces non-citizens participating in safety net programs such as Medicaid and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (Watson, 2014; Vargas and Pirog, 2016) and decreases the likelihood of low-skilled non-citizens being employed (East et al., 2019). These findings suggest that inadequate nutrition

²⁴I utilize a specific question which asks: “Regardless of your own immigration or citizenship status, how much, if at all, do you worry that you, a family member, or a close friend could be deported?”. The respondents are provided with the following options to choose from: “A lot”, “Some”, “Not much”, “Not at all”, and “Don’t know/Refused”.

during pregnancy could possibly explain the negative effects of SC on birth outcomes of Hispanic infants.

Maternal behavior changes: Thus far, I have argued that prenatal stress induced by SC has significant effects on birth outcomes of infants of foreign-born Hispanic mothers. These effects may also occur indirectly through the effects of prenatal stress on maternal behaviors and well-being that in turn affect fetal development. For example, stress may cause mothers to develop hypertension or start smoking, which may then adversely affect the fetus in utero.

Table 3 presents estimates on whether SC activation is associated with the number of prenatal visits; an indicator for WIC (Women, Infants, and Children) take-up; hypertension development; diabetes; and reported tobacco use during pregnancy. I find no statistically significant effects of in utero exposure to immigration enforcement on these maternal risk factors or behaviors, except for a marginally significant impact on diabetes. Overall, I find little effect of pregnancy behavior changes, and these findings support the idea that the estimated effects on birth outcomes are due to stress.²⁵ I do see some evidence that SC activation is associated with increases in the use of prenatal care during pregnancy. If anything, this would lead me to expect better infant health outcomes and suggests that immigration enforcement effects would be larger in the absence of this association.

5.4 Sensitivity Checks

Multiple hypothesis testing: To address the multiple hypothesis testing issue, I follow Kling et al. (2007); Currie et al. (2022) and group my outcomes into a birth outcomes index. The birth outcomes index consists of the following measures: VLBW (< 1,500 grams), LBW (< 2,500 grams), premature birth (< 37 weeks of gestation), continuous birth weight in grams, gestation in weeks, very premature birth (< 34 weeks of gestation), low one-minute Apgar

²⁵I do, however, find a negative (albeit insignificant) coefficient on WIC take-up, suggesting that at least part of my estimated impact on birth outcomes may operate through nutrition channels.

score (<7), NICU admission, any abnormal conditions (six indicators: assisted ventilation, assisted ventilation $>$ six hours, admission to NICU, surfactant, antibiotics, and seizures).

This index is created so that a higher value represents a better outcome.²⁶ Table A.2 presents the results from my main specifications using the index as a dependent variable. The estimates for the effects of in utero exposure to immigration enforcement on birth outcomes are robust to this exercise. Moreover, the estimates suggest that the effects are stronger when the intensity of deportation increases, which support the maternal stress induced by deportation mechanism.

Compositional/Selection Effects: The event study results for predicted birth outcomes in Figure A.2, together with the estimates in Columns (2)-(5) Table 4, suggest that compositional/selection effects are not driving the results. In particular, these results show that SC is not correlated with changes in employment rate, poverty rate, and percent immigrants of Hispanics relative to non-Hispanics. I further test the robustness of my estimates to compositional changes in Table 5 by using maternal characteristics as dependent variables in the exact baseline specification that is used to generate the main results. I do not find a significant association between SC implementation and changes in maternal characteristics such as age and marital status.

The Great Recession: The Great Recession had a significant economic impact on the United States. Although the timing of the recession and the SC activation were similar, I am confident that my results are not confounded by the recession for several reasons. First, I estimate Equation (1) including race-by-state unemployment changes during the Great Recession to account for differential impacts of the recession by race as mentioned above. The results of this exercise, which can be found in Figure 4, are consistent with the baseline specification. Second, I only find the effects on birth outcomes among infants of

²⁶Specifically, I reorient each outcome so that a higher value represents a better outcome. Then, for each ordered outcome, I subtract the mean and divide by the standard deviation. The birth index is defined to be the equally weighted average of the standardized outcomes. See Kling et al. (2007) and Currie et al. (2022) for more detailed information on how the index is constructed.

likely undocumented mothers and no effects on non-Hispanic Whites (Figure 2) who were unaffected by the SC activation by design.

Effects on fertility: One potential concern is that immigration enforcement may lead to changes in fertility behavior among likely undocumented women. This factor, in conjunction with endogenous sample selection, has the potential to introduce bias in the estimates.

I consider this possibility by evaluating whether SC activation is associated with any change in the fertility rate in Table A.3. The dependent variables are (i) fertility rate, which is the number of births per 1,000 women age 15 to 44; (ii) birth rate, which is the number of births per 1,000 population; and (iii) probability of a male birth.²⁷ The SC activation treatment variable equals one if i 's birth date is nine months after SC activation (to proxy for conception) and is zero otherwise.

I find that SC activation leads to decreased fertility among the likely undocumented population, potentially causing a downward bias in the estimates. This is based on the finding in Section 5 that SC increased the incidences of VLBW and LBW for infants of likely undocumented mothers. However, it's important to recognize that reduced fertility rates may also lead to unplanned pregnancies, which have a higher likelihood of resulting in low birthweight infants (Hall et al., 2017), introducing the possibility of an upward bias. Nevertheless, results from Finer and Zolna (2016), Figure 3C, suggests that SC activation may not significantly affect unplanned pregnancies among the likely undocumented population. Therefore, I expect that this finding would bias my estimates toward zero.

Staggered rollout of SC: To address potential concerns about the robustness of the difference-in-differences (DD) with variation in treatment timing (de Chaisemartin and D'Haultfoeulle, 2020; Sun and Abraham, 2021; Goodman-Bacon, 2021; Callaway and Sant'Anna, 2021), I follow an estimation strategy proposed by Sun and Abraham (2021). Specifically, I

²⁷The probability of a male birth is to proxy for miscarriages as male fetuses are more vulnerable to side effects of maternal stress in utero; a reduction in male births may indicate an increase in miscarriages (Sanders and Stoecker, 2015).

compute an interaction-weighted estimator by taking a weighted average of all the possible two-group/two-period DD estimators in the data. Figure A.4 plots the event study estimates for VLBW and LBW using Sun and Abraham (2021)’s approach. This empirical exercise supports the main findings.

Finally, a variety of robustness checks support my main results in Figure 4. First, following Alsan and Yang (2022), I include interactions of county fixed effects with an indicator for the “2011 Morton Memo” to account for unobserved county-level characteristics that affect the birth outcomes differently before and after the 2011 Morton Memo.²⁸ Second, my estimates are robust to control for an array of other policies aimed at the undocumented immigrant population, including 287(g) Agreements and E-Verify. Third, since one concern is that Hispanic infants in SC-activated counties are different than Hispanic infants in not-yet-activated counties, I include county-by-Hispanic fixed effects and find that my results are robust to this specification. Fourth, my results are robust to excluding Texas, where health facility closures affected health care for women in 2011–2012 (Lu and Slusky, 2016).

6 Conclusion

Between 2008 and 2014, the U.S. activated one of the largest immigration enforcement programs, Secure Communities, which deported over 450,000 immigrants. I propose that because of heightened fear from deportation, prenatal exposure to the immigration enforcement can adversely affect the birth outcomes U.S.-born Hispanic infants. Using administrative birth certificate data and multiple identification strategies, I present evidence that tougher immigration enforcement causes an increase of 20% in the likelihood of very low birth weight for infants of foreign-born Hispanic mothers. I discuss evidence that some, although probably not all, of these effects operated through (i) maternal stress induced by

²⁸The 2011 Morton Memo announced that county participation in SC is mandatory.

deportation fear and (ii) undernutrition during pregnancy.

The results of my study reveal unintended consequences of the SC program, originally intended to impact only undocumented immigrants, on the future outcomes of U.S. citizen births. This prompts an examination of the unintended social cost associated with immigration enforcement. To estimate this cost, I conduct a back-of-the-envelope calculation that specifically focuses on the estimated effects of immigration enforcement on VLBW births in Table 6. The calculation suggests an annual social cost ranging from \$872 million ($= \$1,348,506 \times 647$) to \$1.59 billion ($= \$2,457,114 \times 647$) in 2018 dollars based on the best available estimates on the cost of VLBW at \$1,348,506-\$2,457,114 (Currie et al., 2022) and an increase of 647²⁹ VLBW infants born to undocumented mothers.³⁰ It is important to acknowledge that these changes represent a relatively small number of babies compared to the total number of births in the U.S.

The results in this paper imply that immigration enforcement can have unintended consequences not just for undocumented immigrants but also for the next generation who are future citizens and for society as a whole. It is an open question of whether prenatal exposure to immigration enforcement has any long-term consequences on child health and development as well as on maternal well-being.

References

Agarwal, S., Chomsisengphet, S., Mahoney, N., and Stroebel, J. (2014). Regulating Consumer Financial Products: Evidence from Credit Cards. *The Quarterly Journal of Economics*, 130(1):111–164.

²⁹The average number of VLBW infants born to undocumented women prior to SC is 3,072 infants per year (source: author’s calculation using Natality data). A 21.06% increase is 647 ($= 3072 \times 0.2106$).

³⁰These numbers likely underestimate the full social cost of immigration enforcement on pregnant women for at least two reasons: (i) the effects of SC on VLBW is biased downward due to measurement error in likely undocumented status as mentioned above, and (ii) the effects on maternal well-being was not measured.

- Allister, L., Lester, B. M., Carr, S., and Liu, J. (2001). The Effects of Maternal Depression on Fetal Heart Rate Response to Vibroacoustic Stimulation. *Developmental Neuropsychology*, 20(3):639–651.
- Almond, D. (2006). Is the 1918 Influenza Pandemic Over? Long-Term Effects of In Utero Influenza Exposure in the Post-1940 U.S. Population. *Journal of Political Economy*, 114(4):672–712.
- Almond, D. and Currie, J. (2011). Killing Me Softly: The Fetal Origins Hypothesis. *Journal of Economic Perspectives*, 25(3):153–172.
- Almond, D., Currie, J., and Duque, V. (2018). Childhood Circumstances and Adult Outcomes: Act II. *Journal of Economic Literature*, 56(4):1360–1446.
- Almond, D., Edlund, L., Li, H., and Zhang, J. (2010). Long-term effects of early-life development: Evidence from the 1959 to 1961 china famine. In *The Economic Consequences of Demographic Change in East Asia*, pages 321–345. National Bureau of Economic Research, Inc.
- Almond, D., Edlund, L., and Palme, M. (2009). Chernobyl’s Subclinical Legacy: Prenatal Exposure to Radioactive Fallout and School Outcomes in Sweden. *The Quarterly Journal of Economics*, 124(4):1729–1772.
- Almond, D., Hoynes, H. W., and Schanzenbach, D. W. (2011). Inside the War on Poverty: The Impact of Food Stamps on Birth Outcomes. *The Review of Economics and Statistics*, 93(2):387–403.
- Almond, D. and Mazumder, B. (2011). Health Capital and the Prenatal Environment: The Effect of Ramadan Observance during Pregnancy. *American Economic Journal: Applied Economics*, 3(4):56–85.
- Alsan, M. and Yang, C. S. (2022). Fear and the Safety Net: Evidence from Secure Communities. Technical report.
- Amuedo-Dorantes, C. and Arenas-Arroyo, E. (2018). Split Families and the Future of Chil-

- dren: Immigration Enforcement and Foster Care Placements. *AEA Papers and Proceedings*, 108:368–372.
- Amuedo-Dorantes, C., Arenas-Arroyo, E., and Sevilla, A. (2018). Immigration Enforcement and Economic Resources of Children with Likely Unauthorized Parents. *Journal of Public Economics*, 158:63 – 78.
- Amuedo-Dorantes, C., Churchill, B., and Song, Y. (2022). Immigration enforcement and infant health. *American Journal of Health Economics*, 8(3):323–358.
- Barreca, A. I. (2010). The Long-Term Economic Impact of In Utero and Postnatal Exposure to Malaria. *The Journal of Human Resources*, 45(4):865–892.
- Berkowitz, G. S., Wolff, M. S., Janevic, T. M., Holzman, I. R., Yehuda, R., and Landrigan, P. J. (2003). The World Trade Center Disaster and Intrauterine Growth Restriction. *JAMA*, 290(5):595–596.
- Bertrand, M., Duflo, E., and Mullainathan, S. (2004). How Much Should We Trust Differences-In-Differences Estimates? *The Quarterly Journal of Economics*, 119(1):249–275.
- Black, S. E., Devereux, P. J., and Salvanes, K. G. (2016). Does Grief Transfer across Generations? Bereavements during Pregnancy and Child Outcomes. *American Economic Journal: Applied Economics*, 8(1):193–223.
- Borra, C., González, L., and Sevilla, A. (2019). The Impact of Scheduling Birth Early on Infant Health. *Journal of the European Economic Association*, 17(1):30–78.
- Callaway, B. and Sant’Anna, P. H. (2021). Difference-in-differences with multiple time periods. *Journal of Econometrics*, 225(2):200–230. Themed Issue: Treatment Effect 1.
- Camacho, A. (2008). Stress and Birth Weight: Evidence from Terrorist Attacks. *American Economic Review*, 98(2):511–515.
- Capps, R., Gelatt, J., Van Hook, J., and Fix, M. (2018). Commentary on “The Number of Undocumented Immigrants in the United States: Estimates Based on Demographic

- Modeling with Data from 1990–2016”. *PLOS ONE*, 13(9):1–10.
- Cohen, M. S. and Schpero, W. L. (2018). Household Immigration Status Had Differential Impact on Medicaid Enrollment in Expansion and Nonexpansion States. *Health Affairs*, 37(3):394–402.
- Conley, T. G. and Taber, C. R. (2011). Inference with “Difference in Differences” with a Small Number of Policy Changes. *The Review of Economics and Statistics*, 93(1):113–125.
- Cox, A. B. and Miles, T. J. (2013). Policing Immigration. *University of Chicago Law Review*, 80(1):87–136.
- Cullen, Z. B. and Perez-Truglia, R. (2019). The Old Boys’ Club: Schmoozing and the Gender Gap. Working Paper 26530, National Bureau of Economic Research.
- Currie, J. (2011). Inequality at Birth: Some Causes and Consequences. *American Economic Review*, 101(3):1–22.
- Currie, J., Mueller-Smith, M., and Rossin-Slater, M. (2022). Violence while in Utero: The Impact of Assaults during Pregnancy on Birth Outcomes. *The Review of Economics and Statistics*, pages 525–540.
- Currie, J. and Rossin-Slater, M. (2013). Weathering the Storm: Hurricanes and Birth Outcomes. *Journal of Health Economics*, 32(3):487 – 503.
- de Chaisemartin, C. and D’Haultfoeulle, X. (2020). Two-Way Fixed Effects Estimators with Heterogeneous Treatment Effects. *American Economic Review*, 110(9):2964–96.
- Dieter, J. N., Emory, E. K., Johnson, K. C., and Raynor, B. D. (2008). Maternal Depression and Anxiety Effects on the Human Fetus: Preliminary Findings and Clinical Implications. *Infant Mental Health Journal*, 29(5):420–441.
- DiPietro, J. A., Hodgson, D. M., Costigan, K. A., and Johnson, T. R. B. (1996). Fetal Antecedents of Infant Temperament. *Child Development*, 67(5):2568–2583.
- East, C. N., Hines, A. L., Luck, P., Mansour, H., and Velasquez, A. (2019). The Labor Market Effects of Immigration Enforcement. Working paper.

- East, C. N. and Velasquez, A. (2020). Unintended Consequences of Immigration Enforcement: Household Services and High-Skilled Women’s Work. Working paper.
- Field, T., Diego, M., Dieter, J., Hernandez-Reif, M., Schanberg, S., Kuhn, C., Yando, R., and Bendell, D. (2004). Prenatal depression effects on the fetus and the newborn. *Infant Behavior and Development*, 27(2):216–229.
- Finer, L. B. and Zolna, M. R. (2016). Declines in unintended pregnancy in the United States, 2008–2011. *New England journal of medicine*, 374(9):843–852.
- Fisher, R. A. (1935). *The Design of Experiments*. Edinburgh: Oliver and Boyd.
- Gemmill, A., Catalano, R., Casey, J. A., Karasek, D., Alcalá, H. E., Elser, H., and Torres, J. M. (2019). Association of Preterm Births among US Latina Women with the 2016 Presidential Election. *JAMA Network Open*, 2(7):e197084–e197084.
- Goodman-Bacon, A. (2021). Difference-in-differences with variation in treatment timing. *Journal of Econometrics*, 225(2):254–277. Themed Issue: Treatment Effect 1.
- Grossman, D. S. and Slusky, D. J. (2019). The Impact of the Flint Water Crisis on Fertility. *Demography*, 56:2005–2031.
- Hall, J. A., Benton, L., Copas, A., and Stephenson, J. (2017). Pregnancy intention and pregnancy outcome: systematic review and meta-analysis. *Maternal and child health journal*, 21:670–704.
- Hoynes, H., Page, M., and Stevens, A. H. (2011). Can Targeted Transfers Improve Birth Outcomes?: Evidence from the Introduction of the WIC Program. *Journal of Public Economics*, 95(7):813 – 827.
- Hoynes, H., Schanzenbach, D. W., and Almond, D. (2016). Long-Run Impacts of Childhood Access to the Safety Net. *American Economic Review*, 106(4):903–34.
- Isen, A., Rossin-Slater, M., and Walker, W. R. (2017). Every Breath You Take—Every Dollar You’ll Make: The Long-Term Consequences of the Clean Air Act of 1970. *Journal of Political Economy*, 125(3):848–902.

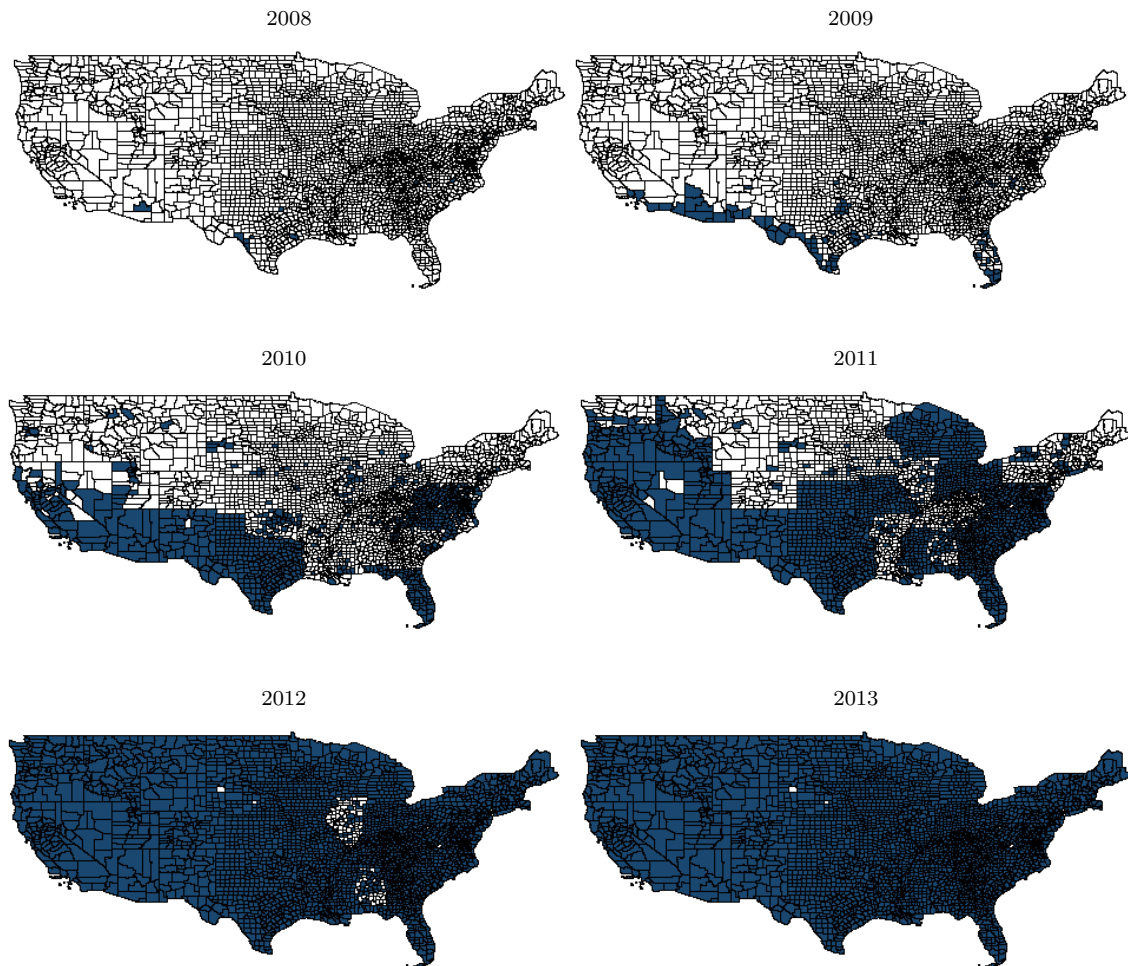
- Kennedy-Moulton, K., Miller, S., Persson, P., Rossin-Slater, M., Wherry, L., and Aldana, G. (2023). Maternal and Infant Health Inequality: New Evidence From Linked Administrative Data. Nber working paper 30693.
- Kinsella, M. T. and Monk, C. (2009). Impact of Maternal Stress, Depression and Anxiety on Fetal Neurobehavioral Development. *Clinical Obstetrics and Gynecology*, 52(3):425–440.
- Kling, J. R., Liebman, J. B., and Katz, L. F. (2007). Experimental Analysis of Neighborhood Effects. *Econometrica*, 75(1):83–119.
- Kuka, E., Shenhav, N., and Shih, K. (2020). Do Human Capital Decisions Respond to the Returns to Education? Evidence from DACA. *American Economic Journal: Economic Policy*, 12(1):293–324.
- Lauderdale, D. S. (2006). Birth Outcomes for Arabic-Named Women in California before and after September 11. *Demography*, 43:185–201.
- Lu, Y. and Slusky, D. J. G. (2016). The Impact of Women’s Health Clinic Closures on Preventive Care. *American Economic Journal: Applied Economics*, 8(3):100–124.
- Martínez, A. D., Ruelas, L., and Granger, D. A. (2018). Household Fear of Deportation in Relation to Chronic Stressors and Salivary Proinflammatory Cytokines in Mexican-Origin Families Post-SB 1070. *SSM - Population Health*, 5:188–200.
- Miles, T. J. and Cox, A. B. (2014). Does Immigration Enforcement Reduce Crime? Evidence from Secure Communities. *The Journal of Law and Economics*, 57(4):937–973.
- Nolan, B., Salverda, W., and Smeeding, T. M. (2012). *The Oxford Handbook of Economic Inequality*. Oxford University Press.
- Novak, N. L., Geronimus, A. T., and Martinez-Cardoso, A. M. (2017). Change in Birth Outcomes Among Infants Born to Latina Mothers after a Major Immigration Raid. *International Journal of Epidemiology*, 46(3):839–849.
- Padraza, F. I. and Zhu, L. (2014). Immigration Enforcement and the “Chilling Effect” on Latino Medicaid Enrollment. Working paper.

- Passel, J. S. and Cohn, D. (2018). U.S. Unauthorized Immigrant Total Dips to Lowest Level in a Decade. Technical report, D.C. Pew Hispanic Center.
- Persson, P. and Rossin-Slater, M. (2018). Family Ruptures, Stress, and the Mental Health of the Next Generation. *American Economic Review*, 108(4-5):1214–1252.
- Piketty, T. and Saez, E. (2003). Income Inequality in the United States, 1913–1998. *The Quarterly Journal of Economics*, 118(1):1–41.
- Rossin, M. (2011). The Effects of Maternity Leave on Children’s Birth and Infant Health Outcomes in the United States. *Journal of Health Economics*, 30(2):221–239.
- Rossin-Slater, M. (2013). WIC in Your Neighborhood: New Evidence on the Impacts of Geographic Access to Clinics. *Journal of Public Economics*, 102:51–69.
- Ruggles, S., Flood, S., Goeken, R., Grover, J., Meyer, E., Pacas, J., and Sobek, M. (2019). IPUMS USA: Version 9.0 [dataset].
- Sanders, N. J. (2012). What Doesn’t Kill You Makes You Weaker: Prenatal Pollution Exposure and Educational Outcomes. *Journal of Human Resources*, 47(3):826–850.
- Sanders, N. J. and Stoecker, C. (2015). Where Have All the Young Men Gone? Using Gender Ratios to Measure Fetal Death Rates. *Journal of Health Economics*, 41:30–45.
- Scholte, R. S., [van den Berg], G. J., and Lindeboom, M. (2015). Long-Run Effects of Gestation during the Dutch Hunger Winter Famine on Labor Market and Hospitalization Outcomes. *Journal of Health Economics*, 39:17–30.
- Simeonova, E. (2011). Out of Sight, Out of Mind? Natural Disasters and Pregnancy Outcomes in the USA. *CESifo Economic Studies*, 57(3):403–431.
- Sood, G. (2016). Geographic Information on Designated Media Markets, Harvard Dataverse: Version 8 [dataset].
- Sun, L. and Abraham, S. (2021). Estimating dynamic treatment effects in event studies with heterogeneous treatment effects. *Journal of Econometrics*, 225(2):175–199. Themed Issue: Treatment Effect 1.

- Tan, C. E., Li, H. J., Zhang, X. G., Zhang, H., Han, P. Y., An, Q., Ding, W. J., and Wang, M. Q. (2009). The impact of the wenchuan earthquake on birth outcomes. *PLOS ONE*, 4:1–5.
- Tome, R., Rangel, M. A., Gibson-Davis, C. M., and Bellows, L. (2021). Heightened immigration enforcement impacts us citizens’ birth outcomes: Evidence from early ice interventions in north carolina. *PLOS ONE*, 16(2):1–15.
- Torche, F. (2011). The Effect of Maternal Stress on Birth Outcomes: Exploiting a Natural Experiment. *Demography*, 48:1473–1491.
- Torche, F. and Sirois, C. (2018). Restrictive Immigration Law and Birth Outcomes of Immigrant Women. *American Journal of Epidemiology*, 188(1):24–33.
- Torres, J. M., Deardorff, J., Gunier, R. B., Harley, K. G., Alkon, A., Kogut, K., and Eskenazi, B. (2018). Worry About Deportation and Cardiovascular Disease Risk Factors among Adult Women: The Center for the Health Assessment of Mothers and Children of Salinas Study. *Annals of Behavioral Medicine*, 52(2):186–193.
- Vargas, E. D. and Pirog, M. A. (2016). Mixed-Status Families and WIC Uptake: The Effects of Risk of Deportation on Program Use. *Social Science Quarterly*, 97(3):555–572.
- Vargas, E. D., Sanchez, G. R., and Juárez, M. (2017). Fear by Association: Perceptions of Anti-Immigrant Policy and Health Outcomes. *Journal of Health Politics, Policy and Law*, 42(3):459–483.
- Wang, J. S.-H. and Kaushal, N. (2019). Health and Mental Health Effects of Local Immigration Enforcement. *International Migration Review*, 53(4):970–1001.
- Warren, R. (2014). Democratizing Data about Unauthorized Residents in the United States: Estimates and Public-Use Data, 2010 to 2013. *Journal on Migration and Human Security*, 2(4):305–328.
- Watson, T. (2014). Inside the Refrigerator: Immigration Enforcement and Chilling Effects in Medicaid Participation. *American Economic Journal: Economic Policy*, 6(3):313–338.

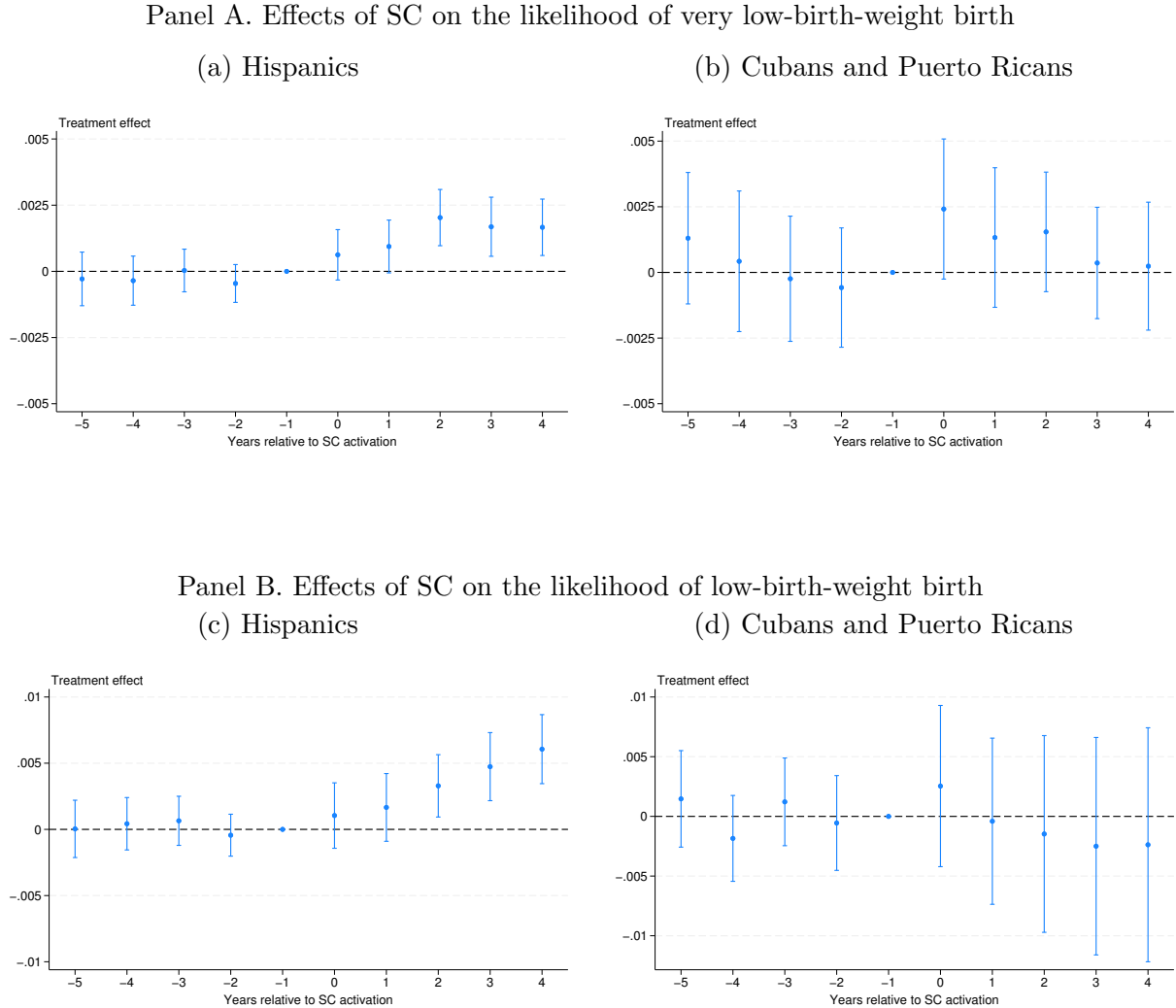
7 Figures

Figure 1: Secure Communities Rollout



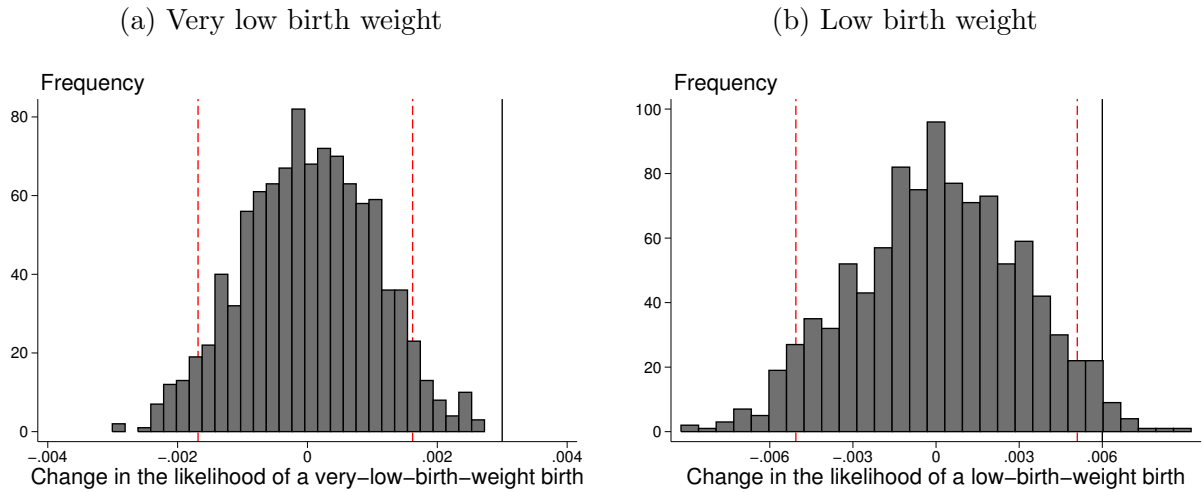
Notes: Data are from U.S. ICE. Counties that had adopted Secure Communities are shaded.

Figure 2: Effect of Secure Communities on Birth Outcomes of Mothers with Less than High School Degree



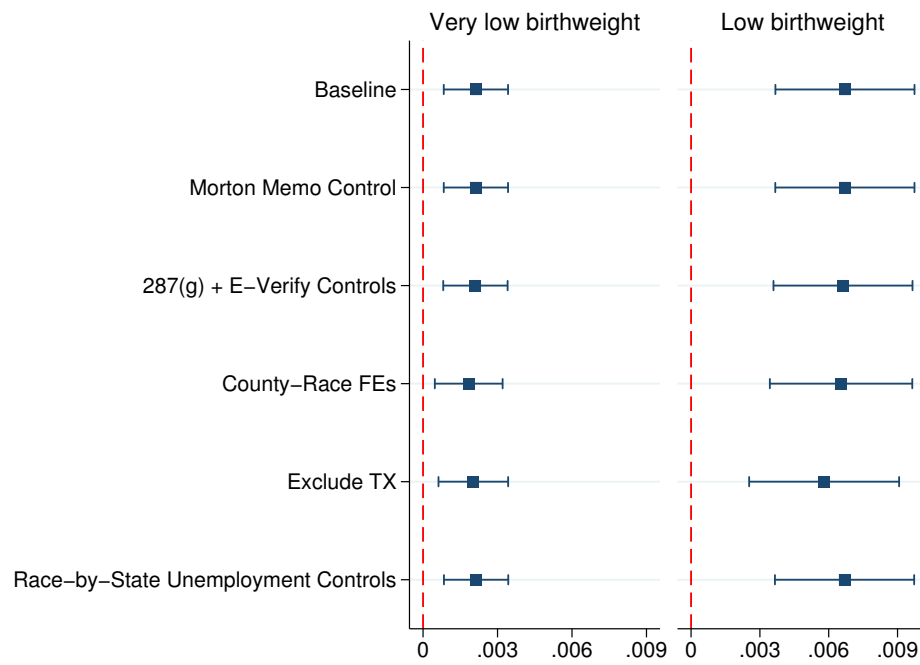
Notes: The coefficients plotted in Figure 2(a) and Figure 2(c) are triple-difference estimates (β_1) of Equation (2), where the coefficients show SC's effects on birth outcomes of Hispanic infants in the year before and after SC activation relative to non-Hispanic infants. The coefficients plotted in Figure 2(a) and Figure 2(c) are difference-in-differences estimates for a subsample of infants of Cuban and Puerto Rican mothers. Data are from Vital Statistics Natality 2005–2016. All specifications include four dummies for mother's age, three dummies for mother's race, a dummy for mother's marital status, a dummy for singleton birth, a dummy for male birth, and state-year level controls: unemployment rate, percentage of population who are Hispanic, Black, White, and female ages 15–44. Robust standard errors are clustered at the county level. Whiskers show the 95% confidence interval.

Figure 3: Permutation Tests on Effects of SC on Birth Outcomes of Mothers with Less than a High School Degree



Notes: These figures show the histogram of placebo estimates of Equation (1) 1,000 times by randomly assigning six years as “treated,” allowing the remaining six years as the pre-period. The vertical solid lines represent my actual triple-difference estimates. The dashed lines are 5th and 95th percentile of the placebo estimates. Data are from Vital Statistics Natality 2005–2016. The sample is limited to infants of all foreign-born mothers with a high school degree or less.

Figure 4: Robustness Checks of Secure Communities Effects on Birth Outcomes of Mothers with Less than a High School Degree



Notes: This figure plots coefficient estimates and standard errors for robustness checks discussed in Section 5.4. Data are from Vital Statistics Natality 2005–2016. The sample is limited to infants of all foreign-born mothers with a high school degree or less.

8 Tables

Table 1: Effects of Secure Communities on Birth Outcomes of Mothers with Less than a High School Degree

<i>Outcomes</i>	<i>Very low bwt</i> (1)	<i>Low bwt</i> (2)	<i>Premature</i> (3)	<i>Birth weight</i> (4)	<i>Gestation weeks</i> (5)
SC \times Hispanic	0.002*** (0.001)	0.007*** (0.001)	0.006*** (0.002)	-12.180*** (3.411)	-0.087*** (0.016)
% Impact (coef/mean)	21.06%	11.79%	5.20%	-0.37%	-0.22%
Mean of dep. var.	0.01	0.06	0.12	3,303.30	38.67
Observations	2,727,531	2,727,531	2,727,531	2,727,531	2,716,566
Baseline controls	X	X	X	X	X
Year of birth fixed effects	X	X	X	X	X
Month of birth fixed effects	X	X	X	X	X
County fixed effects	X	X	X	X	X
State \times linear time	X	X	X	X	X

Notes: The table shows estimates of β_1 from Equation (1), a triple-difference model of Hispanic infants compared to non-Hispanic infants, before versus after the SC activation, in treated versus control counties. Data are from Vital Statistics Natality 2005–2016. The sample is limited to infants of foreign-born mothers with less than high school degree. Baseline controls include four dummies for mother’s age, three dummies for mother’s race, a dummy for mother’s marital status, a dummy for singleton birth, a dummy for male birth, unemployment rate at county level, and state-year level controls (unemployment rate, percentage of population who are Hispanic, Black, White, and female ages 15–44). Robust standard errors clustered at the county level are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 2: Effects of Secure Communities on Birth Outcomes of Mothers with Less than a High School Degree, Intensity of Treatment

<i>Outcomes</i>	<i>Very low bwt</i>				<i>Low bwt</i>			
	Baseline	Sanctuary	High deportation	High fear	Baseline	Sanctuary	High deportation	High fear
	(1)	counties (2)	rate counties (3)	areas (4)	(5)	counties (6)	rate counties (7)	areas (8)
SC \times Hispanic	0.002*** (0.001)	0.002 (0.002)	0.003** (0.001)	0.003*** (0.001)	0.007*** (0.001)	0.005** (0.002)	0.010*** (0.003)	0.008*** (0.002)
% Impact (coef/mean)	21.06%	17.58%	29.22%	26.74%	11.79%	8.67%	15.67%	13.57%
Mean of dep. var.	0.01	0.01	0.01	0.01	0.06	0.06	0.06	0.06
Observations	2,727,496	906,832	1,139,771	1,590,839	2,727,496	906,832	1,139,771	1,590,839
Baseline controls	X	X	X	X	X	X	X	X
Year of birth fixed effects	X	X	X	X	X	X	X	X
Month of birth fixed effects	X	X	X	X	X	X	X	X
County fixed effects	X	X	X	X	X	X	X	X
State \times linear time	X	X	X	X	X	X	X	X

Notes: This table reports coefficient estimates for heterogeneity of exposure to SC activation discussed in Section 5.3. Each parameter is from a separate regression. High deportation rate counties are defined as counties with an above-median deportation rate. Deportation rate for each county is calculated by dividing the number of deportations by the number of Hispanic non-citizen high school dropouts in that county. High fear areas are defined as areas with fear levels above the median. Fear levels are measured using data from the 2013 Pew Research Center survey of Hispanics. Data are from Vital Statistics Natality 2005–2016. The sample is limited to infants of foreign-born mothers with less than a high school degree. Baseline controls include four dummies for mother’s age, three dummies for mother’s race, a dummy for mother’s marital status, a dummy for singleton birth, a dummy for male birth, unemployment rate at county level, and state-year level controls (unemployment rate, percentage of population who are Hispanic, Black, White, and female ages 15–44). Robust standard errors clustered at the county level are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3: Effects of Secure Communities on Maternal Behavior and Well-Being

	<i>Number of prenatal visits</i> (1)	<i>Any prenatal care</i> (2)	<i>Take up WIC</i> (3)	<i>Gestational hypertension</i> (4)	<i>Diabetes</i> (5)	<i>Mother smoked during pregnancy</i> (6)
SC \times Hispanic	0.416*** (0.075)	0.009*** (0.003)	-0.005 (0.009)	0.002 (0.001)	0.005** (0.002)	0.003 (0.003)
% Impact (coef/mean)	4.07%	0.97%	-0.59%	7.64%	7.70%	0.87%
Mean of dep. var.	10.21	0.97	0.83	0.03	0.06	0.31
Observations	2,636,222	2,727,531	1,432,873	2,220,502	2,220,502	2,727,531
Baseline controls	X	X	X	X	X	X
Year of birth fixed effects	X	X	X	X	X	X
Month of birth fixed effects	X	X	X	X	X	X
County fixed effects	X	X	X	X	X	X
State \times linear time	X	X	X	X	X	X

Notes: Each parameter is from a separate regression. Data are from Vital Statistics Natality 2005–2016. The sample is limited to infants of foreign-born mothers with less than a high school degree. Baseline controls include four dummies for mother’s age, three dummies for mother’s race, a dummy for mother’s marital status, a dummy for singleton birth, a dummy for male birth, unemployment rate at county level, and state-level controls (unemployment rate, percentage of population who are Hispanic, Black, White, and female ages 15–44). Robust standard errors clustered at the county level are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 4: Effects of Secure Communities on Migration, Employment, and Household Structure

<i>Outcomes</i>	<i>% Migrated</i> (1)	<i>HH weight</i> (2)	<i>% Employed</i> (3)	<i>% Poverty</i> (4)	<i>% Immigrant</i> (5)
SC \times Hispanic	-0.001 (0.005)	-6.498 (4.073)	-0.000*** (0.000)	-0.000*** (0.000)	0.004 (0.006)
% Impact (coef/mean)	-3.96%	-5.00%	-0.00%	-0.00%	0.44%
Mean of dep. var.	0.03	130.04	0.41	4.38	0.91
Observations	83,007	83,007	83,007	83,007	83,007
Baseline controls	X	X	X	X	X
State by year fixed effects	X	X	X	X	X
State by race fixed effects	X	X	X	X	X
Race by year fixed effects	X	X	X	X	X

Notes: HH weight refers to the household weight used in the American Community Survey data. Each parameter is from a separate regression. Data are from American Community Survey 2005–2016. Robust standard errors clustered at the county level are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 5: Effects of Secure Communities on Maternal Characteristics

<i>Outcomes</i>	<i>Mother's age < 20 (1)</i>	<i>Mother's age 20-24 (2)</i>	<i>Mother's age 25-34 (3)</i>	<i>Mother's age 35-44 (4)</i>	<i>Mother married (5)</i>	<i>Mother's education < 8th grade (6)</i>
SC \times Hispanic	0.00054 (0.00044)	0.00019 (0.00044)	0.00054 (0.00045)	0.00033 (0.00022)	-0.08332 (0.0638)	-0.03048 (0.09350)
Mean of dep. var.	0.11	0.23	0.50	0.16	0.47	0.38
Observations	2,727,496	2,727,496	2,727,496	2,727,496	2,727,496	2,727,496
Baseline controls	X	X	X	X	X	X
Year of birth fixed effects	X	X	X	X	X	X
Month of birth fixed effects	X	X	X	X	X	X
County fixed effects	X	X	X	X	X	X
State \times linear time	X	X	X	X	X	X

Notes: Each parameter is from a separate regression. Data are from Vital Statistics Natality 2005–2016. The sample is limited to infants of foreign-born mothers with less than a high school degree. Robust standard errors clustered at the county level are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 6: Calculating the Social Cost of Heightened Immigration Enforcement

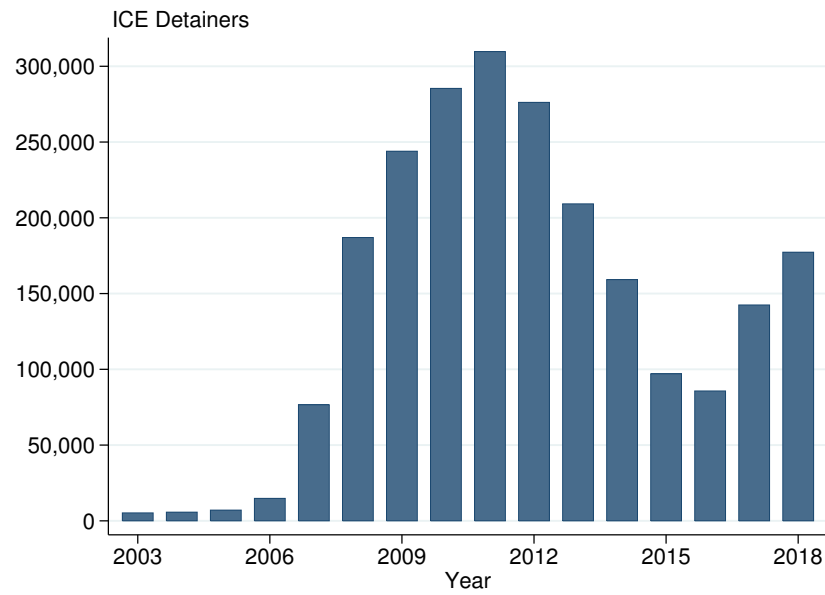
	Conservative estimate	Baseline estimate	Sources
(A) Average number of VLBW babies born to undocumented women	3,072 babies	3,072 babies	Author's calculation from Natality data
(B) A 21.06% increase is	647 babies	647 babies	$= (3,072 \times 21.06\%)$
(C) Cost of a VLBW birth	\$1,348,506 ^a	\$2,457,114 ^b	Currie et al. (2022)'s Table 4
(D) Annual social cost	\$872 million	\$1.59 billion	$= [(B) \times (C)]$

^aThe calculation of VLBW birth cost in this case does *not* include the costs related to disability and long-term mortality risk. It is determined by summing up components (1) + (2) + (3) + (4) = \$1,068,682 + \$207,739 + \$54,900 + \$17,185 = 1,348,506, as reported in Table 4 on page 40 of Currie et al. (2022)

^bThe calculation of VLBW birth cost in this case includes all components (1)-(6) and is determined by summing up components (1) + (2) + (3) + (4) + (5) + (6) = \$1,068,682 + \$207,739 + \$54,900 + \$17,185 + \$69,822 + \$1,038,786 = \$2,457,114, as reported in Table 4 on page 40 of Currie et al. (2022)

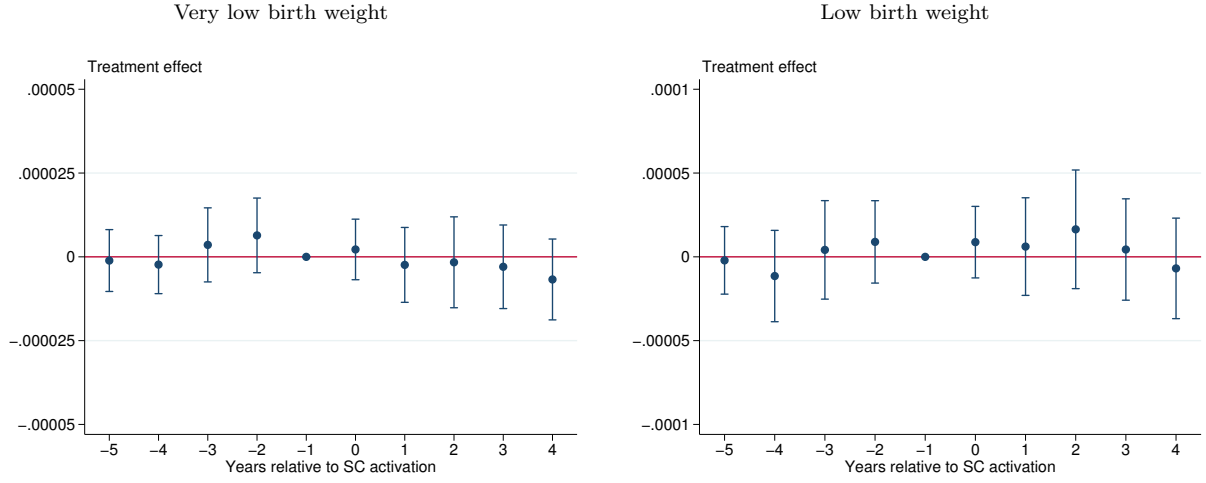
A Appendix: Supplementary Figures and Tables

Figure A.1: Number of Detainers by Year



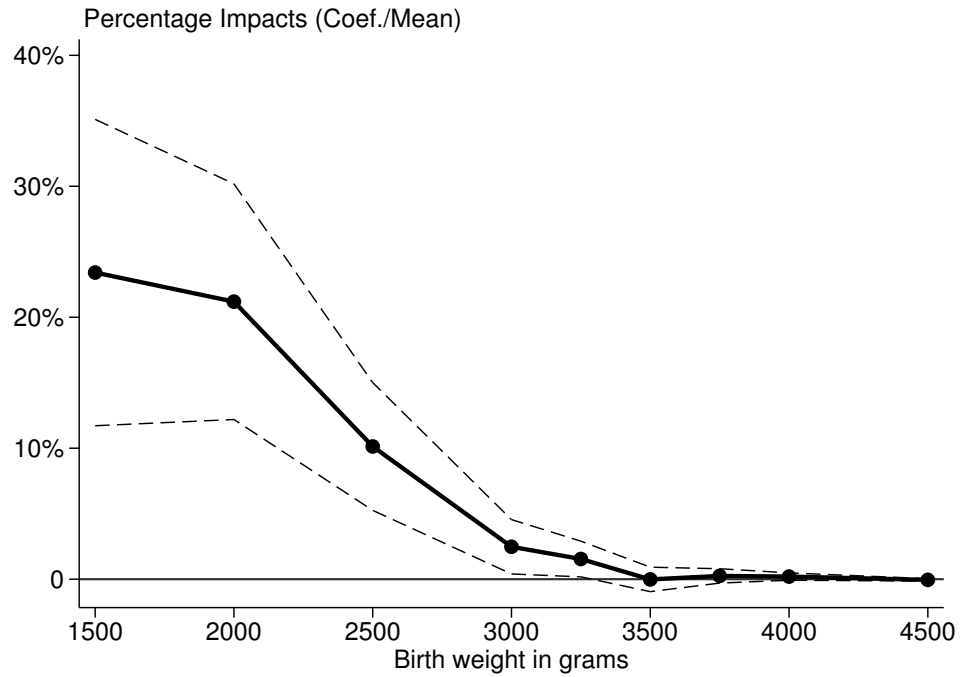
Notes: Data are from TRAC Immigration 2003–2018.

Figure A.2: Effects of Secure Communities on Predicted Birth Outcomes Using Pre-Treatment Data



Notes: The coefficients plotted above are triple-difference estimates of Equation (2), where the coefficients show SC's effects on birth outcomes of Hispanic infants in the year before and after SC activation relative to non-Hispanic infants. The outcomes are the fitted values of likelihood of low-birth-weight and very low-birth-weight birth, obtained from regressions of the birth outcomes on a set of characteristics including gender, year, month, week of birth, indicators for maternal age dummies, indicator for mother being married, and maternal race dummies *using pre-treatment data*. Data are from Vital Statistics Natality 2005–2016. The sample is limited to infants of foreign-born mothers with a high school degree or less.

Figure A.3: Effects of Secure Communities on Birth Weight Distribution



Notes: This figure shows estimates and 95% confidence intervals for the estimate of the effects of immigration enforcement exposure on the fraction of births that is below each specified number of grams. Data are from Vital Statistics Natality 2005–2016. The sample is limited to infants of foreign-born mothers with a high school degree or less. All specifications include four dummies for mother’s age, three dummies for mother’s race, a dummy for mother’s marital status, a dummy for male birth, and state-year level controls (unemployment rate, percentage of population who are Hispanic, Black, White, and female ages 15–44). Robust standard errors are clustered at the county level.

Figure A.4: Robustness to staggered rollout treatment effects, [Sun and Abraham \(2021\)](#)'s approach

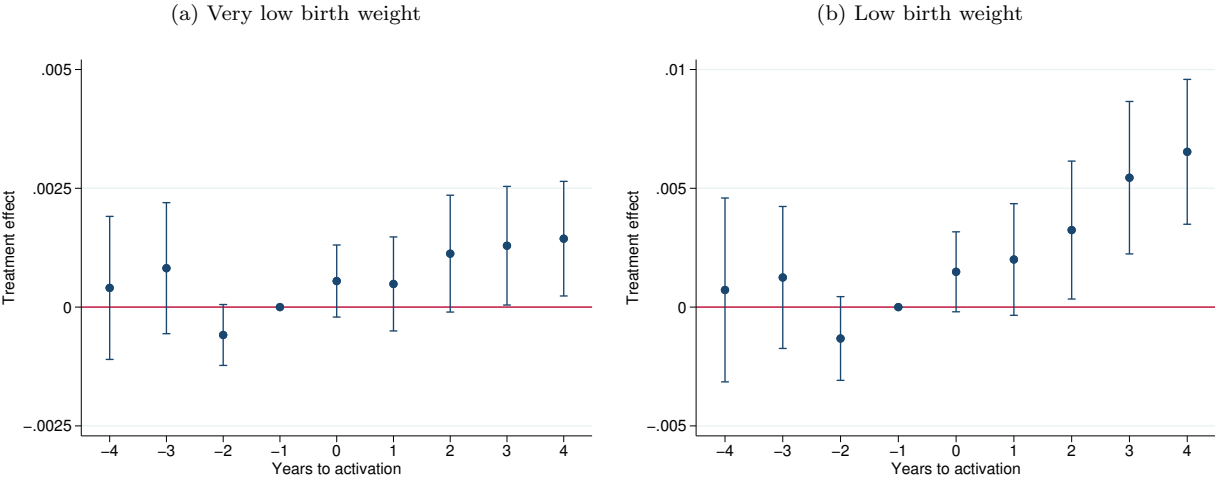
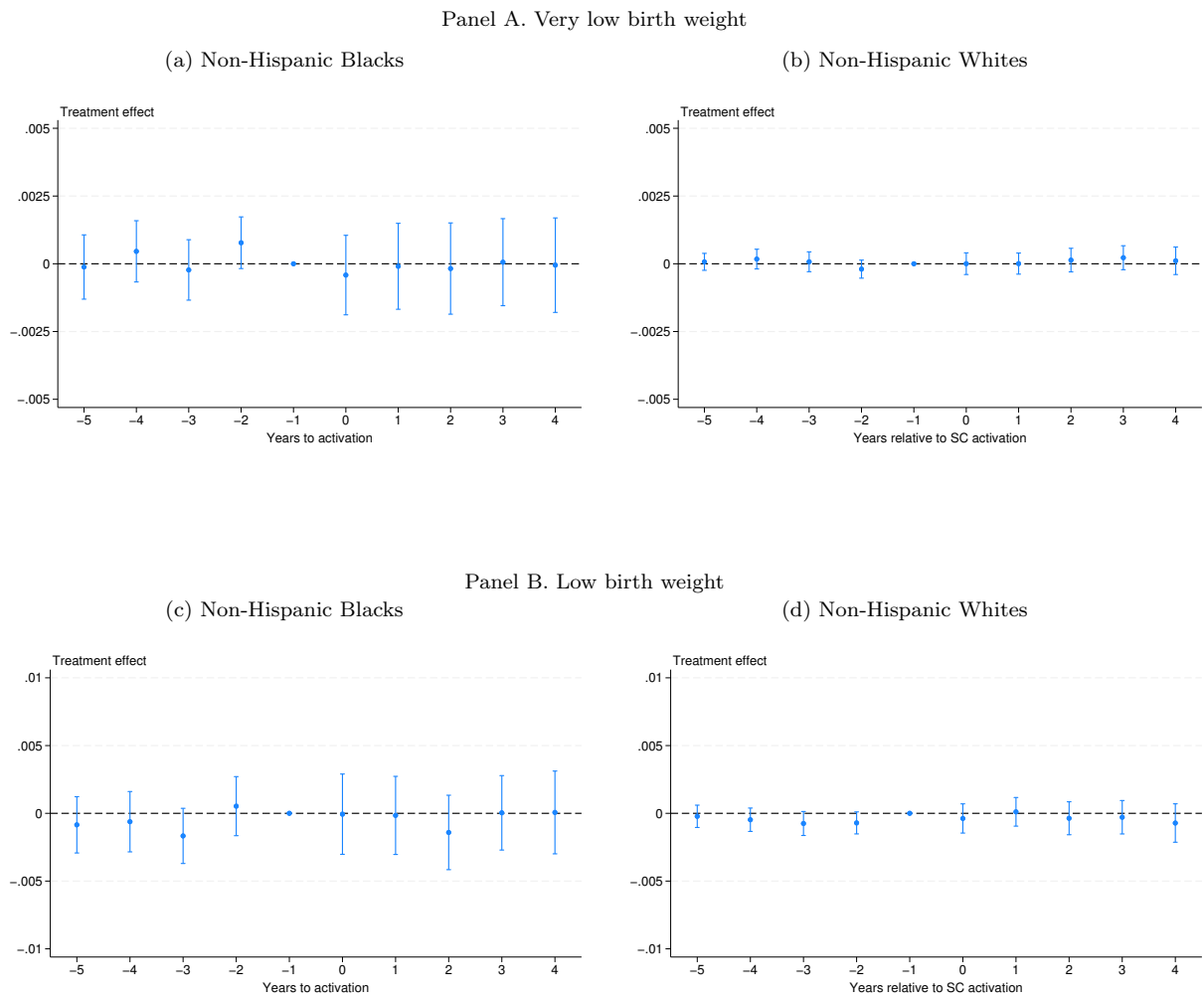


Figure A.5: Effect of Secure Communities on Placebo Groups: non-Hispanic Black and non-Hispanic White citizens



Notes: Data are from Vital Statistics Natality 2005–2016. Robust standard errors are clustered at the county level. Whiskers show the 95% confidence interval.

Table A.1: Effects of Secure Communities on Deportation-Related Search Terms

	Deportation-related search terms		
	(1)	(2)	(3)
Secure Communities	0.590*** (0.039)	0.545*** (0.121)	0.092** (0.042)
Mean of dep. var.	4.34	4.34	4.34
Observations	2,000	2,000	2,000
Year fixed effects		X	X
DMA fixed effects			X

Notes: This table presents difference-in-differences estimates of the SC activation on a proxy measure for deportation fear. The dependent variable is the log number of deportation-related search terms relative to the total number of queries at the Nielsen Designated Market Area (DMA) media markets level. Data are from Google Trends 2005–2016. Robust standard errors clustered at the DMA level are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.2: Effects of Secure Communities on Birth Outcomes Index

<i>Outcome</i>	<i>Birth outcome index</i>		
	Baseline	High share of NC Hisp.	Sanctuary counties
	(1)	(2)	(3)
SC \times Hispanic	-0.012*** (0.005)	-0.023** (0.010)	-0.010 (0.007)
Observations	2,727,531	1,139,814	906,836
Baseline controls	X	X	X
Year of birth fixed effects	X	X	X
Month of birth fixed effects	X	X	X
County fixed effects	X	X	X
State \times linear time	X	X	X

Notes: Data are from Vital Statistics Natality 2005–2016. The birth outcomes index includes the following measures: VLBW ($< 1,500$ grams), low birth weight ($< 2,500$ grams), premature birth (< 37 weeks of gestation), continuous birth weight in grams, gestation in weeks, very premature birth (< 34 weeks of gestation), low 1-minute Apgar score (< 7), NICU admission, any abnormal conditions (six indicators: assisted ventilation, assisted ventilation > 6 hours, admission to NICU, surfactant, antibiotics, and seizures). The sample is limited to infants of foreign-born mothers with less than a high school degree. Baseline controls include four dummies for mother’s age, three dummies for mother’s race, a dummy for mother’s marital status, a dummy for male birth, and state-year level controls (unemployment rate, percentage of population who are Hispanic, Black, White, and female ages 15–44). Robust standard errors clustered at the county level are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.3: Effects of Secure Communities on Fertility

<i>Outcomes</i>	<i>Fertility rate</i> (1)	<i>Birth rate</i> (2)	<i>Male birth</i> (3)
SC \times Hispanic	-0.708*** (0.129)	-0.138*** (0.025)	-0.000 (0.000)
Mean of dep. var.	7.29	1.54	0.51
Observations	487,024	487,048	487,048
Baseline controls	X	X	X
Year of birth fixed effects	X	X	X
Month of birth fixed effects	X	X	X
County fixed effects	X	X	X
State \times linear time	X	X	X

Notes: Each parameter is from a separate regression of the outcome variable: fertility rate, birth rate, and mean of male birth by county-race-month-year. Fertility rate is defined as number of births per 1,000 women ages 15–44. Birth rate is defined as number of births per 1,000 population. Note that these are monthly rates, so to compare to published statistics, one would have to multiply by 12. Data are from Vital Statistics Natality and SEER 2005–2016. Baseline controls include four dummies for mother’s age, three dummies for mother’s race, a dummy for mother’s marital status, a dummy for male birth, and state-year level controls (unemployment rate, percentage of population who are Hispanic, Black, White, and female ages 15–44). Robust standard errors clustered at the county level are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.4: Compare Effects of Secure Communities, 287(g) Agreements, and E-Verify on Birth Outcomes of Mothers with Less than a High School Degree

<i>Outcomes</i>	<i>Very low bwt</i>			<i>Low bwt</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
SC \times Hispanic	0.002*** (0.001)			0.007*** (0.001)		
287(g) \times Hispanic		-0.000 (0.001)			-0.000 (0.002)	
E-Verify \times Hispanic			0.001 (0.001)			0.000 (0.002)
% Impact (coef/mean)	21.06%	-2.57%	5.81%	11.79%	-0.40%	0.29%
Mean of dep. var.	0.01	0.01	0.01	0.06	0.06	0.06
Observations	2,727,496	2,727,496	2,727,496	2,727,496	2,727,496	2,727,496
Baseline controls	X	X	X	X	X	X
Year of birth fixed effects	X	X	X	X	X	X
Month of birth fixed effects	X	X	X	X	X	X
County fixed effects	X	X	X	X	X	X
State \times linear time	X	X	X	X	X	X

Table A.5: Effects of Secure Communities on Birth Outcomes, Robustness Analysis Excluding Counties that Are Not Observed in Each Month Throughout the Entire Sample

<i>Outcomes</i>	<i>Very low bwt</i> (1)	<i>Low bwt</i> (2)	<i>Premature</i> (3)	<i>Birth weight</i> (4)	<i>Gestation weeks</i> (5)
SC \times Hispanic	0.002*** (0.001)	0.007*** (0.001)	0.006*** (0.002)	-11.641*** (3.414)	-0.085*** (0.016)
% Impact (coef/mean)	21.01%	11.65%	5.08%	-0.35%	-0.22%
Mean of dep. var.	0.01	0.06	0.12	3,303.09	38.67
Observations	2,707,495	2,707,495	2,707,495	2,707,495	2,696,575
Baseline controls	X	X	X	X	X
Year of birth fixed effects	X	X	X	X	X
Month of birth fixed effects	X	X	X	X	X
County fixed effects	X	X	X	X	X
State \times linear time	X	X	X	X	X

Table A.6: Effects of Secure Communities on Birth Outcomes, Robustness Analysis Excluding State-specific Time Trends

<i>Outcomes</i>	<i>Very low bwt</i> (1)	<i>Low bwt</i> (2)	<i>Premature</i> (3)	<i>Birth weight</i> (4)	<i>Gestation weeks</i> (5)
SC \times Hispanic	0.002*** (0.001)	0.008*** (0.001)	0.004 (0.002)	-16.019*** (3.991)	-0.092*** (0.018)
% Impact (coef/mean)	20.40%	12.25%	3.06%	-0.48%	-0.24%
Mean of dep. var.	0.01	0.06	0.12	3,303.30	38.67
Observations	2,727,531	2,727,531	2,727,531	2,727,531	2,716,566
Baseline controls	X	X	X	X	X
Year of birth fixed effects	X	X	X	X	X
Month of birth fixed effects	X	X	X	X	X
County fixed effects	X	X	X	X	X

Table A.7: Effects of Secure Communities on Birth Outcomes: Robustness Analysis Including Illinois, Massachusetts, and New York

<i>Outcomes</i>	<i>Very low bwt</i> (1)	<i>Low bwt</i> (2)	<i>Premature</i> (3)	<i>Birth weight</i> (4)	<i>Gestation weeks</i> (5)
SC \times Hispanic	0.002*** (0.001)	0.007*** (0.001)	0.006*** (0.002)	-11.100*** (3.105)	-0.078*** (0.015)
% Impact (coef/mean)	16.48%	11.13%	4.69%	-0.34%	-0.20%
Mean of dep. var.	0.01	0.06	0.12	3,302.28	38.67
Observations	3,013,201	3,013,201	3,013,201	3,013,201	3,001,733
Baseline controls	X	X	X	X	X
Year of birth fixed effects	X	X	X	X	X
Month of birth fixed effects	X	X	X	X	X
County fixed effects	X	X	X	X	X
State \times linear time	X	X	X	X	X