Homeland Echoes:
The Persistent Grip of Origin Culture on Immigrants

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Abstract

Do origin-country policy changes echo in the behavior of immigrants who live under a different legal regime? We study Chinese immigrants in the United States around China's staged relaxations of birth limits between 2011 and 2016, culminating in the universal Two-Child Policy. Using complete U.S. Vital Statistics for 2004–2019 and difference-in-differences models, we compare births to Mainland Chinese mothers with births to immigrants from Hong Kong, Macau, and Taiwan, and we contrast first-generation and U.S.-born Chinese women. Births to first-generation Mainland Chinese mothers rise sharply in the reform windows, with pronounced increases at second-order births, earlier timing at first-order births, and shorter birth intervals. U.S.-born Chinese Americans also respond, but more modestly and mainly at first-order births and in places with larger Chinese communities. Our results provide a concrete example of how a salient, nonbinding policy shift at origin can alter the behavior of migrants living under a different legal regime, in this case the fertility intention and timing. These findings imply that evaluations of major origin-country reforms in settings with large diasporas may need to account for behavioral responses among migrants abroad, not only domestic outcomes.

JEL Codes: J13, J15, J61, O15, Z13

1 Introduction

This paper asks whether a major change in policy in the country of origin can echo in the behavior of immigrants who live under a different legal regime. We study Chinese immigrants in the United States around China's staged relaxations of its birth limits between 2011 and 2016, culminating in the universal Two-Child Policy, reforms introduced in response to rapid population aging and a looming labor shortage (Zeng & Hesketh, 2016; Zhang, 2017). This sequence has clearly defined announcement dates and took place in one of the world's largest economies, which makes it a rare policy experiment at scale. Because these rules never applied outside China, any response among Chinese immigrants would operate through information and culture rather than direct enforcement. This setting therefore provides a clean test of whether contemporaneous policy in the origin country can alter behavior among coethnics abroad.

Understanding this channel matters for both demography and applied microeconomics. China plays a critical role in global demographic and economic trends, and its fertility regime shapes not only domestic population dynamics but also the composition of emigrant flows (Lin et al., 2025; Nie & Baizán, 2021). If immigrants adjust fertility in response to a nonbinding reform at origin (Beach & Hanlon, 2023), this implies that preferences over family size remain anchored, at least partly, in the origin society. If they do not, it suggests that host-country conditions and individual selection dominate (Mayer & Riphahn, 2000). Either way, the response of overseas Chinese to China's fertility reforms is informative about how strongly origin norms continue to influence behavior after migration (Guiso et al., 2006).

Our study is related to work on cultural transmission and immigrant assimilation in economic behavior (Abramitzky et al., 2014). Persistent cultural traits have been shown to affect outcomes such as savings, labor supply, and family formation (Alesina & Giuliano, 2015; Fernández & Fogli, 2006, 2009; Guiso et al., 2006; Luttmer & Singhal, 2011). A long tradition shows that immigrants' behavior, including fertility, converges toward host-country norms over time, especially by the second generation (Antecol & Bedard, 2006; Kahn, 1988; Parrado & Morgan, 2008). Complementing this evidence, a separate line of research finds that immigrants retain persistent markers of origin culture: fertility and labor-supply choices of second-generation women still reflect country-of-origin norms around family size and gender roles (Blau et al., 2015; Fernández & Fogli, 2006, 2009). Theoretical models formalize these patterns as intergenerational transmission of preferences and norms (Bisin & Verdier, 2000), and recent work shows that long-run cultural traits can shape fertility behavior in the absence of policy constraints (Bazzi et al., 2020; Beach & Hanlon, 2023). Our question fits into this literature by asking whether not only inherited norms but also current policy signals from the origin country matter for immigrant fertility.

We also build on recent evidence that China's One-Child Policy left a lasting imprint on fertility among immigrants.[1] Recent work on Chinese-born women in the United States indicates that those who spent more of their formative years under the One-Child regime have fewer children than those

[1] For evidence on the long-run effects of China's family-planning regime on fertility intentions and behavior within China, see, for example, Dong and Li (2025), Ebenstein (2010), Wang et al. (2017), and Zhang (2017).

with less exposure, even though neither group faces legal fertility limits after migration (Lin et al., 2025). This suggests that state-imposed family-size norms in China were internalized and carried abroad. In parallel, another strand of evidence indicates an "emancipation" effect, as Chinese women who migrated during the One-Child era were more likely than nonmigrants in China to have a second child once released from legal restrictions (Nie & Baizán, 2021). Together, these findings indicate both strong origin-country imprinting and scope for behavioral adjustment when constraints change.

We contribute to this literature by studying a different margin and a different type of policy shock. Instead of asking how a restrictive policy in the origin country shapes later behavior under no constraint, we ask whether a relaxation at origin operates as a pronatalist signal for immigrants already living in an unconstrained environment. We focus on the staggered easing of China's birth limits: the nationwide extension of an exception for only-child couples in 2011, the broader relaxation in 2013, and the introduction of a universal Two-Child Policy announced in late 2015 and effective from 2016. These reforms changed the message the Chinese state sent about "appropriate" family size (Zeng & Hesketh, 2016; Zhang, 2017).

We first document descriptive evidence on the salience of China's reforms for overseas Chinese, using crude birth rates and Chinese-language Google and Baidu search data. Taken together, these elements illustrate how China's Two-Child Policy, functioning as a cross-border signal, is associated with changes in the fertility intention or timing among Chinese in the United States. Empirically, we combine comprehensive and parity-specific birth data from U.S. Vital Statistics with a difference-in-differences (DID) design and a synthetic difference-in-differences (SDID) estimator (Arkhangelsky et al., 2021). For first-generation mothers, our main design compares births to mothers born in Chinese Mainland with births to immigrants from the Hong Kong, Macau, and Taiwan (HMT) regions, which share language and many cultural traits with Chinese Mainland but were never subject to its family-planning rules. As a robustness check, we also use Korean, Japanese, and Vietnamese immigrants as an additional comparison group for first-generation births. For U.S.-born women, we compare Chinese (including HMT) with other U.S.-born Asian women. We estimate DID models for county-level birth counts with two-way fixed effects and event studies to trace dynamic responses, and examine heterogeneity by the size of local Chinese communities. To relax parallel-trends assumptions and improve pre-treatment fit, we implement SDID estimation.

Conceptually, the observed response to China's policy signals can exhibit not only as changes in completed fertility, but also as shifts in the timing of childbearing. Couples who anticipate ultimately having two children may choose to start childbearing earlier in order to leave room for a second-order birth, so surges in births around policy reforms may reflect both additional births and earlier realization of planned births. This motivates our analysis of maternal age at birth and interbirth intervals.

Previewing our results, we find large and precisely timed fertility responses among first-generation Mainland Chinese mothers and much smaller responses among the U.S.-born mothers. In California, DID and SDID estimates imply about 60% additional births (roughly 4,500) per year to

first-generation Mainland Chinese mothers after 2016 compared with the pre-reform average, with strong increases at both second- and first-order births. These effects are largest in counties and states with sizable Chinese communities, consistent with policy signals diffusing through coethnic networks. For U.S.-born Chinese women, responses are modest and concentrated at first-order births. Birth-timing evidence points to an important tempo component: maternal age at first-order birth declines by 2 years and the interval between first- and second-order births shortens by around 5 months. Restricting the sample to interethnic couples, for whom return migration to China is implausible, yields qualitatively similar patterns, which argues against the alternative explanation that immigrants respond in anticipation of returning to China and complying with its rules. Taken together, the estimates indicate that a salient, nonbinding reform in China can generate sizable, temporally concentrated changes in second- and first-order births among Chinese immigrants even though the legal fertility regime in the United States is unchanged.

The remainder of the paper is organized into six sections. We introduce China's family-planning policies in Section 2 and provide descriptive evidence in Section 3. Section 4 describes the empirical approach and Section 5 introduces the data. Section 6 presents and discusses results on both levels and timing, and concluding remarks are presented in Section 7.

2 Policy Background

Family planning has been a central policy domain in China since the mid-twentieth century. Figure 1 traces the sequence of major fertility policy changes.

In 1956, the Central Committee of the Communist Party of China (CPC) first identified population growth as a national concern in the *Outline for the Development of National Agriculture (Revised Draft) 1956–1957*. This step laid the foundation for later initiatives that sought to slow fertility.

On 27 January 1979, the National Family Planning Work Conference adopted Document No. 69 and launched the One-Child Policy. This replaced the earlier guideline of at most two children with a one-child norm per family and accelerated the decline in fertility. Over time, however, the policy contributed to rapid population aging and a skewed sex ratio at birth (Bulte et al., 2011; Ebenstein, 2010).

During the 1980s, the central government introduced exemptions to reflect regional and social variation. Rural couples often received permission for a second-order birth when the first child was a girl, and ethnic minority families faced looser limits. By the late 2000s, most provinces had adopted a rule known as *shuāngdú*, under which couples could have a second-order child if both spouses were only children. In November 2011, Henan Province became the last province to implement this rule, so the exemption for only-child couples was effectively nationwide.

A broader relaxation followed on 15 November 2013 at the Third Plenary Session of the 18th CPC Central Committee. The so-called Selective Two-Child Policy *dāndú èrhái* allowed a second-order birth if at least one spouse was an only child. The reform expanded eligibility but generated

a smaller fertility response than expected, which highlighted underlying structural constraints such as high child-rearing costs and changing preferences (Zeng & Hesketh, 2016; Zhang, 2017).

On 29 October 2015, at the Fifth Plenary Session of the 18th CPC Central Committee, the government announced the Universal Two-Child Policy *quánmiàn èrhái*. Effective 1 January 2016, all married couples received the legal right to have two children, regardless of region, urban or rural status, or ethnicity. This reform formally ended the One-Child Policy era and marked the first comprehensive easing of birth limits since the late 1970s.

Figure 2 plots China's total fertility rate (TFR) from 1950 to 2015. Following the implementation of the One-Child Policy, China's TFR continued to decline and stagnated at roughly 1.1 even after the policy relaxation. In May 2021, the CPC Political Bureau announced a further shift to a Three-Child Policy.

For our purposes, the key policy shocks are the nationwide implementation of the *shuāngdú* exemption in 2011, the 2013 selective expansion, and the universal Two-Child Policy from 2016 onward. These discrete, widely publicized changes provide the timing we use in the empirical analysis to study behavioral responses among Chinese populations outside China.

3 Descriptive Evidence

We begin by presenting descriptive evidence that China's fertility reforms were salient to Chinese populations in the United States.

First, Figure 3 plots the crude birth rates (Panel (a)) and birth counts (Panel (b)) for Chinese populations in China and in the United States from 2000 to 2019. Both series for China are broadly flat through 2010, then show visible increases in 2012, 2014, and 2016, followed by a decline toward the end of the sample. The U.S. series for Chinese populations display similar and even larger upticks in 2012, 2014, and 2016. The alignment of these movements with the expected birth timing following the 2011, 2013, and 2015 policy announcements is consistent with the idea that the reforms heightened fertility salience for Chinese communities abroad, even though those communities were not legally subject to the policy.

Second, Figure 4 presents the Baidu Search Index, constructed from user search volumes on Baidu, for 'dāndú èrhái' (selective two-child) and 'quánmiàn èrhái' (universal two-child), providing a proxy for public attention to China's Two-Child Policy. Meanwhile, Figure 5 uses Google Trends data on the Chinese-language query 'huáiyùn' for pregnancy in the United States from 2004 to 2019 as a proxy for information seeking about fertility.[2] Panel (a) shows pronounced spikes in search intensity around the windows that correspond to the announcements and implementation of China's fertility reforms. Panel (b) maps average search intensity by state and shows the highest values in California and New York, which host large Chinese communities. The index is normalized by total population, not by the size of the Chinese population. As expected, it peaks in states with

[2]The Google Trends index reports relative search interest, not absolute volume. For a given term, region, and time span, Google normalizes the query's share of all searches in that region and period to a 0–100 scale, where 100 denotes the peak and lower values indicate proportionally lower interest.

substantial Chinese presence, which is consistent with fertility-related interest in China's reforms being concentrated where Chinese communities are larger.

Taken together, these figures indicate that China's policy changes were salient in time and place for Chinese populations in the United States. They are not causal evidence of fertility responses, but they support the premise that Chinese communities abroad were aware of and attentive to the reforms. The causal evidence comes from the DID approach described next.

4 Empirical Approach

We study whether fertility among Chinese mothers in the United States changed around China's Two-Child Policy reforms and whether any change differs across generations. Our empirical strategy combines a DID (difference-in-differences) framework with event-study and SDID (synthetic difference-in-differences) methods, and exploits variation in exposure across origin regions or ethnic groups and birth years.

4.1 Identification Strategy

The main idea is to compare birth outcomes for Chinese mothers to those of similar Asian-origin groups that were not directly subject to China's family-planning regime. We conduct separate analyses by generation and use two complementary control strategies.

For first-generation mothers, our preferred comparison is within China. The treatment group consists of mothers born in Chinese Mainland, and the control group consists of immigrants born in the HMT regions (Hong Kong, Macau, Taiwan). The HMT regions share language and many cultural traits with Chinese Mainland, and HMT immigrants to the United States have similar economic motives and selection patterns. However, they were never subject to Chinese Mainland's One-Child and Two-Child policies. This within-China comparison therefore sharpens the contrast in policy exposure while holding cultural and linguistic background relatively constant.

As a robustness check, we also use a broader control pool of other Asian immigrants. In this alternative specification, first-generation Mainland-born mothers are treated, and the control group comprises mothers born in Korea, Japan, and Vietnam. These origin countries are high-income or rapidly developing Asian societies that underwent similar demographic transitions and share family-oriented norms, making them a natural benchmark for Chinese immigrants in the United States.

For U.S.-born mothers, we compare U.S.-born women of Chinese ethnicity to U.S.-born women of other Asian ethnicity (Korean, Japanese, and Vietnamese). All of these women grew up in the U.S. institutional environment and did not directly experience China's family-planning system. Any response to reforms in China for this group must therefore operate through inherited norms, family communication, and ongoing cultural ties rather than direct institutional exposure. Comparing different generations allows us to assess how any policy spillover attenuates with generational distance from the origin country.

We align exposure with the timing of births that can respond to the reforms. The main announcements occurred in November 2011, November 2013, and late October 2015 (universal Two-Child Policy). Allowing for conception and gestation, births reflecting these changes should begin to appear in 2012, 2014, and 2016. We therefore define three post windows: 2012–2013, 2014–2015, and 2016 and later.

A key identifying assumption for DID is that, absent China's reforms, fertility for Chinese groups and their controls would have followed parallel trends. Figure 6a provides preliminary evidence by plotting crude birth rates for Chinese versus other Asian mothers from 2004 to 2011; trends are similar across groups in the pre-period. For the within-China comparison, given data availability, we plot the series of birth counts for Chinese Mainland and the HMT regions (Figure 6b) and find similar pre-trends. Our event-study estimates further probe parallel trends by examining pre-2012 coefficients, which are expected to be close to zero.

4.2 Model Specification

We implement three complementary approaches: a DID model with two-way fixed effects (TWFE), an event-study specification, and an SDID model. All models are estimated separately for the first-generation and U.S.-born mothers.

4.2.1 Two-Way Fixed Effects Model

We begin with a TWFE specification that averages effects by policy window:

$$\begin{aligned}\log\left(Y_{rct}\right) = {} & \beta_1 \, \mathbb{1}\{\text{Chinese}_r\} \times \mathbb{1}\{2012 \leq t \leq 2013\} + \beta_2 \, \mathbb{1}\{\text{Chinese}_r\} \times \mathbb{1}\{2014 \leq t \leq 2015\} \\ & + \beta_3 \, \mathbb{1}\{\text{Chinese}_r\} \times \mathbb{1}\{t \geq 2016\} + \alpha_{rc} + \gamma_{ct} + \epsilon_{rct},\end{aligned} \tag{1}$$

where Y_{rct} is the number of births to mothers of origin or ethnicity r in county c and year t. We estimate this model for total births and by parity, with particular emphasis on second-order births (the policy's direct target) and supplementary analysis for first- and third-or-higher-order births. The indicator $\mathbb{1}\{\text{Chinese}_r\}$ equals one for Chinese Mainland (or Chinese ethnicity, depending on the birthplace) and zero for the relevant control group (HMT or other Asians). The three period indicators partition the post period into 2012–2013, 2014–2015, and 2016 and later, aligned with the expected conception-to-birth timing following each reform. The baseline category is the pre-policy period 2004–2011.

In this log specification, β_1, β_2, and β_3 approximate percentage changes in births to Chinese mothers relative to the control group in each policy window, compared with the pre-period. Origin/ethnicity-by-county fixed effects α_{rc} absorb time-invariant differences across local ethnic communities, such as long-run enclave formation or persistent fertility norms. County-by-year fixed effects γ_{ct} absorb time-varying county shocks common to all groups, such as local labor market conditions or state-level policy changes. Standard errors are clustered at the origin/ethnicity-by-county level to allow for serial correlation within cells.

4.2.2 Event-Study Framework

We then estimate an event-study specification to assess pre-trends and dynamic responses. Let i index ethnicity-county cells and t index years. We estimate:

$$\log(Y_{it}) = \sum_{k \neq -1} \beta_k \, \mathbb{1}\{\text{Chinese}_i\} \times \mathbb{1}\{t - \tau_0 = k\} + \alpha_i + \gamma_{ct} + \epsilon_{it}, \tag{2}$$

where Y_{it} is birth counts in cell i and year t, $\tau_0 = 2012$ is the first year in which births can respond to the policy reform, and $\mathbb{1}\{t - \tau_0 = k\}$ is an event-time indicator. We omit $k = -1$ ($t = 2011$) so that all coefficients are relative to the year just before the first affected cohort. The fixed effects α_i and γ_{ct} are defined as above.

Under parallel trends, the pre-policy coefficients β_k for $k < 0$ should be close to zero. The event-study plots therefore provide a visual and statistical check of the identifying assumption. The coefficients for $k \geq 0$ trace the evolution of the treatment effect year by year and show whether responses are temporary or persistent and whether they line up with the expected timing of reforms.

We also conduct placebo tests that assign a hypothetical policy intervention to groups that should not be affected by China's reforms. For example, we designate mothers from the Taiwan region as "treated" and compare them to other origins. Since China's policy should not influence these groups, estimated post coefficients should be small and statistically insignificant, providing an additional check against spurious trends.

4.2.3 Synthetic Difference-in-Differences

To relax the parallel-trends assumption in the event-study specifications, we implement the SDID estimator of Arkhangelsky et al. (2021). SDID combines elements of synthetic control and DID by choosing unit and time weights that closely match treated and control units in the pre-period.

Let i index ethnicity-by-county cells and t years. We implement the approach in two steps. First, SDID chooses nonnegative unit weights ω_i on the control cells and time weights λ_t on the pre-policy years. The unit weights are selected so that a weighted average of control outcomes closely matches the pre-2011 path of Chinese outcomes, while the time weights emphasize pre-policy years that best predict post-policy outcomes for the controls. Second, we estimate a weighted version of Equation 2 that solves:

$$\min_{\beta_k} \left\{ \sum_{i=1}^{N} \sum_{t=1}^{T} \left(\log Y_{it} - \sum_{k \neq -1} \beta_k \, \mathbb{1}\{\text{Chinese}_i\} \times \mathbb{1}\{t - \tau_0 = k\} - \alpha_i - \gamma_{ct} \right)^2 \hat{\omega}_i^{\text{sdid}} \hat{\lambda}_t^{\text{sdid}} \right\}, \tag{3}$$

For comparison, the conventional DID estimator solves the same problem without unit or time weights:

$$\min_{\beta_k} \left\{ \sum_{i=1}^{N} \sum_{t=1}^{T} \left(\log Y_{it} - \sum_{k \neq -1} \beta_k \, \mathbb{1}\{\text{Chinese}_i\} \times \mathbb{1}\{t - \tau_0 = k\} - \alpha_i - \gamma_{ct} \right)^2 \right\}, \tag{4}$$

To construct 95% confidence intervals, we use bootstrap procedures clustered at the ethnicity-county level with 1,000 replications.

Compared with conventional DID, SDID allows for differential weighting of control units and a more flexible adjustment for pre-trend differences. In our context, it would provide a stringent robustness check: if the SDID counterfactual closely tracks Chinese-origin fertility before 2012, then post-2012 divergences can be more plausibly attributed to the reforms rather than to pre-existing differences between Mainland Chinese and control groups.

5 Data

5.1 Data Sources

We use restricted-use Vital Statistics Natality data from 2004 to 2019 compiled by the National Center for Health Statistics.[3] These administrative records cover nearly all live births in the United States and report exact dates of birth and rich parental demographics.

Several features of the natality data are central for our analysis. First, they record detailed single-ethnicity information for Asian mothers, including Chinese, Vietnamese, Korean, Japanese, Filipino, and Asian Indian. This allows us to construct treatment and control groups as defined above. Second, they report the mother's birthplace, which we use to distinguish first-generation immigrants, born in the origin region, from U.S.-born mothers, born in the United States. Third, they record live birth order, identified as first, second, third, or higher, which is essential for examining parity-specific responses to China's Two-Child Policy reforms.

From the microdata, we aggregate total live births to the county-year level and cross-classify by maternal single Asian ethnicity, mother's birthplace, and birth order. This yields annual county-by-ethnicity-by-generation-by-parity panels for first-order, second-order, third-order, and higher-order births, as well as total births. The observation window 2004–2019 provides eight pre-policy years (2004–2011) and eight post-policy years (2012–2019).

5.2 Geographic Focus

Our main analysis focuses on California, which is motivated by both data quality and substantive relevance. Results for other states are presented in the Appendix.

On the data side, California's vital statistics have very high completeness in reporting maternal ethnicity and birthplace back to 2004, especially for foreign-born mothers.[4] This reduces misclassification in our treatment and control definitions. Substantial variation, especially during the earlier years of our sample, exists across states in the quality of these fields, and some states

[3] Data prior to 2004 lack consistent detail on foreign-born mothers' birthplace and specific Asian ethnicity, so we begin the sample in 2004.

[4] The average reporting rate for detailed maternal ethnicity and birthplace is 84% nationwide and 98.5% in California. To ensure that high overall reporting is not driven solely by native-born mothers, we also check birthplace reporting for mothers who are neither White, Black, nor American Indian. The average reporting rate for this criterion is 76.0% nationwide and 99.8% in California.

do not consistently distinguish specific Asian ethnicity. By concentrating on California, we limit noise from inconsistent coding.

Substantively, California accounts for roughly 40% of all births to Chinese mothers in the United States and hosts one of the largest and most established Chinese immigrant communities. The size and density of Chinese populations in metropolitan areas such as Los Angeles and the San Francisco Bay Area generate dense coethnic networks and ready access to Chinese-language media. These features are likely to enhance the transmission of information and norms about family-planning policies in China. If China's reforms induced any measurable response among overseas Chinese, California is a natural place to detect it.

We aggregate births at the county-year level because the transmission channels we hypothesize—coethnic networks, Chinese-language media, and community-level information flows—operate locally. County-level variation allows us to separate responses that covary with local exposure to China's policy signal from national fertility trends common to all groups, and to test whether effects concentrate in areas with larger Chinese communities.

5.3 Summary Statistics

Table 1 reports summary statistics for California births by ethnicity and generation for the pre-reform period 2004–2011. Panel (a) presents the within-China comparison among first-generation mothers. Immigrants from Chinese Mainland account for 48,805 births. Among these, 41.47% are second-order births and 9.19% are third-order or higher. Birth spacing for Mainland Chinese mothers averages 55.63 months, compared with about 40 months for mothers from Hong Kong, Macau, and Taiwan. This difference is consistent with stricter family-planning enforcement in Chinese Mainland. Educational attainment is lower among Mainland Chinese mothers, at 86.72% with high school or higher, compared to above 96% in the HMT group, which suggests socioeconomic differences across origin regions.

Table A1 also reports summary statistics for first-generation mothers of other Asian ethnicity. The average birth spacing of Mainland Chinese mothers is similar to Vietnamese mothers, at around 51 months. The average age at birth for Mainland Chinese mothers is 32.97 years, close to Vietnamese at 32.15 and Korean at 32.60. Educational attainment of Mainland Chinese mothers is more comparable to Japanese, with 76% holding a bachelor's degree. Ethnic assortative matching is strong: 82.50% of Mainland Chinese mothers have a partner of the same ethnicity, similar to Vietnamese at 81.60% and Korean at 78.87%.

Table 1 panel (b) summarizes births for U.S.-born mothers. Chinese Americans account for 15,728 births in the pre-period. Second-order and higher-order births represent 35.84% and 12.43% of deliveries, respectively. Average birth spacing for U.S.-born Chinese mothers is 38.91 months, similar to Korean mothers. Educational attainment remains high: 95.41% of Chinese mothers have at least a high school education, similar to Korean mothers at 94.66%. Patterns of assortative matching shift, with only 43.63% of U.S.-born Chinese mothers partnered with a father of the same ethnicity. This is close to Korean mothers at 47.09% and reflects higher intermarriage in the

U.S.-born mothers.

Across the full 2004–2019 period in California, within the China-only comparison for the first generation, there are 182,323 births to Mainland Chinese mothers and 58,152 births to HMT mothers. The pooled control groups (Korean, Japanese, and Vietnamese) account for 186,247 first-generation and 43,830 U.S.-born births.

Table 2 reports county-level summary statistics of annual birth counts for California by ethnicity and generation, the key outcome variables in our main analysis. Standard deviations often exceed means, reflecting substantial cross-county concentration of Asian-origin populations in a few large metropolitan areas.

6 Results

To examine whether China's family-planning reforms generated measurable fertility responses among Chinese immigrants and their descendants in California, we organize the empirical evidence in five steps. First, we estimate TWFE models for birth counts. Second, we examine dynamic responses using event-study designs. Third, we restrict the sample to interethnic couples to address the concern that immigrants may respond in anticipation of returning to China. Fourth, we implement SDID as a robustness check. Fifth, we analyze changes in the timing of births.

6.1 Baseline Difference-in-Differences

Table 3 reports TWFE estimates by generation and birth order. Panel (a) compares first-generation mothers from Chinese Mainland (treated) to immigrants from the HMT regions (control). The HMT regions share language and many cultural traits with Chinese Mainland, but were never subject to the One-Child or Two-Child policies. In this within-China design, total births to Mainland-born mothers rise by about 29.5% in 2012–2013, 55.3% in 2014–2015, and 75.1% from 2016 onward, relative to 2004–2011. Evaluated at the pre-treatment mean of 6,086 births per year, these coefficients imply roughly 1,800, 3,400, and 4,600 additional births per year in the respective windows. These magnitudes indicate that a nonbinding policy signal at origin can generate large changes in diaspora behavior, as reflected in fertility, even when legal constraints in the host country remain unchanged.

Parity-specific coefficients in Panel (a) show consistent increases at all birth orders. We begin with second-order births, the direct margin targeted by China's policy reforms. Second-order births increase by about 26%, 42%, and 61% across the three windows. Given a pre-treatment mean of 2,524 births, the post-2016 coefficient implies roughly 1,500 additional second-order births annually. The growing magnitudes across windows are consistent with the signal of a two-child norm becoming stronger over time, as successive reforms and continued media coverage reinforced that having two children was increasingly permitted and encouraged in Chinese Mainland. Such a signal may increase desired family size or induce earlier realization of previously intended second-order births.

First-order births, capturing entry into parenthood, also respond strongly: they rise by about 29%, 55%, and 61% across the windows. With a pre-treatment mean of 3,004 births, the post-2016 effect corresponds to roughly 1,800 extra first-order births per year. This pattern is consistent with shifts in both fertility intentions and timing of parenthood. The policy signal can encourage couples to have at least one child, and couples anticipating a two-child family may elect to start childbearing earlier to leave room for a second-order birth.

Estimates for U.S.-born women in Panel (b) are much smaller and are concentrated at first-order births. Relative to other U.S.-born Asian women, second-order births to U.S.-born Chinese women (including those of HMT origin) show no significant response to the reforms. By contrast, first-order births rise by 18.9% in 2012–2013 and 29.1% from 2016 onward; at the baseline mean of 1,012 births, the post-2016 effect implies about 300 additional first-order births. Third- and higher-order births show statistically significant gains in later windows, but the economic magnitude is modest given small pre-treatment means. Although U.S.-born women grew up outside China's institutional environment, the modest increases in first-order births suggest that the reforms could still enter their information set through family networks, community discussions, and media consumption, consistent with Beach and Hanlon (2023). The much weaker responses relative to the first generation point to rapid attenuation of origin-country influence across generations, despite some sensitivity to salient policy signals.

Panel (c) provides an alternative comparison group: other Asian immigrants (Korean, Japanese, and Vietnamese). The parity-specific pattern mirrors Panel (a), with robust increases at all birth orders. In this broader design, second-order births increase by about 38.9%, 59.3%, and 86.0% across the three windows; at the pre-treatment mean of 2,526 births, the post-2016 coefficient implies roughly 2,200 additional second-order births. The somewhat larger percentage changes in Panel (c) are consistent with other Asian immigrants providing a less matched counterfactual than HMT immigrants, potentially overstating the magnitude of the Mainland policy signal. Accordingly, the Chinese Mainland–HMT comparison in Panel (a) is our preferred specification; estimates using other Asian control groups are reported in the Appendix.

6.2 Event-Study Dynamics

To test pre-trends and trace the timing of responses, Figure 7 and Table 4 present event-study estimates from Equation 2. For first-generation mothers (Figure 7, Panels (a), (c), and (e)), pre-2012 coefficients for total, second-, and first-order births are near zero, supporting the parallel-trends assumption. After 2012, the trajectories rise steadily. Focusing on second-order births, coefficients move from near zero before 2012 to 23.9% in 2012 and stabilize around 50–60% from 2016 onward. The gradual buildup and persistence mirror the chronology of China's reforms and are consistent with increasingly salient signals encouraging two-child families. These signals may both raise desired family size and accelerate the timing of intended second-order births for Chinese abroad.

First-order births also follow an upward trajectory, reaching about 63.7% by 2016. This sug-

gests that Chinese couples respond not only by adding second-order births, but also by entering parenthood earlier, anticipating a two-child family and adjusting the timing of the first-order birth accordingly. The joint pattern for first-order and second-order births reinforces the interpretation that both the extensive and intensive margins of fertility are influenced by origin-country policy signals.

For U.S.-born Chinese women, compared to other U.S.-born Asians, the dynamic profiles are much smaller. Pre-2012 coefficients show no evidence of divergent trends. After 2012, estimates for second-order births remain small and statistically insignificant, while first-order births show modest increases of about 18.3% in 2012 (significant at the 10% level) and 28.6% in 2018. These patterns indicate that policy signals from China do reach the descendants of immigrants but with much weaker and shorter-lived effects, concentrated at the first-order birth rather than the policy-targeted order. This contrast between generations underscores how quickly the influence of origin-country policy attenuates once individuals are socialized in a different institutional environment.

To validate the results, we conduct placebo event studies by assigning pseudo-treatment to groups unlikely to respond to Mainland's fertility reforms. Figure 8 assigns mothers from the Taiwan region as the pseudo-treated group; Figure A2 repeats the exercise for Japanese, Korean, and Vietnamese groups. Across all specifications, coefficients fluctuate around zero and show no systematic increases around the reform years. These falsification tests reinforce that the observed treatment effects for Mainland-born mothers are not driven by broader fertility shifts among Asian immigrants, but rather reflect responses specific to groups with direct exposure to Mainland policy signals.

6.2.1 Interethnic Couples and the Compliance Hypothesis

A potential concern with our main results is that first-generation Mainland Chinese mothers may intend to return to China after giving birth in the United States, in which case the observed fertility responses could partly reflect anticipated compliance with family-planning rules rather than a cultural or informational channel. To address this, we restrict the sample to births in which the Chinese-origin parent is partnered with a spouse of a different ethnicity. Interethnic couples substantially reduce the likelihood of return migration, because the non-Chinese spouse typically lacks the ties that would make relocation to China feasible.

Table 5 Panel (a) reports TWFE estimates for first-generation Mainland Chinese mothers in interethnic couples. Total births rise by 10.8% in 2012–2013, 26.4% in 2014–2015, and 41.0% from 2016 onward. First-order births respond throughout the reform sequence (15.9%, 26.2%, and 39.1%), while second-order births show a delayed response, reaching 30.2% from 2016 onward. Event-study estimates (Figure 9, Panels (a), (c), (e)) show pre-reform coefficients close to zero and a clear upward shift after 2012, with total births reaching roughly 44–48% by 2018–2019.

Panel (b) reports TWFE estimates where treatment is defined by the father being Chinese (including HMT). Total births rise by 13.9%, 21.7%, and 31.9% across the three reform windows, all significant at the 1% level. Second-order births increase by 12.9%, 17.7%, and 25.4%, and first-

order births rise by 10.2%, 15.6%, and 22.7%. Event-study dynamics (Figure 9, Panels (b), (d), (f)) show generally insignificant pre-trends and steadily rising post-reform trajectories.

Both specifications yield significant and reform-aligned fertility increases among couples where one parent is not of Chinese origin, a group for whom return migration to China is less likely. The mother-defined estimates show larger point estimates than the father-defined estimates. The difference in magnitudes across parental roles is consistent with fertility decisions being more directly shaped by the mother's cultural background. A caveat is that partner selection is endogenous: Chinese immigrants who enter interethnic couples may differ systematically from coethnic couples in their attachment to origin-country norms. If individuals with weaker ties to Chinese culture are more likely to form interethnic partnerships, the estimates here may represent a lower bound on the cultural transmission channel.

6.2.2 Heterogeneous Analysis by Local Community Size

To explore whether fertility responses vary with the size of local coethnic networks, we compare counties with large and small Chinese communities. If information about China's reforms circulates partly through social networks and information channels, then policy signals may be more salient in areas with larger Chinese populations.

Figure 10 (Panels (a)–(d)) and Table 7 show clear heterogeneity for first-generation mothers. In counties with large Chinese communities (top quartile), both second- and first-order births increase steeply after 2012 and peak around 2016. Interaction coefficients indicate these counties experience additional increases of 50–70% for second-order births and 50–75% for first-order births in later years. In counties with small Chinese communities, effects are much flatter and less significant. This pattern is consistent with stronger information flows and social reinforcement of origin-country norms in larger coethnic communities.

For U.S.-born Chinese women (Figure 10, Panels (e) and (f)), the differences are smaller but qualitatively similar: counties with large Chinese communities exhibit larger and more significant increases in first-order births compared to counties with small ones. This suggests that even for the U.S.-born mothers, local coethnic density can amplify sensitivity to origin-country policy changes.

These patterns are consistent with local co-ethnic context shaping the magnitude of fertility responses and provide suggestive evidence that network-based information diffusion may amplify exposure to Mainland reforms. However, larger Chinese communities may differ in socioeconomic composition or migration timing in ways unrelated to policy signals. Thus, while counties with larger Chinese populations display more pronounced and time-aligned fertility increases, this relationship should be interpreted cautiously given possible selective residential sorting and unobserved county-level heterogeneity.

6.3 Synthetic Difference-in-Differences

We implement the SDID estimator of Arkhangelsky et al. (2021) as a robustness check. SDID combines features of synthetic control and DID, producing data-driven unit and time weights that

improve pre-treatment balance and reduce sensitivity to potential violations of parallel trends.

Table 8 shows that for first-generation mothers, SDID produces dynamic estimates closely mirroring the event-study results: modest increases beginning in 2012, sharp rises in 2014, and peaks around 2016–2018. The time-averaged ATT over 2012–2019 indicates sizable increases: about 47.5% for second-order births and 49.2% for first-order births. Figure 11 confirms that the synthetic counterfactual tracks the observed pre-policy outcomes closely and then diverges systematically after the reforms. These results reinforce the interpretation that the observed fertility changes are closely tied to the timing of China's policy shifts rather than to pre-existing trend differences between Mainland Chinese mothers and the HMT controls.

For U.S.-born Chinese women (Table 8, Panel (b) and Figure 12), SDID estimates are small for second-order births and modest for first-order births, consistent with earlier findings. The time-averaged ATT for first-order births is around 15.5%, while second-order births show no statistically significant response. This again suggests that origin-country policy signals primarily affect entry into parenthood for the U.S.-born mothers and have limited influence on higher-order fertility.

To assess external validity, we replicate SDID in other states with high reporting rates of maternal ethnicity and birthplace records. Figure A3 shows similar results: large, time-aligned increases for first-generation mothers in states with sizeable Chinese communities, and smaller, lagged, and less significant effects in states with smaller communities. The results are consistent with weaker information flows in smaller coethnic populations. For U.S.-born Chinese women, responses remain modest and concentrated at the first-order birth.

Overall, SDID reinforces the main patterns seen in California: fertility among first-generation Mainland Chinese mothers rises significantly following China's fertility policy reforms, whereas responses among U.S.-born Chinese women are far weaker. In combination, these patterns show how the behavioral reach of an origin-country policy diminishes with generational distance and weaker diaspora networks.

6.4 Birth Timing Analysis

Finally, we examine whether China's reforms affected not only birth counts but also the timing of births. Shorter birth intervals may reflect either earlier timing (tempo effects, moving already-planned births forward) or increases in completed fertility (quantum effects, additional births that would not have occurred absent the policy). Given that our data cannot fully disentangle these channels, the timing analysis is descriptive and complements the level results.

For this analysis, we focus on first-generation Mainland Chinese mothers and retain the same within-China comparison with HMT immigrants. Figure 13 compares maternal age at birth in 2010 (pre-policy) and 2016 (a key reform year). For both second-order births (Panel (a)) and first-order births (Panel (b)), the age distributions become slightly younger and more compressed. Between 2010 and 2016, the median age at first-order birth declines from 30 to 29, and the modal age shifts from 31 to 28, consistent with some advancement of first-order births and earlier entry into parenthood.

To formalize these patterns, we present SDID estimates for maternal age at birth and for birth intervals in Table 9. The SDID trajectories for maternal age (Figure 14) show a clear downward shift after 2012 for both second-order and first-order births. The effect is more pronounced for first-order births, which on average are 5.8% earlier than 2011, roughly 2 years. Birth-interval estimates (Figure 15) indicate that intervals since the first-order birth shorten around 2016 by 11.2%, about 5 months, and remain shorter through 2019. This is consistent with families accelerating their transition to a second child as two-child families gained legitimacy and salience in the origin-country context. By contrast, intervals between second-order and third-order births show little systematic change, suggesting that the reforms primarily affected progression to a second child rather than higher parities.

Both tempo and quantum effects can compress birth intervals, so the timing evidence should be interpreted as illustrating how the reforms reshaped the flow of births over time rather than as a clean decomposition of mechanisms. Taken together with the birth-count results, the estimates indicate a coherent pattern: a salient, nonbinding origin-country reform shifted both the number and timing of births among Chinese immigrants in the United States, with particularly large adjustments among first-generation mothers at the transition to a second child. We view this as one evidence in which origin-country policy changes shift the behavior of migrants who are already living under different formal rules.

7 Conclusion

China's staged relaxations of its birth limits between 2011 and 2016 created a rare large-scale policy experiment. The reforms were introduced in one of the world's largest economies, were accompanied by intense public discussion, and never applied outside China's borders. We use this setting to ask whether a nonbinding origin-country policy can shift the behavior of immigrants abroad and, if so, how far that influence travels across generations.

Drawing on complete U.S. Vital Statistics for 2004–2019 and the DID framework, we show that the answer is yes, but in a way that depends strongly on generational distance and community context. For first-generation mothers, our preferred design compares births to Chinese Mainland women with births to immigrants from the HMT regions, which share language and many cultural traits with Chinese Mainland but were never covered by Mainland's fertility limits. In California, these estimates imply 60% additional births (roughly 4,500) per year to first-generation Mainland Chinese mothers after 2016 relative to the pre-reform average, with strong responses at both second- and first-order births. Alternative specifications that use other Asian immigrants as controls yield similar but somewhat larger percentage effects. U.S.-born Chinese Americans show much smaller and more short-lived responses, concentrated at first-order births. Across both generations, effects are largest in counties and states with sizable Chinese communities, consistent with policy signals diffusing through coethnic networks rather than operating purely through individual exposure.

The findings have important implications for the design and evaluation of policy in settings

with large diasporas, and our fertility evidence shows how such policy can shape behavior beyond national borders. Evaluations of origin-country fertility reforms could extend beyond domestic birth outcomes and consider how highly publicized changes in family-planning rules shift the birth intention and timing among migrants abroad. Although China's shift toward a two-child norm was motivated by concerns about low fertility and rapid aging within its borders, our results suggest that it also induced sizable, temporally concentrated increases in second- and first-order births among Chinese immigrants in major destination regions.

More broadly, the results contribute to work on cultural transmission and immigrant assimilation by shifting attention from inherited long-run traits to contemporaneous policy signals from the origin country. Existing research has shown that origin norms leave a lasting imprint on fertility and labor supply (Blau et al., 2015; Fernández & Fogli, 2006, 2009). Our study adds that current policy debates and legal changes at origin can reshape the behavior of immigrants who are already living under different laws, and that these effects can be large in absolute terms when linked to a reform in a country of China's demographic and economic size. Fertility is the outcome we observe, but the mechanism we highlight, information flows and social norms transmitting policy signals across borders, is likely to matter in other behavioral domains as well.

Two limitations remain. First, we do not observe individual exposure to Chinese-language media or specific social networks, so we infer mechanisms from timing, geography, and group comparisons rather than from direct measures of information flows. Future work could combine administrative birth records with data on media consumption or online networks, examine heterogeneity by parental age and education, and study whether similar cross-border responses arise for other salient origin-country reforms in fertility or related domains.

A second limitation is that our data do not allow us to cleanly separate whether the observed responses primarily reflect higher completed fertility or earlier realization of previously intended births. The decline in maternal age at first-order birth and the shortening of the second-birth interval point to a substantial timing component: couples appear to move childbearing forward once a two-child norm becomes more salient and legitimate. Conceptually, a reform that both raises desired fertility and encourages earlier childbearing has an ambiguous net effect on mothers' age at birth, and our estimates capture this combination of mechanisms rather than isolating each channel separately.

Despite these limitations, the evidence is clear: a major policy shift in China's fertility regime echoed across the Pacific and altered the number and timing of births among Chinese immigrants in the United States. This "homeland echo" helps explain how origin-country institutions and norms continue to shape behavior in the diaspora and highlights a channel through which large emerging economies can influence population dynamics far beyond their own borders.

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Figures

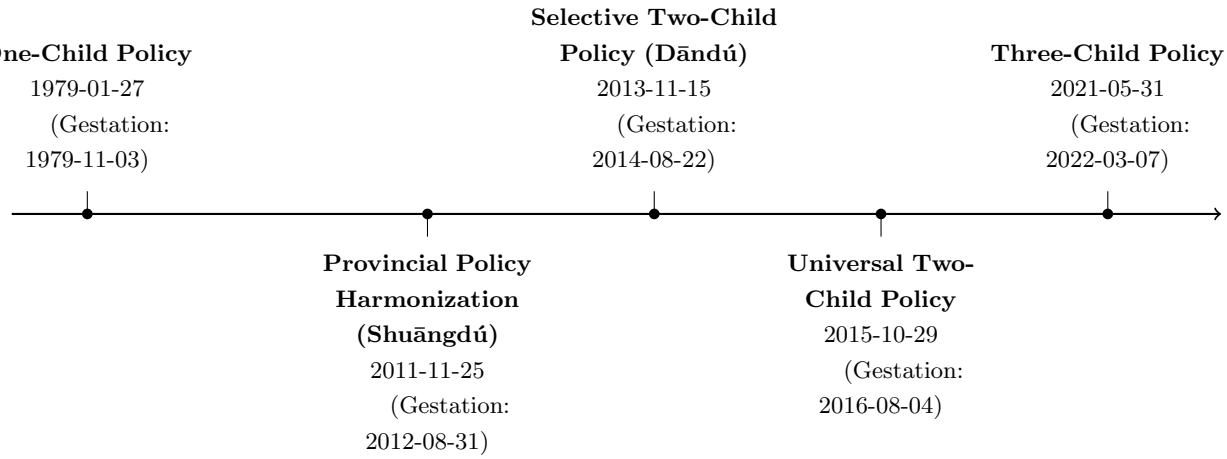


Figure 1: Timeline of China's Family Planning Policy Reforms

Notes: The dates in parentheses indicate the approximate dates when births affected by each policy reform would occur, assuming a standard gestation period of 280 days (40 weeks) after the policy announcement date.

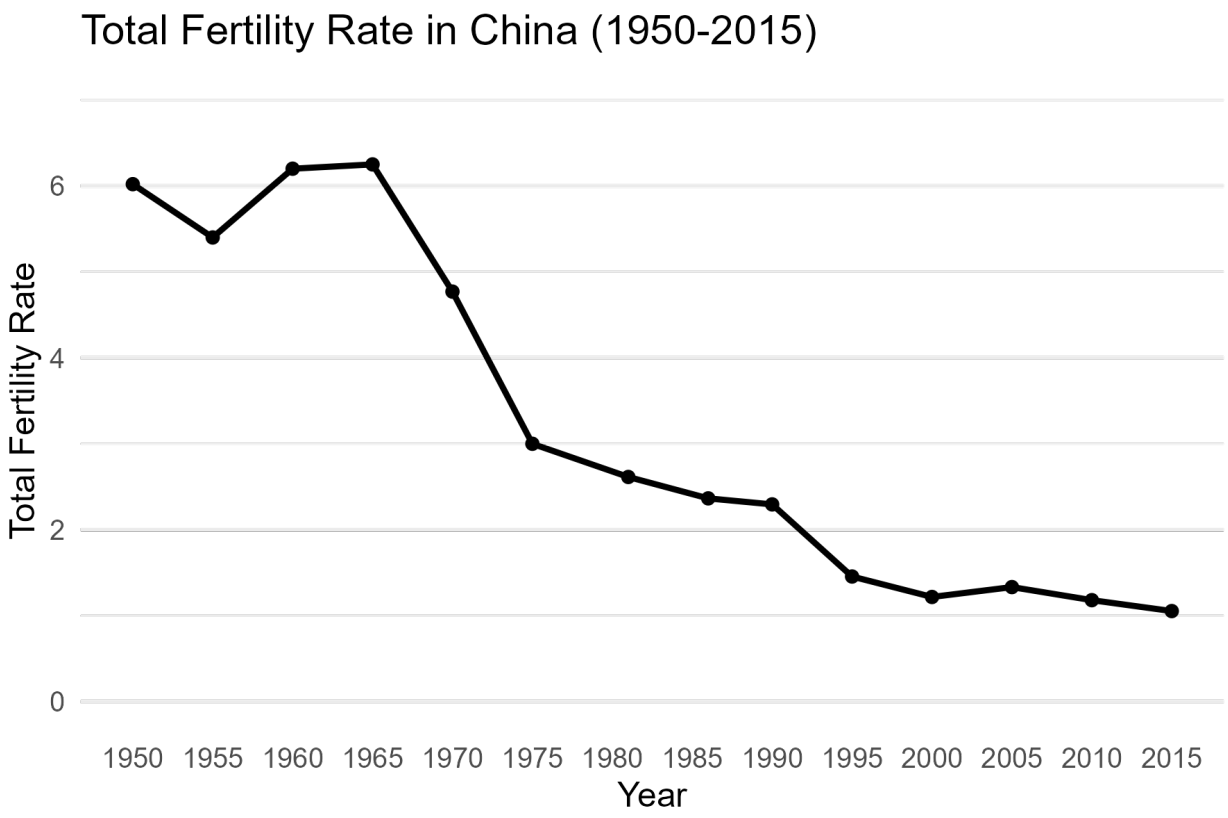
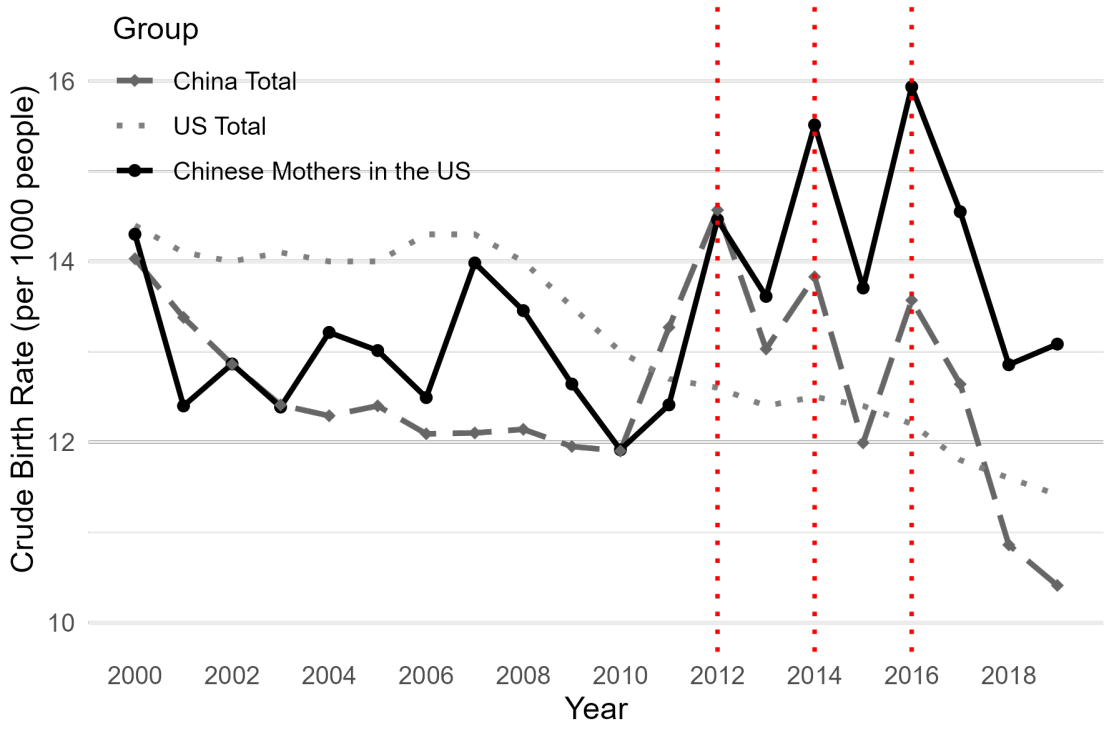
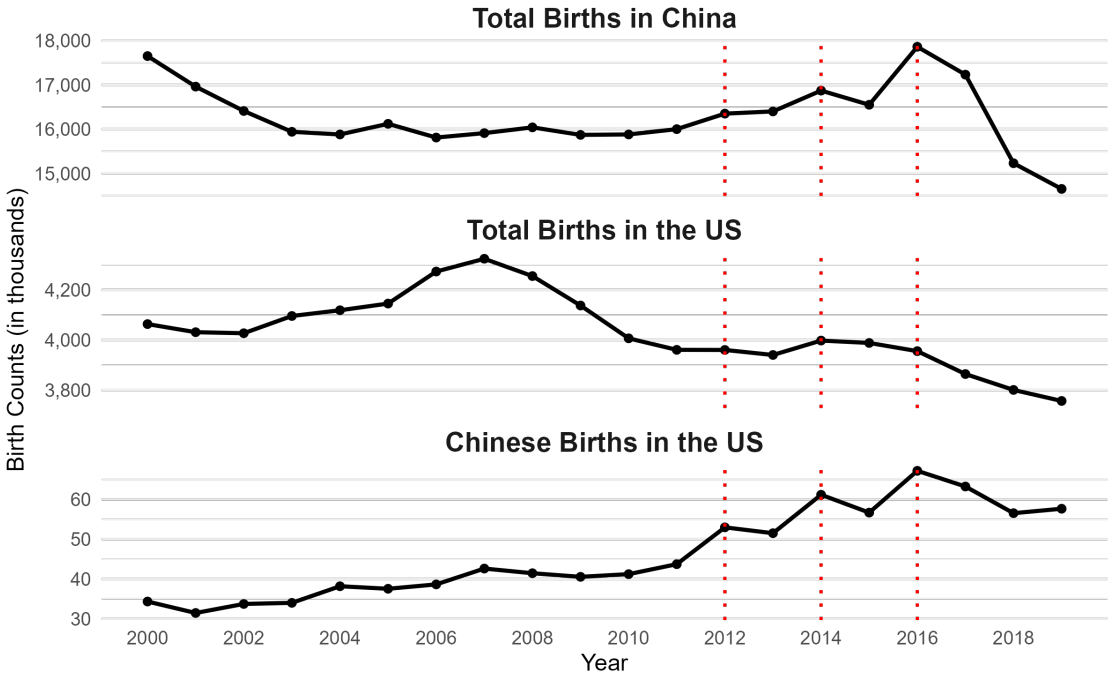


Figure 2: China's Total Fertility Rate over 1950–2015.

Notes: The Total Fertility Rate (TFR) represents the projected number of children a woman would have over her lifetime based on current age-specific fertility rates. Data sourced from the United Nations and National Population Census of China.



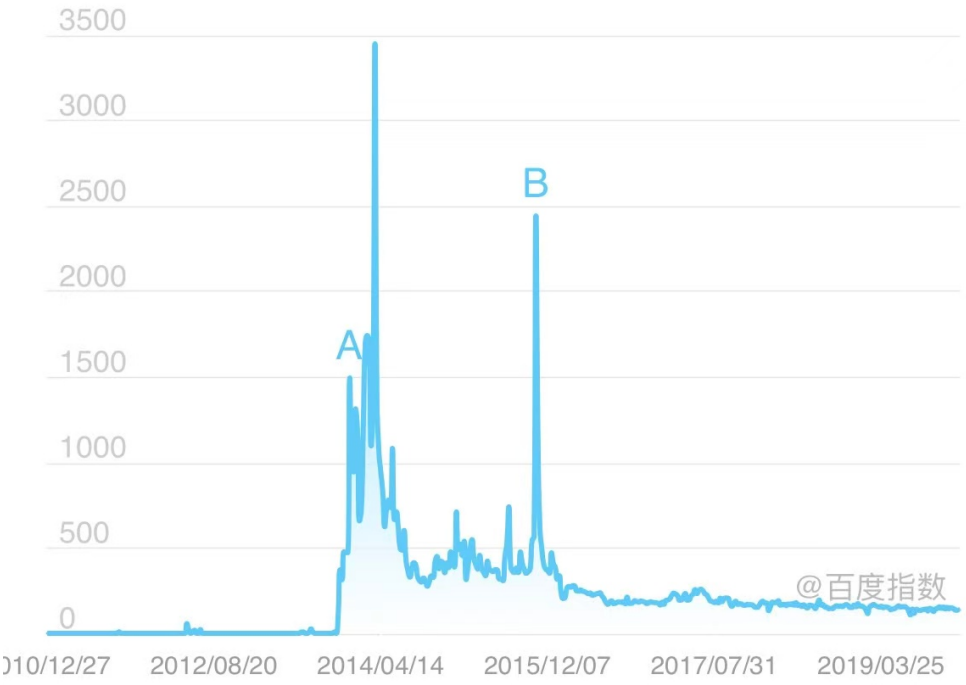
(a) Crude Birth Rate in China and for Chinese Mothers in the United States



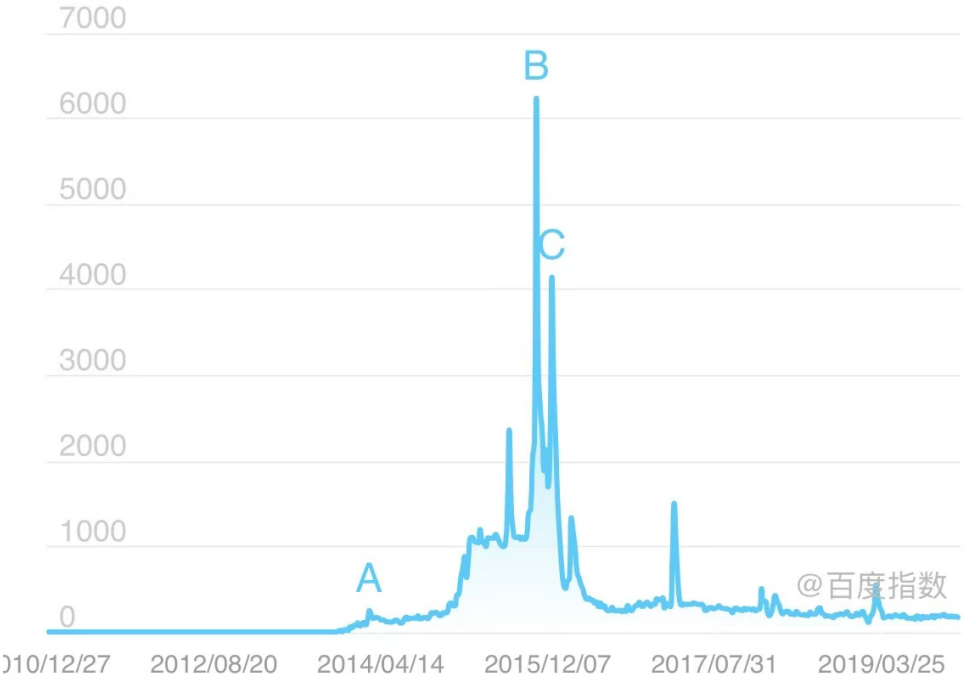
(b) Birth Counts in China and for Chinese Mothers in the United States

Figure 3: Birth Trends in China and for Chinese Mothers in the United States over 2000–2019.

Notes: The crude birth rate (CBR) is calculated as the number of live births per 1,000 persons in the group. Vertical dashed lines (red) indicate the expected birth timing corresponding to China's major Two-Child Policy reforms (i.e., November 2011, November 2013, and October 2015): 2012, 2014, and 2016, respectively. Data sourced from the National Center for Health Statistics Vital Statistics Birth Data, the American Community Survey, and the National Bureau of Statistics of China.



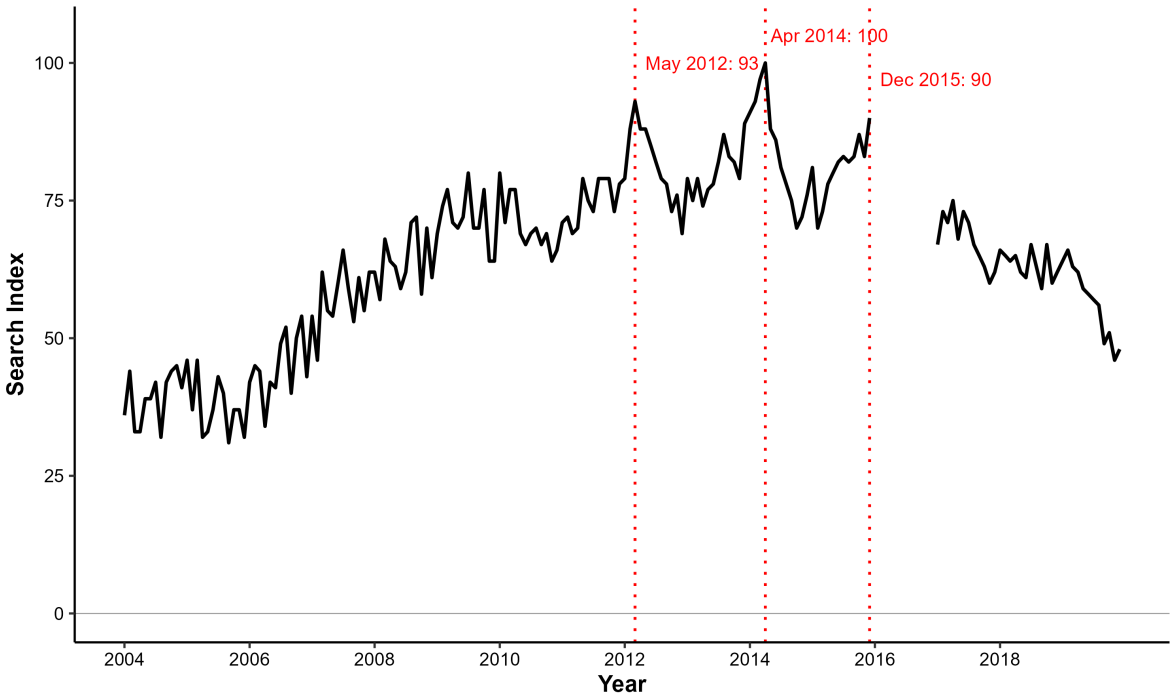
(a) Baidu Search Index for 'dāndú èrhái' (Selective Two-Child)



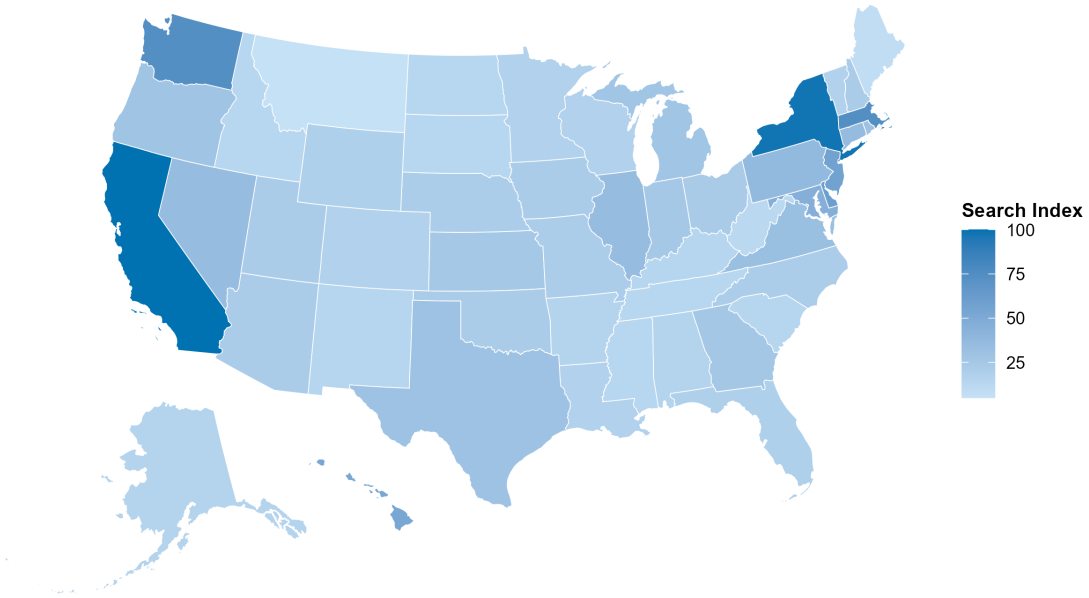
(b) Baidu Search Index for 'quánmiàn èrhái' (Universal Two-Child)

Figure 4: Baidu Search Index for the Chinese-Language Query 'èrhái' (Two-Child) over 2010–2019.

Notes: Baidu Search Index is normalized based on the search volume of internet users on Baidu. Data sourced from Baidu Index. (These are screenshots from Baidu Index, we may try to get the raw data for plotting.)



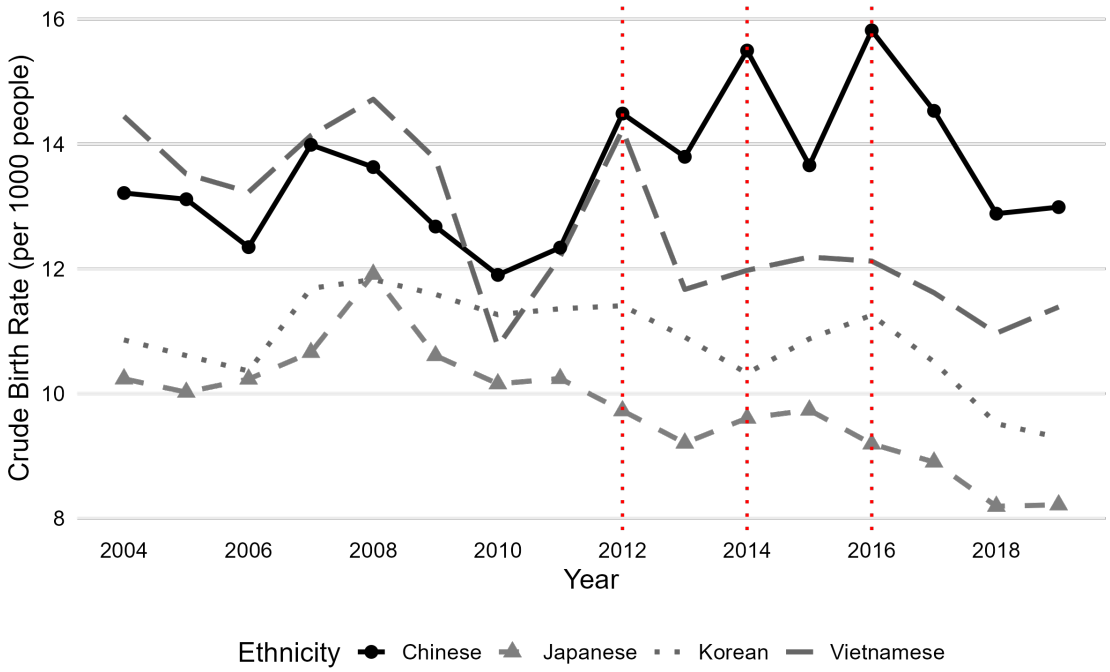
(a) Monthly Search Index for 'huáiyùn'



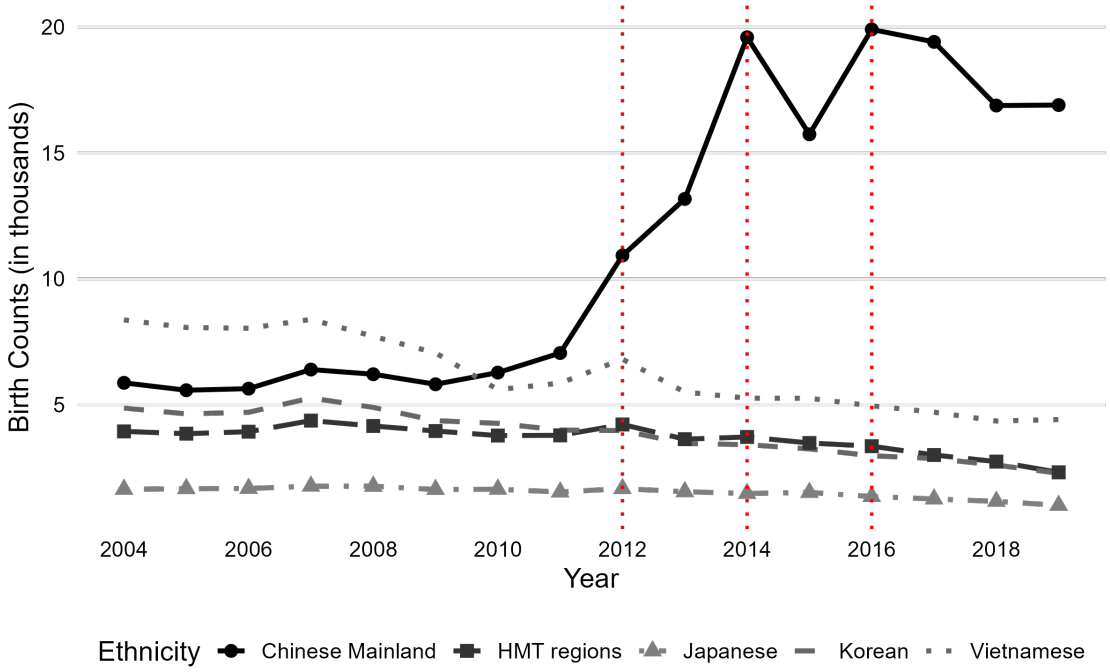
(b) Average Search Index by State (darker = higher, not adjusted for Chinese population size)

Figure 5: Google Trends Search Index for the Chinese-Language Query 'huáiyùn' (Pregnancy) in the United States over 2004–2019.

Notes: Google Trends indexes indicate relative search intensity, not absolute search volume: for a given term, region, and time span, Google normalizes the query's share of all searches in that region and period to a 0–100 scale, where 100 denotes the peak popularity in the selected window and lower values indicate proportionally lower interest. Data sourced from Google Trends. In panel (a), missing data for 2016 due to algorithmic changes. Vertical dashed lines (red) mark months with search spikes.



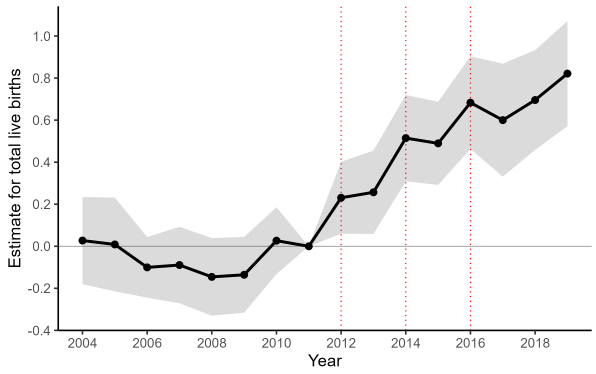
(a) Crude Birth Rate in the United States by Asian Ethnicity



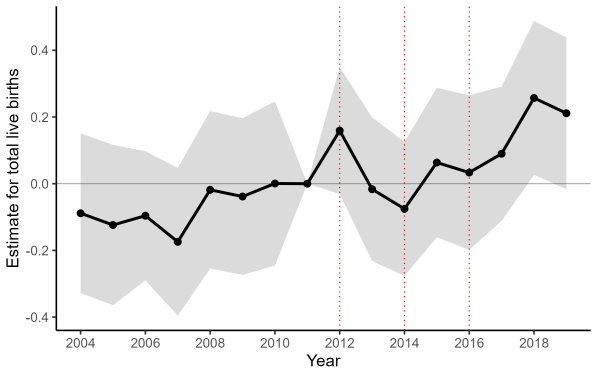
(b) Birth Counts for First-Generation Mothers in California by Asian Ethnicity

Figure 6: Birth Trends for Asian Mothers in the United States over 2004–2019.

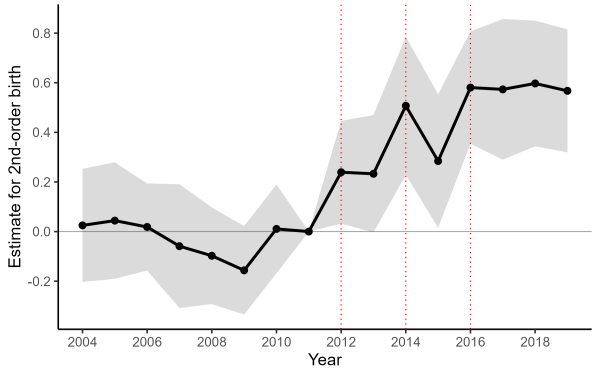
Notes: The crude birth rate (CBR) is calculated as the number of live births per 1,000 persons in the specified ethnic group. Vertical dashed lines (red) indicate the expected birth timing corresponding to China's major Two-Child Policy reforms (i.e., November 2011, November 2013, and October 2015): 2012, 2014, and 2016, respectively. Data sourced from the National Center for Health Statistics Vital Statistics Birth Data, the American Community Survey, and the National Bureau of Statistics of China.



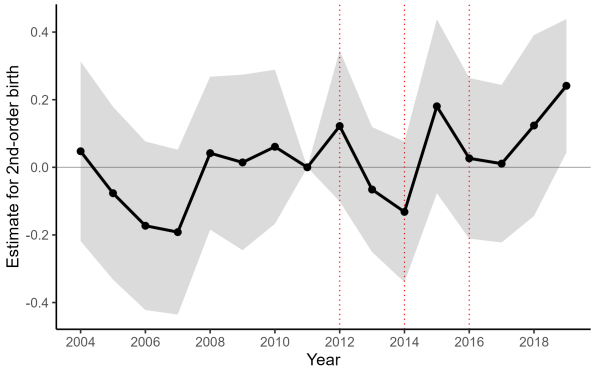
(a) First-Generation: Total Live Births



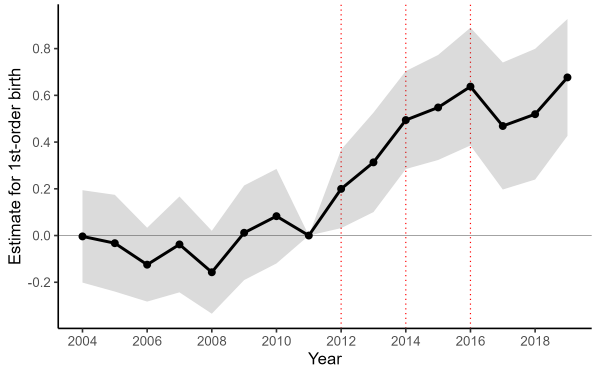
(b) U.S.-born: Total Live Births



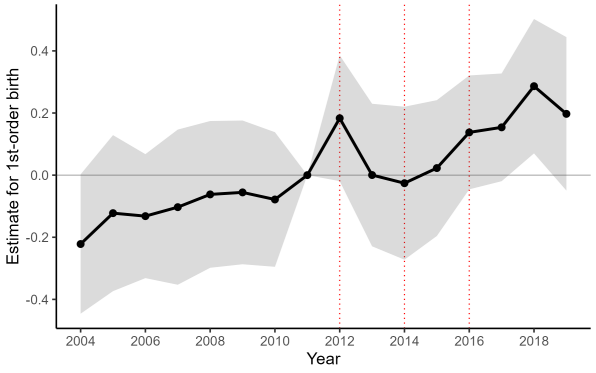
(c) First-Generation: Second-Order Births



(d) U.S.-born: Second-Order Births



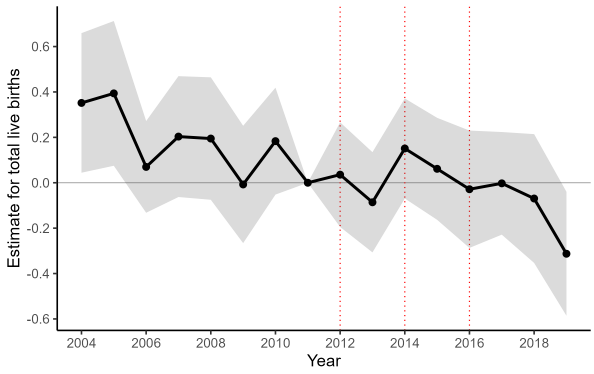
(e) First-Generation: First-Order Births



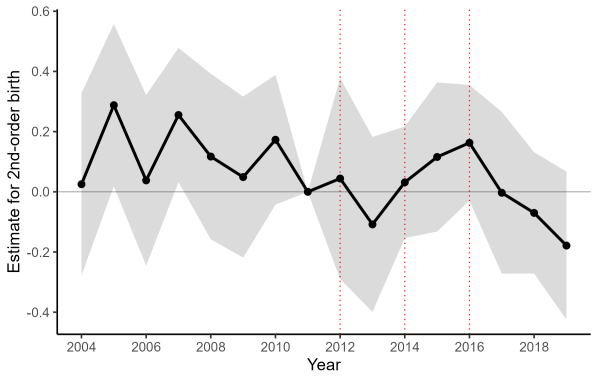
(f) U.S.-born: First-Order Births

Figure 7: Event Study Estimates for California by Generation and Birth Order.

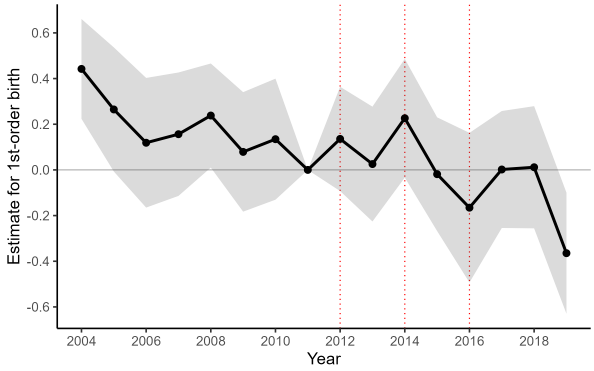
Notes: Event-study estimates from difference-in-differences models with 2011 as the reference period (omitted). For first-generation mothers, we use Chinese Mainland as treated and the HMT regions (Hong Kong, Macau, Taiwan) as control. For mothers born in the United States, we use ethnicity of Chinese (including HMT) as treated and Korean, Japanese, and Vietnamese as control. Panels (a), (c), and (e) show results for first-generation mothers across total, second-, and first-order births. Panels (b), (d), and (f) show results for U.S.-born mothers across total, second-, and first-order births. All estimates include 95% confidence intervals. Vertical dotted lines (red) indicate expected fertility responses in 2012, 2014, and 2016, accounting for the timing of gestation following policy announcements.



(a) Taiwan Region: Total Live Births



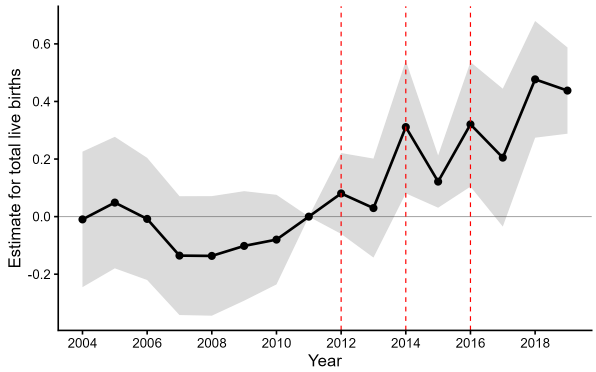
(b) Taiwan Region: Second-Order Births



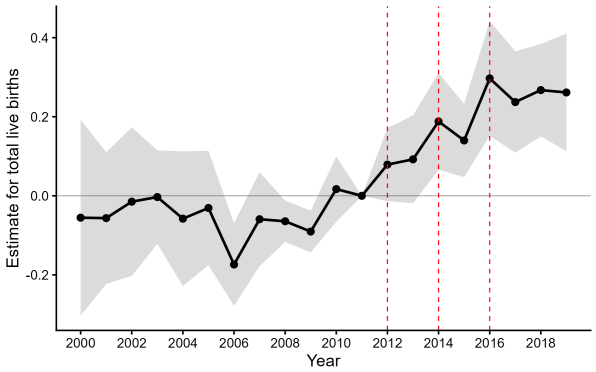
(c) Taiwan Region: First-Order Births

Figure 8: Placebo Test: Event Study Estimates for First-Generation Mothers in California with the Taiwan region as Pseudo-Treatment Group.

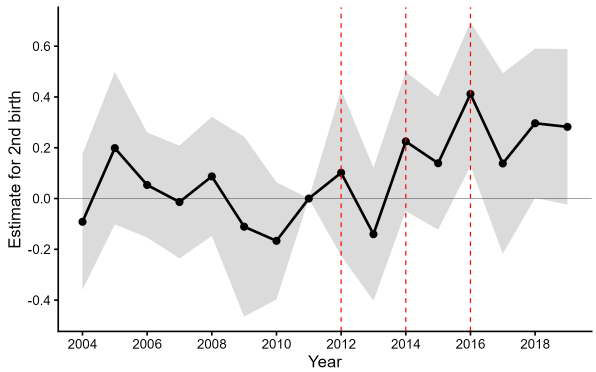
Notes: Estimates are obtained from difference-in-differences models for a placebo test where the Taiwan region is assigned as the pseudo-treatment group, with other Chinese origin serving as control. Panels (a), (b), and (c) show results for first-generation mothers across total, second-, and first-order births. All estimates include 95% confidence intervals. Vertical dotted lines (red) indicate expected fertility responses in 2012, 2014, and 2016, accounting for the timing of gestation following policy announcements.



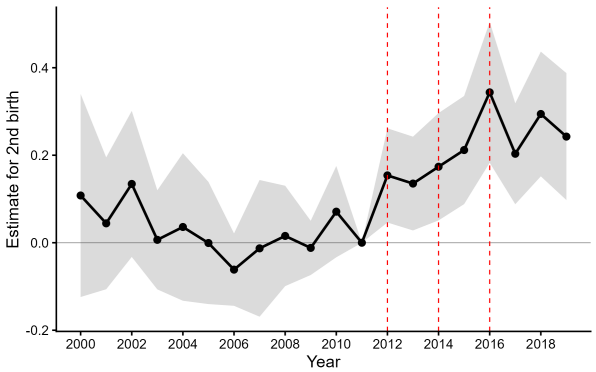
(a) Mothers in Interethnic Couples: Total Live Births



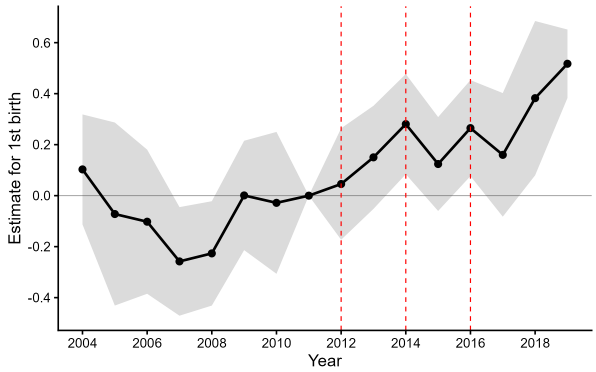
(b) Father in Interethnic Couples: Total Live Births



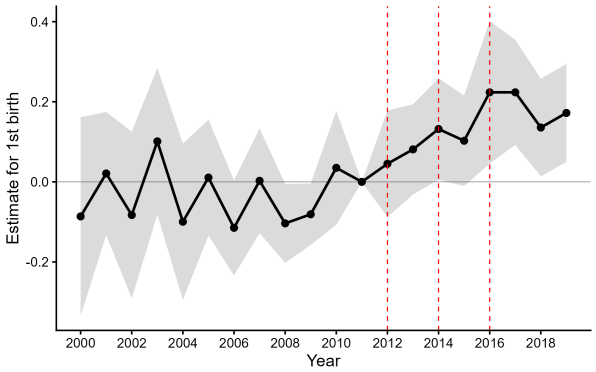
(c) Mothers in Interethnic Couples: Second-Order Births



(d) Father in Interethnic Couples: Second-Order Births



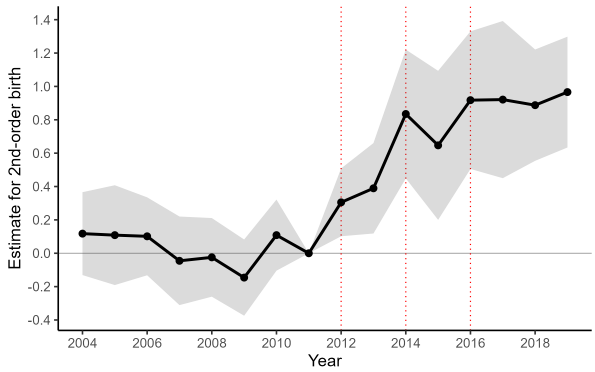
(e) Mothers in Interethnic Couples: First-Order Births



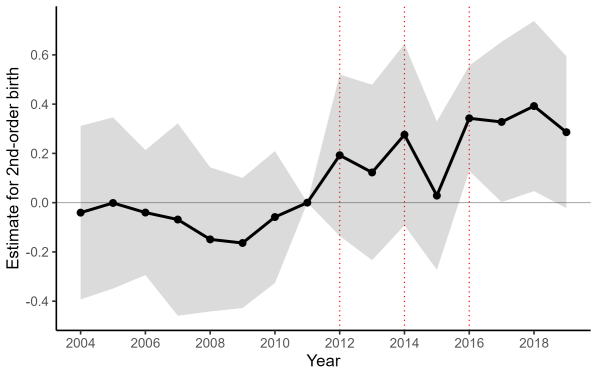
(f) Father in Interethnic Couples: First-Order Births

Figure 9: Event Study Estimates for Interethnic Couples in California by Birth Order.

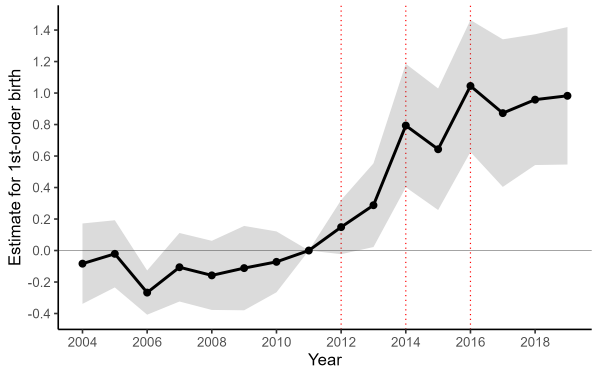
Notes: Event-study estimates from difference-in-differences models with 2011 as the reference period (omitted). Panels (a), (c), and (e) restrict the sample to first-generation Mainland Chinese mothers whose partner is of a different ethnicity, with Korean, Japanese, and Vietnamese mothers in interethnic couples as control. Panels (b), (d), and (f) define treatment by the father's ethnicity: fathers who are Chinese (including HMT) are treated, with Korean, Japanese, and Vietnamese fathers as controls, with no restriction on maternal ethnicity or birthplace. Both specifications use the same other-Asian control group for consistency. All estimates include 95% confidence intervals. Vertical dotted lines (red) indicate expected fertility responses in 2012, 2014, and 2016, accounting for the timing of gestation following policy announcements.



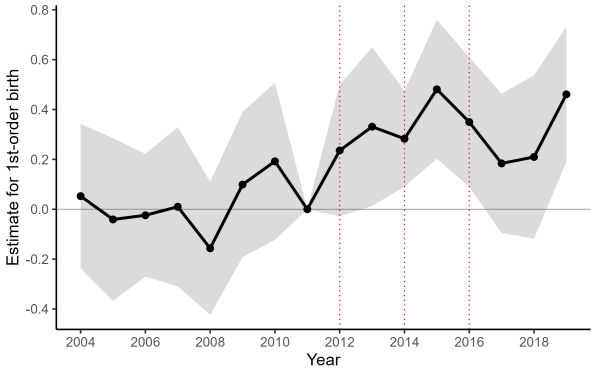
(a) Counties with Large Chinese Community: Second-Order Births to First-Generation Mothers



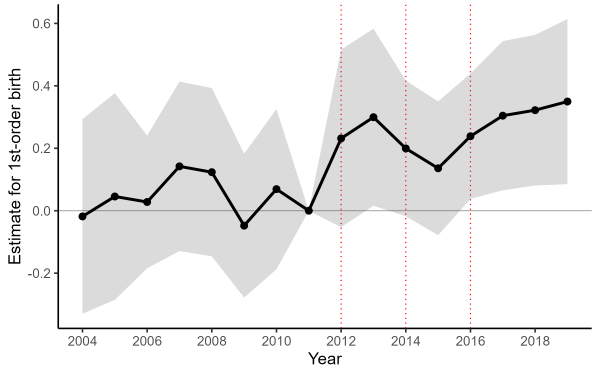
(b) Counties with Small Chinese Community: Second-Order Births to First-Generation Mothers



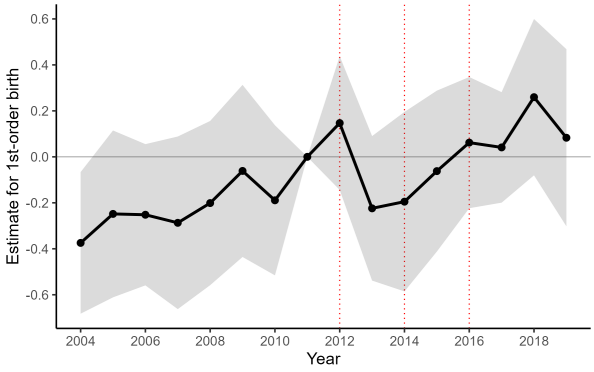
(c) Counties with Large Chinese Community: First-Order Births to First-Generation Mothers



(d) Counties with Small Chinese Community: First-Order Births to First-Generation Mothers



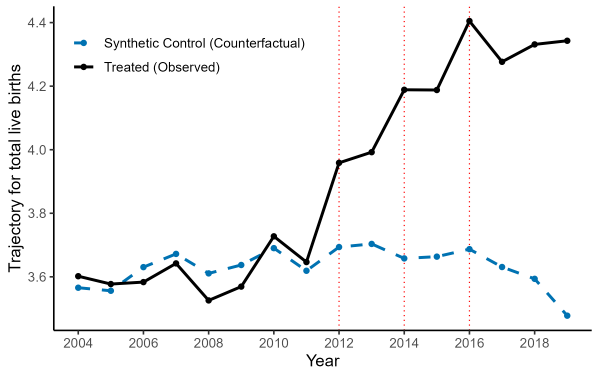
(e) Counties with Large Chinese Community: First-Order Births to U.S.-Born Mothers



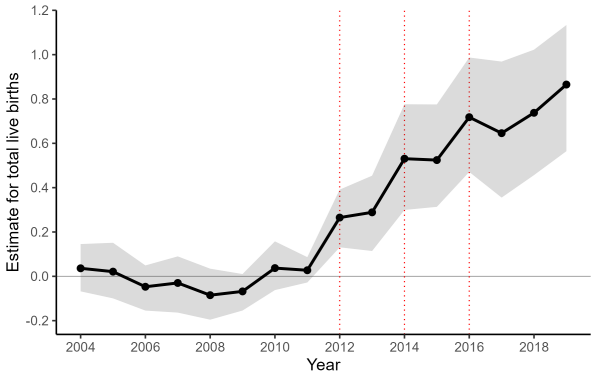
(f) Counties with Small Chinese Community: First-Order Births to U.S.-Born Mothers

Figure 10: Heterogeneous Analysis by Chinese Community Size: Event Study Estimates for First-Generation and U.S.-Born Mothers in California.

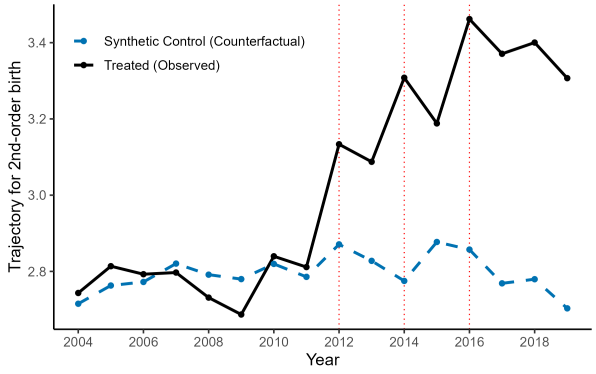
Notes: Estimates are obtained from difference-in-differences models for heterogeneous analysis based on the size of the local Chinese community. Counties are ranked by the number of Chinese residents, and a county is classified as a Large Chinese Community if it falls in the top 25% of the distribution. For first-generation mothers, we use Chinese Mainland as treated and the HMT regions (Hong Kong, Macau, Taiwan) as control. For mothers born in the United States, we use ethnicity of Chinese (including HMT) as treated and Korean, Japanese, and Vietnamese as control. Panels (a), (c), and (e) show results for counties with a Large Chinese Community. Panels (b), (d), and (f) show results for counties with a Small Chinese Community. All estimates include 95% confidence intervals. Vertical dotted lines (red) indicate expected fertility responses in 2012, 2014, and 2016, accounting for the timing of gestation following policy announcements.



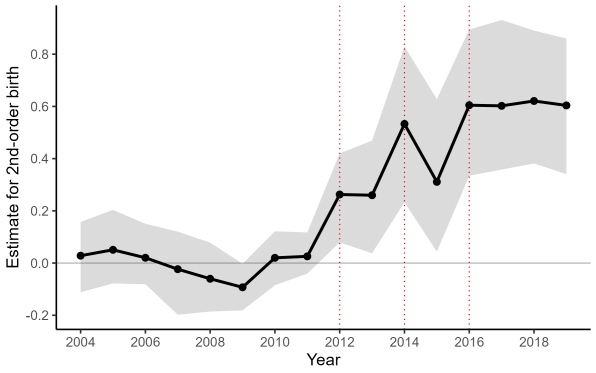
(a) Total Live Births: Observed vs. Counterfactual



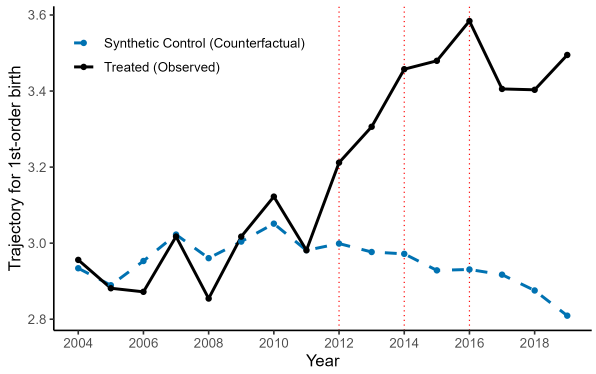
(b) Total Live Births: Average Treatment Effect



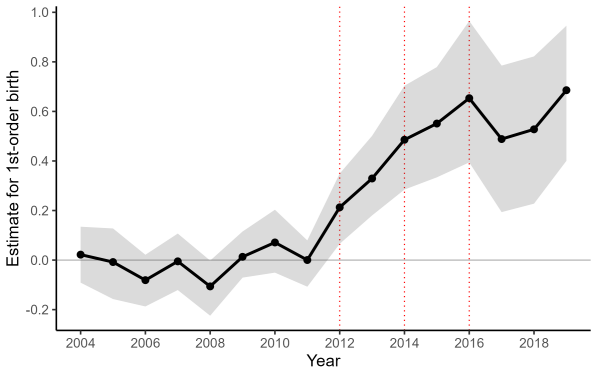
(c) Second-Order Births: Observed vs. Counterfactual



(d) Second-Order Births: Average Treatment Effect



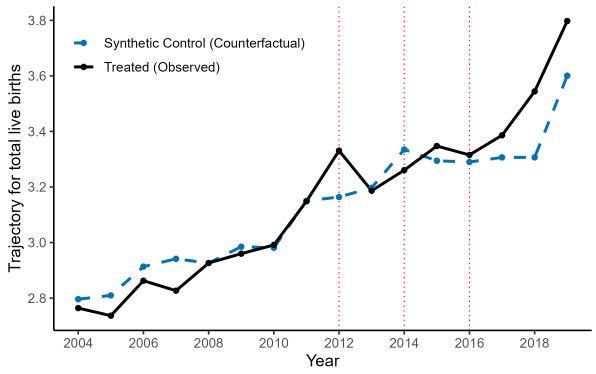
(e) First-Order Births: Observed vs. Counterfactual



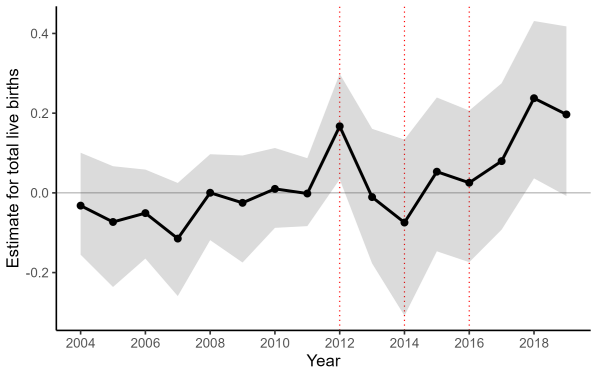
(f) First-Order Births: Average Treatment Effect

Figure 11: Synthetic Difference-in-Differences Estimates for First-Generation Mothers in California by Birth Order.

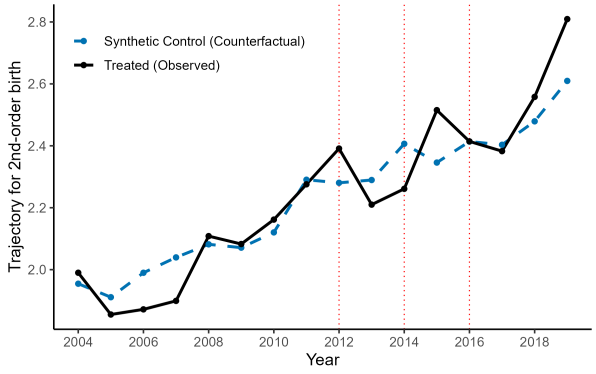
Notes: Estimates are obtained from synthetic difference-in-differences models. For first-generation mothers, we use Chinese Mainland as treated and the HMT regions (Hong Kong, Macau, Taiwan) as control. Panels (a) and (b) show the observed (black) and counterfactual (dashed blue) trajectories and estimated average treatment effect on the treated (ATT) for total live births (log-transformed). Panels (c) and (d) present results for second-order births. Panels (e) and (f) display results for first-order births. All ATT estimates include 95% confidence intervals constructed from bootstrap procedures (1,000 replications). Vertical dotted lines (red) indicate expected fertility responses in 2012, 2014, and 2016, accounting for the timing of gestation following policy announcements.



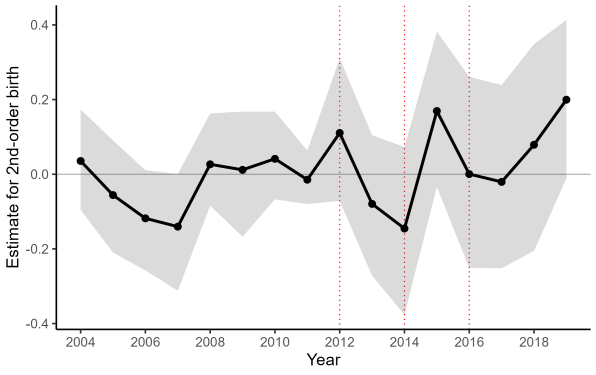
(a) Total Live Births: Observed vs. Counterfactual



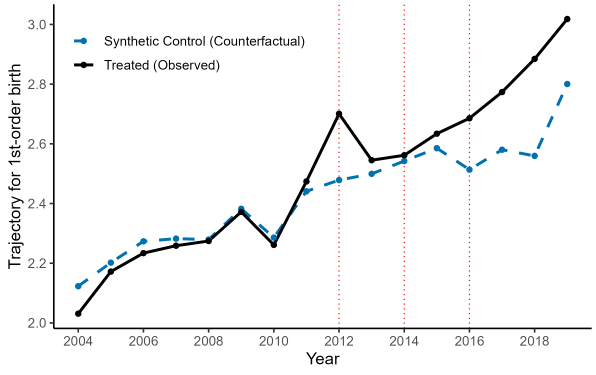
(b) Total Live Births: Average Treatment Effect



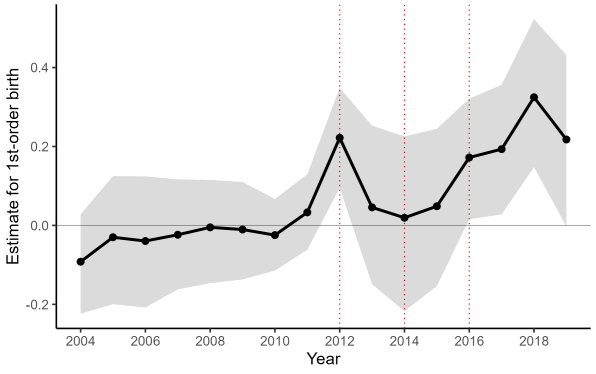
(c) Second-Order Births: Observed vs Counterfactual



(d) Second-Order Births: Average Treatment Effect



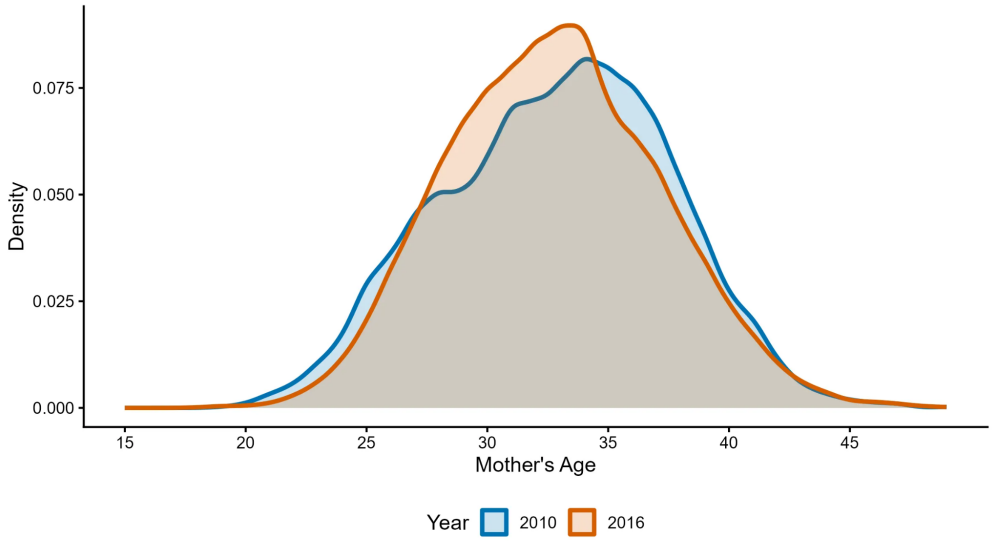
(e) First-Order Births: Observed vs. Counterfactual



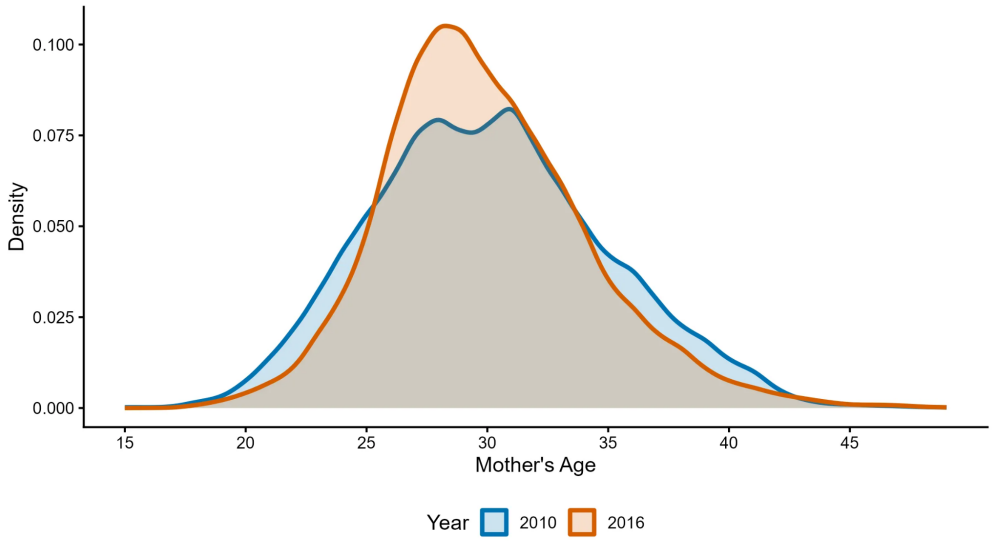
(f) First-Order Births: Average Treatment Effect

Figure 12: Synthetic Difference-in-Differences Estimates for U.S.-Born Mothers in California by Birth Order.

Notes: Estimates are obtained from synthetic difference-in-differences models. For mothers born in the United States, we use ethnicity of Chinese (including HMT) as treated and Korean, Japanese, and Vietnamese as control. Panels (a) and (b) show the observed (black) and counterfactual (dashed blue) trajectories and estimated average treatment effect on the treated (ATT) for total live births (log-transformed). Panels (c) and (d) present results for second-order births. Panels (e) and (f) display results for first-order births. All ATT estimates include 95% confidence intervals constructed from bootstrap procedures (1,000 replications). Vertical dotted lines (red) indicate expected fertility responses in 2012, 2014, and 2016, accounting for the timing of gestation following policy announcements.



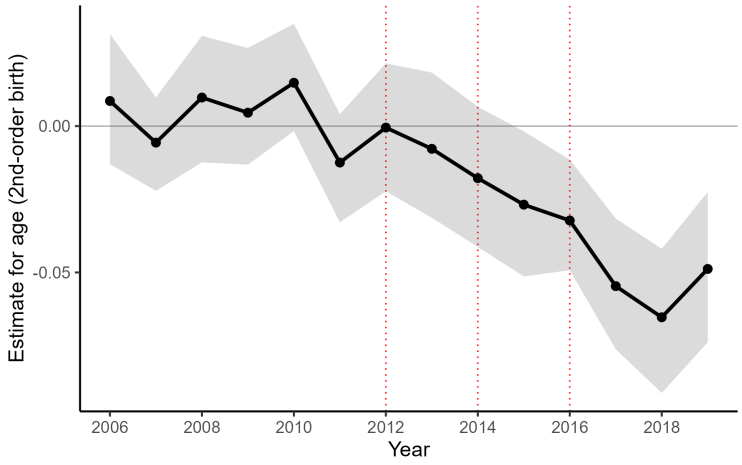
(a) Distribution of Maternal Age at Second-Order Birth



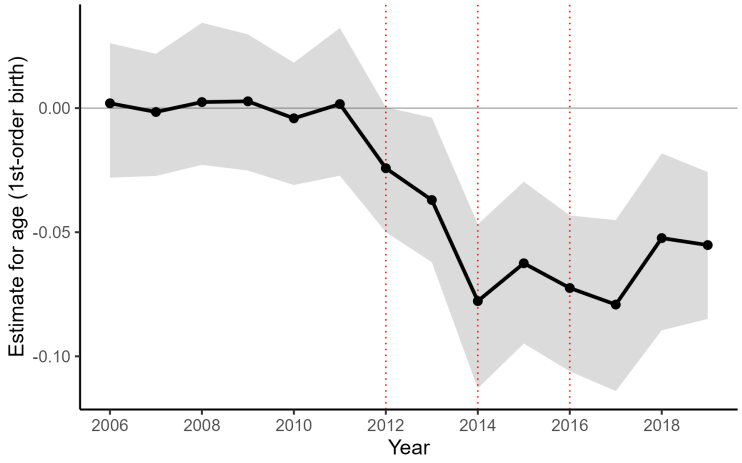
(b) Distribution of Maternal Age at First-Order Birth

Figure 13: Density Distributions of Maternal Age for First-Generation Mainland Chinese Mothers, 2010 vs. 2016.

Notes: Panels (a) and (b) show kernel densities of maternal age at second- and first-order births for first-generation Mainland Chinese mothers in 2010 and 2016. Data sourced from the National Center for Health Statistics Vital Statistics Birth Data.



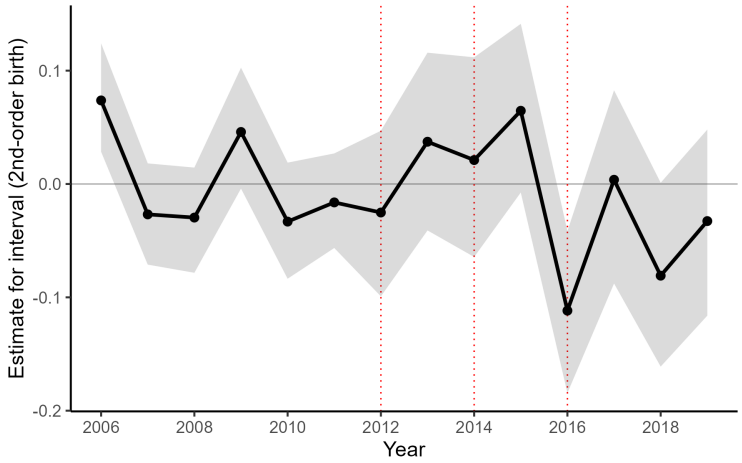
(a) Maternal Age at Second-Order Birth



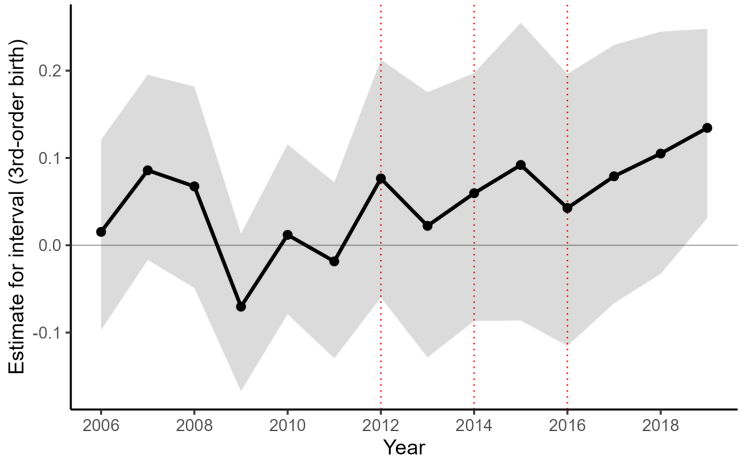
(b) Maternal Age at First-Order Birth

Figure 14: Synthetic Difference-in-Differences Estimates of Maternal Age for First-Generation Mothers.

Notes: Estimates are obtained from synthetic difference-in-differences models with county-level median maternal age at birth as the dependent variable. Age is log-transformed. Panel (a) shows the estimated average treatment effect on the treated (ATT) for maternal age at second-order birth, while panel (b) presents results for maternal age at first-order birth. All ATT estimates include 95% confidence intervals constructed from bootstrap procedures (1,000 replications). Vertical dotted lines (red) indicate expected fertility responses in 2012, 2014, and 2016, accounting for the timing of gestation following policy announcements.



(a) Birth Interval Since First-Order Birth



(b) Birth Interval Since Second-Order Birth

Figure 15: Synthetic Difference-in-Differences Estimates of Birth Intervals for First-Generation Mothers.

Notes: Estimates are obtained from synthetic difference-in-differences models with county-level median intervals since last birth as the dependent variable. Birth intervals are measured in months and log-transformed. Panel (a) shows the estimated average treatment effect on the treated (ATT) for the birth interval since the first-order birth, while panel (b) presents results for the birth interval since the second-order birth. All ATT estimates include 95% confidence intervals constructed from bootstrap procedures (1,000 replications). Vertical dotted lines (red) indicate expected fertility responses in 2012, 2014, and 2016, accounting for the timing of gestation following policy announcements.

Tables

Table 1: Summary Statistics by Ethnicity and Generation

	Panel (a): First-Generation Mothers			
Variable	Chinese Mainland	Hong Kong	Macau	Taiwan
Total births (2004–2011)	48,805	7,834	134	23,759
Birth Parity Distribution				
First-order births (%)	49.34	54.75	64.18	53.65
Second-order births (%)	41.47	36.72	31.34	37.39
Higher-order births (%)	9.19	8.53	4.48	8.96
Birth Spacing				
Interval (months)	55.63	42.77	39.33	40.98
	(41.97)	(29.45)	(26.56)	(27.27)
Mother's Characteristics				
Age at birth	32.71	33.82	31.36	33.22
	(4.68)	(4.45)	(4.70)	(3.87)
Bachelor's degree (%)	68.24	85.44	81.40	89.87
High school only (%)	18.48	9.92	15.67	7.15
Father's Characteristics				
Age	36.61	36.05	34.26	35.82
	(6.39)	(5.43)	(5.40)	(5.11)
Same ethnicity (%)	85.55	72.64	91.41	79.49
White ethnicity (%)	9.43	15.55	4.69	12.96
Sample Size				
Total births (2004–2019)	181,323	14,590	381	43,181
	Panel (b): U.S.-Born Mothers			
Variable	Chinese	Korean	Japanese	Vietnamese
Total births (2004–2011)	15,728	4,679	7,006	5,251
Birth Parity Distribution				
First-order births (%)	51.73	54.54	47.48	57.45
Second-order births (%)	35.84	32.78	36.75	29.42
Higher-order births (%)	12.43	12.68	15.77	13.14
Birth Spacing				
Interval (months)	38.91	37.99	44.75	46.48
	(25.17)	(26.53)	(31.98)	(35.78)
Mother's Characteristics				
Age at birth	32.40	31.14	33.79	27.09
	(5.30)	(4.91)	(5.37)	(5.50)
Bachelor's degree (%)	87.56	83.70	80.55	49.66
High school only (%)	7.85	10.96	11.79	27.04
Father's Characteristics				
Age	34.49	33.54	35.52	30.27
	(5.85)	(5.41)	(6.02)	(6.23)
Same ethnicity (%)	43.63	47.09	24.56	37.19
White ethnicity (%)	36.49	33.08	50.39	32.04
Sample Size				
Total births (2004–2019)	43,775	13,975	12,676	17,179

Notes: This table presents summary statistics for first-generation (Panel (a)) and U.S.-born (Panel (b)) mothers of various origin or ethnicity based on births in California from 2004 to 2019. For continuous variables, means are reported with standard deviations in parentheses.

Table 2: Summary Statistics of County-Level Birth Counts by Ethnicity and Generation: California Births (2004–2019)

	N	Total births	1st-order	2nd-order	3rd-order	Higher-order
Panel (a): Births to First-Generation Mothers (Chinese Mainland vs HMT Regions)						
Chinese Mainland	607	298.72 (1004.64)	144.68 (480.11)	123.66 (430.26)	24.73 (82.64)	5.55 (16.65)
Hong Kong	354	41.21 (68.84)	21.89 (37.68)	15.68 (25.95)	2.96 (5.00)	0.67 (1.15)
Macau	99	3.85 (3.66)	2.27 (2.44)	1.37 (1.60)	0.20 (0.49)	0.00 (0.00)
Taiwan	460	93.87 (254.11)	48.81 (134.92)	36.02 (96.35)	7.55 (20.19)	1.46 (3.71)
Panel (b): Births to U.S.-Born Mothers (Chinese including HMT vs Other Asian)						
Chinese	535	81.82 (160.69)	42.40 (85.87)	29.07 (57.16)	7.81 (14.13)	2.43 (4.84)
Korean	433	32.27 (76.68)	16.91 (41.15)	11.11 (26.71)	3.25 (7.43)	0.96 (2.08)
Japanese	482	26.30 (54.94)	12.83 (27.65)	9.42 (19.53)	2.99 (6.29)	1.01 (2.08)
Vietnamese	432	39.77 (75.88)	20.99 (39.09)	12.96 (25.69)	4.15 (9.00)	1.61 (3.21)
Panel (c): Births to First-Generation Mothers (Chinese Mainland vs Other Asian)						
Chinese Mainland	607	298.72 (1004.64)	144.68 (480.11)	123.66 (430.26)	24.73 (82.64)	5.55 (16.65)
Korean	568	108.68 (338.92)	53.91 (174.99)	40.24 (122.05)	11.93 (35.92)	2.56 (7.22)
Japanese	547	44.29 (99.98)	22.56 (53.59)	16.17 (35.47)	4.36 (9.19)	1.17 (2.66)
Vietnamese	590	169.98 (433.02)	71.18 (181.46)	66.01 (169.64)	24.27 (61.90)	8.47 (21.32)

Notes: Each cell reports the mean (standard deviation) of county-level birth counts by origin or ethnicity and generation based on births in California from 2004 to 2019. Panel (a) compares first-generation mothers born in Chinese Mainland and the HMT regions, while panels (b) and (c) report for U.S.-born and first-generation mothers of various Asian ethnicity.

Table 3: Two-Way Fixed Effects Estimates of Birth Counts for California by Generation

	Total live births	1st-order birth	2nd-order birth	3rd-order birth	Higher-order birth
Panel (a): Births to First-Generation Mothers (Chinese Mainland vs HMT)					
$\mathbb{1}\{\text{Chinese}, 2012 \leq t \leq 2013\}$	0.295***	0.289***	0.263***	0.308***	0.346***
	(0.058)	(0.064)	(0.063)	(0.068)	(0.080)
$\mathbb{1}\{\text{Chinese}, 2014 \leq t \leq 2015\}$	0.553***	0.554***	0.423***	0.556***	0.568***
	(0.092)	(0.098)	(0.117)	(0.108)	(0.113)
$\mathbb{1}\{\text{Chinese}, t \geq 2016\}$	0.751***	0.608***	0.606***	0.845***	1.016***
	(0.106)	(0.119)	(0.108)	(0.121)	(0.124)
Observations	1,856	1,856	1,856	1,856	1,856
Pre-treated Mean of Total	6,086	3,004	2,524	471	86
Panel (b): Births to U.S.-Born Mothers (Chinese including HMT vs Other Asian)					
$\mathbb{1}\{\text{Chinese}, 2012 \leq t \leq 2013\}$	0.139*	0.189**	0.063	0.110	0.062
	(0.076)	(0.086)	(0.084)	(0.080)	(0.073)
$\mathbb{1}\{\text{Chinese}, 2014 \leq t \leq 2015\}$	0.061	0.095	0.059	0.175**	0.176**
	(0.083)	(0.078)	(0.090)	(0.069)	(0.073)
$\mathbb{1}\{\text{Chinese}, t \geq 2016\}$	0.215**	0.291***	0.135	0.237***	0.278***
	(0.090)	(0.076)	(0.088)	(0.083)	(0.077)
Observations	1,792	1,792	1,792	1,792	1,792
Pre-treated Mean of Total	1,960	1,012	701	191	51
Panel (c): Births to First-Generation Mothers (Chinese Mainland vs Other Asian)					
$\mathbb{1}\{\text{Chinese}, 2012 \leq t \leq 2013\}$	0.484***	0.423***	0.389***	0.280***	0.381***
	(0.061)	(0.068)	(0.077)	(0.076)	(0.087)
$\mathbb{1}\{\text{Chinese}, 2014 \leq t \leq 2015\}$	0.780***	0.675***	0.593***	0.617***	0.642***
	(0.093)	(0.095)	(0.118)	(0.111)	(0.120)
$\mathbb{1}\{\text{Chinese}, t \geq 2016\}$	1.079***	0.818***	0.860***	0.954***	1.102***
	(0.101)	(0.112)	(0.105)	(0.127)	(0.143)
Observations	2,176	2,176	2,176	2,176	2,176
Pre-treated Mean of Total	6,094	3,007	2,526	474	86

Notes: This table presents two-way fixed effects estimates from difference-in-differences models with log-transformed birth counts as the dependent variable. Panel (a) shows results for first-generation mothers with Chinese Mainland as treated and the HMT regions as control. Panel (b) shows results for U.S.-born mothers with Chinese (including HMT) as treated and other Asian ethnicity as control. Panel (c) shows results for first-generation mothers with Chinese Mainland as treated and other Asian ethnicity as control. All models include ethnicity×county and county×year fixed effects. Standard errors clustered by ethnicity-county are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Pre-treated Mean of Total denotes the mean annual births for Chinese mothers across all counties during the pre-treatment period (2004–2011), calculated as $\frac{1}{T_{pre}} \sum_{t=2004}^{2011} \sum_{c} Y_{Chinese,c,t}$.

Table 4: Event Study Estimates of Birth Counts for California by Generation

	Total live births	1st-order birth	2nd-order birth
Panel (a): Births to First-Generation Mothers (Chinese Mainland vs HMT)			
$t = 2012$	0.231***	0.200**	0.239**
	(0.086)	(0.085)	(0.104)
$t = 2013$	0.257**	0.313***	0.233*
	(0.100)	(0.107)	(0.119)
$t = 2014$	0.515***	0.494***	0.507***
	(0.104)	(0.106)	(0.140)
$t = 2015$	0.490***	0.548***	0.284**
	(0.100)	(0.113)	(0.136)
$t = 2016$	0.683***	0.637***	0.581***
	(0.111)	(0.127)	(0.114)
$t = 2017$	0.600***	0.469***	0.573***
	(0.136)	(0.137)	(0.143)
$t = 2018$	0.696***	0.519***	0.597***
	(0.120)	(0.141)	(0.128)
$t = 2019$	0.821***	0.677***	0.567***
	(0.126)	(0.126)	(0.125)
Observations	1,856	1,856	1,856
Baseline 2011 Total	7,033	3,540	2,856
Panel (b): Births to U.S.-Born Mothers (Chinese including HMT vs Other Asian)			
$t = 2012$	0.159*	0.183*	0.122
	(0.096)	(0.102)	(0.113)
$t = 2013$	-0.016	0.000	-0.066
	(0.109)	(0.116)	(0.093)
$t = 2014$	-0.075	-0.026	-0.132
	(0.101)	(0.124)	(0.105)
$t = 2015$	0.063	0.023	0.180
	(0.113)	(0.110)	(0.130)
$t = 2016$	0.034	0.138	0.027
	(0.117)	(0.092)	(0.120)
$t = 2017$	0.090	0.154*	0.011
	(0.102)	(0.087)	(0.118)
$t = 2018$	0.257**	0.286***	0.124
	(0.116)	(0.109)	(0.135)
$t = 2019$	0.211*	0.197	0.241**
	(0.115)	(0.125)	(0.100)
Observations	1,792	1,792	1,792
Baseline 2011 Total	2,460	1,298	893

Notes: This table presents event-study post-treatment estimates for California from difference-in-differences models with log-transformed birth counts as the dependent variable. Panel (a) shows results for first-generation mothers with Chinese Mainland as treated and the HMT regions as control. Panel (b) shows results for U.S.-born mothers with Chinese (including HMT) as treated and other Asian ethnicity as control. All models include ethnicity×county and county×year fixed effects. Standard errors clustered by ethnicity-county are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Baseline 2011 Total denotes the annual births for Chinese mothers across all counties in 2011, calculated as $\sum_c Y_{Chinese,c,2011}$.

Table 5: Two-Way Fixed Effects Estimates of Birth Counts for Interethnic Couples in California

	Total live births	1st-order birth	2nd-order birth
Panel (a): First-Generation Mothers in Interethnic Couples (Chinese Mainland vs Other Asian)			
$\mathbb{1}\{\text{Chinese}, 2012 \leq t \leq 2013\}$	0.108**	0.159*	−0.000
	(0.045)	(0.081)	(0.088)
$\mathbb{1}\{\text{Chinese}, 2014 \leq t \leq 2015\}$	0.264***	0.262***	0.195**
	(0.082)	(0.066)	(0.085)
$\mathbb{1}\{\text{Chinese}, t \geq 2016\}$	0.410***	0.391***	0.302***
	(0.071)	(0.067)	(0.103)
Observations	1,162	1,162	1,162
Panel (b): Father in Interethnic Couples (Chinese incl. HMT vs Other Asian)			
$\mathbb{1}\{\text{Chinese}, 2012 \leq t \leq 2013\}$	0.139***	0.102**	0.129**
	(0.042)	(0.040)	(0.049)
$\mathbb{1}\{\text{Chinese}, 2014 \leq t \leq 2015\}$	0.217***	0.156***	0.177***
	(0.057)	(0.058)	(0.066)
$\mathbb{1}\{\text{Chinese}, t \geq 2016\}$	0.319***	0.227***	0.254***
	(0.062)	(0.065)	(0.071)
Observations	5,673	5,673	5,673

Notes: This table presents two-way fixed effects estimates from difference-in-differences models with log-transformed birth counts as the dependent variable. Panel (a) restricts the sample to first-generation mothers in interethnic couples (partner of different ethnicity) and compares Mainland Chinese mothers to Korean, Japanese, and Vietnamese mothers in interethnic couples. Panel (b) defines treatment by the father's ethnicity: fathers who are Chinese (including HMT) are treated, with Korean, Japanese, and Vietnamese fathers as controls, and no restriction is placed on maternal ethnicity or birthplace. Both panels use the same other-Asian control group for consistency, because the father's birthplace cannot distinguish Mainland Chinese from HMT at the same level of detail as the mother's. All models include ethnicity×county and county×year fixed effects. Standard errors clustered by ethnicity-county are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 6: Event Study Estimates of Birth Counts for Interethnic Couples in California

	Panel (a): Mothers in Interethnic Unions			Panel (b): Father-Defined Treatment		
	Total	2nd birth	1st birth	Total	2nd birth	1st birth
$t = 2012$	0.080	0.102	0.046	0.079*	0.154***	0.045
	(0.068)	(0.159)	(0.106)	(0.046)	(0.053)	(0.066)
$t = 2013$	0.030	−0.141	0.150	0.092	0.135**	0.081
	(0.083)	(0.127)	(0.098)	(0.055)	(0.053)	(0.056)
$t = 2014$	0.311**	0.225	0.280***	0.188***	0.174***	0.132**
	(0.112)	(0.133)	(0.095)	(0.061)	(0.061)	(0.063)
$t = 2015$	0.122**	0.139	0.124	0.140***	0.212***	0.103*
	(0.044)	(0.127)	(0.089)	(0.046)	(0.061)	(0.056)
$t = 2016$	0.321***	0.412***	0.265***	0.297***	0.344***	0.224**
	(0.105)	(0.138)	(0.091)	(0.072)	(0.080)	(0.088)
$t = 2017$	0.205*	0.138	0.160	0.237***	0.203***	0.224***
	(0.116)	(0.173)	(0.118)	(0.064)	(0.057)	(0.065)
$t = 2018$	0.477***	0.296**	0.382**	0.267***	0.294***	0.136**
	(0.098)	(0.143)	(0.147)	(0.058)	(0.071)	(0.061)
$t = 2019$	0.438***	0.282*	0.517***	0.261***	0.243***	0.172***
	(0.073)	(0.149)	(0.065)	(0.074)	(0.072)	(0.061)
Observations	1,162	1,162	1,162	5,673	5,673	5,673

Notes: This table presents event-study post-treatment estimates from difference-in-differences models with log-transformed birth counts as the dependent variable. Panel (a) restricts the sample to first-generation mothers in interethnic unions (partner of different ethnicity) and compares Mainland Chinese mothers to Korean, Japanese, and Vietnamese mothers in interethnic unions. Panel (b) defines treatment by the father's ethnicity: fathers who are Chinese (including HMT) are treated, with Korean, Japanese, and Vietnamese fathers as controls, and no restriction is placed on maternal ethnicity or birthplace. Both panels use the same other-Asian control group for consistency. The reference period is 2011 (omitted). All models include ethnicity×county and county×year fixed effects. Standard errors clustered by ethnicity-county are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 7: Heterogeneous Analysis by Chinese Community Size: Event Study Estimates for First-Generation Mothers in California

	1st-order birth		2nd-order birth	
	Baseline	Interaction with Large Chinese Community	Baseline	Interaction with Large Chinese Community
$t = 2012$	0.24*	-0.09	0.19	0.11
	(0.13)	(0.16)	(0.16)	(0.19)
$t = 2013$	0.33**	-0.04	0.12	0.27
	(0.16)	(0.21)	(0.18)	(0.22)
$t = 2014$	0.28***	0.51**	0.28	0.56**
	(0.10)	(0.22)	(0.18)	(0.26)
$t = 2015$	0.48***	0.16	0.03	0.62**
	(0.14)	(0.24)	(0.15)	(0.27)
$t = 2016$	0.35***	0.70***	0.34***	0.58**
	(0.13)	(0.24)	(0.11)	(0.23)
$t = 2017$	0.18	0.69**	0.33**	0.59**
	(0.14)	(0.27)	(0.16)	(0.28)
$t = 2018$	0.21	0.75***	0.39**	0.50**
	(0.16)	(0.26)	(0.17)	(0.24)
$t = 2019$	0.46***	0.52**	0.29*	0.68***
	(0.14)	(0.25)	(0.15)	(0.22)
Observations	1,856		1,856	

Notes: This table presents event-study post-treatment estimates from difference-in-differences models for heterogeneous analysis based on the size of the local Chinese community in California. Counties are ranked by the number of Chinese residents, and a county is classified as a Large Chinese Community if it falls in the top 25% of the distribution. For first-generation mothers, we use Chinese Mainland as treated and the HMT regions as control. All models include ethnicity×county and county×year fixed effects. Standard errors clustered by ethnicity-county are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 8: Synthetic Difference-in-Differences Estimates of Birth Counts for California by Generation

	Total live births	1st-order birth	2nd-order birth
Panel (a): Births to First-Generation Mothers (Chinese Mainland vs HMT)			
Time-Averaged ATT	0.572***	0.492***	0.475***
	(0.109)	(0.101)	(0.114)
$t = 2012$	0.265	0.213	0.263
	[0.13, 0.39]	[0.07, 0.35]	[0.08, 0.42]
$t = 2013$	0.289	0.329	0.260
	[0.11, 0.45]	[0.18, 0.50]	[0.04, 0.47]
$t = 2014$	0.531	0.486	0.533
	[0.30, 0.78]	[0.28, 0.70]	[0.23, 0.83]
$t = 2015$	0.524	0.551	0.311
	[0.31, 0.78]	[0.33, 0.78]	[0.04, 0.63]
$t = 2016$	0.718	0.653	0.605
	[0.47, 0.99]	[0.39, 0.96]	[0.33, 0.89]
$t = 2017$	0.646	0.488	0.602
	[0.36, 0.97]	[0.19, 0.78]	[0.36, 0.93]
$t = 2018$	0.738	0.528	0.621
	[0.46, 1.02]	[0.23, 0.82]	[0.38, 0.89]
$t = 2019$	0.865	0.686	0.604
	[0.56, 1.13]	[0.40, 0.95]	[0.34, 0.86]
Observations	1,856	1,856	1,856
Baseline 2011 Total	7,033	3,540	2,856
Panel (b): Births to U.S.-Born Mothers (Chinese including HMT vs Other Asian)			
Time-Averaged ATT	0.084	0.155**	0.039
	(0.069)	(0.061)	(0.083)
$t = 2012$	0.167	0.222	0.111
	[0.03, 0.30]	[0.10, 0.35]	[-0.07, 0.31]
$t = 2013$	-0.011	0.046	-0.079
	[-0.18, 0.16]	[-0.15, 0.25]	[-0.27, 0.10]
$t = 2014$	-0.074	0.019	-0.145
	[-0.31, 0.13]	[-0.22, 0.23]	[-0.38, 0.07]
$t = 2015$	0.053	0.049	0.169
	[-0.15, 0.24]	[-0.15, 0.24]	[-0.03, 0.38]
$t = 2016$	0.025	0.172	0.000
	[-0.17, 0.21]	[0.02, 0.32]	[-0.25, 0.26]
$t = 2017$	0.080	0.193	-0.021
	[-0.09, 0.27]	[0.03, 0.36]	[-0.25, 0.24]
$t = 2018$	0.237	0.325	0.079
	[0.04, 0.43]	[0.15, 0.52]	[-0.21, 0.35]
$t = 2019$	0.197	0.218	0.200
	[-0.01, 0.42]	[-0.00, 0.43]	[-0.01, 0.41]
Observations	1,792	1,792	1,792
Baseline 2011 Total	2,460	1,298	893

Notes: This table presents synthetic difference-in-differences post-treatment estimates for birth counts (log-transformed) in California. Panel (a) shows results for first-generation mothers with Chinese Mainland as treated and the HMT regions as controls. Panel (b) shows results for U.S.-born mothers with Chinese (including HMT) as treated and other Asian ethnicity as controls. For time-averaged ATT estimates only, bootstrap standard errors (400 replications) are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Values in brackets are 95% bootstrap confidence intervals (1,000 replications).

Table 9: Synthetic Difference-in-Differences Estimates of Birth Timing for First-Generation Mothers in the United States

	Maternal Age		Birth Intervals	
	1st-order birth	2nd-order birth	Months since 1st-order birth	Months since 2nd-order birth
Time-Averaged ATT	-0.058***	-0.032***	-0.015	0.076
	(0.012)	(0.007)	(0.024)	(0.047)
$t = 2012$	-0.024	-0.001	-0.025	0.077
	[-0.05, 0.00]	[-0.02, 0.02]	[-0.12, 0.05]	[-0.05, 0.23]
$t = 2013$	-0.037	-0.008	0.037	0.022
	[-0.07, -0.00]	[-0.03, 0.02]	[-0.04, 0.13]	[-0.14, 0.19]
$t = 2014$	-0.078	-0.018	0.021	0.060
	[-0.11, -0.05]	[-0.04, 0.01]	[-0.05, 0.11]	[-0.10, 0.19]
$t = 2015$	-0.063	-0.027	0.065	0.092
	[-0.10, -0.03]	[-0.05, -0.00]	[-0.00, 0.15]	[-0.09, 0.25]
$t = 2016$	-0.072	-0.032	-0.112	0.043
	[-0.11, -0.04]	[-0.05, -0.01]	[-0.18, -0.05]	[-0.10, 0.19]
$t = 2017$	-0.079	-0.055	0.004	0.079
	[-0.12, -0.05]	[-0.08, -0.03]	[-0.08, 0.09]	[-0.07, 0.22]
$t = 2018$	-0.052	-0.065	-0.081	0.105
	[-0.09, -0.02]	[-0.09, -0.04]	[-0.16, -0.01]	[-0.03, 0.24]
$t = 2019$	-0.055	-0.049	-0.033	0.134
	[-0.09, -0.02]	[-0.08, -0.02]	[-0.12, 0.04]	[0.03, 0.23]
Observations	4,816	4,718	4,242	1,708
Baseline 2011 Median	30	33	43	44.5

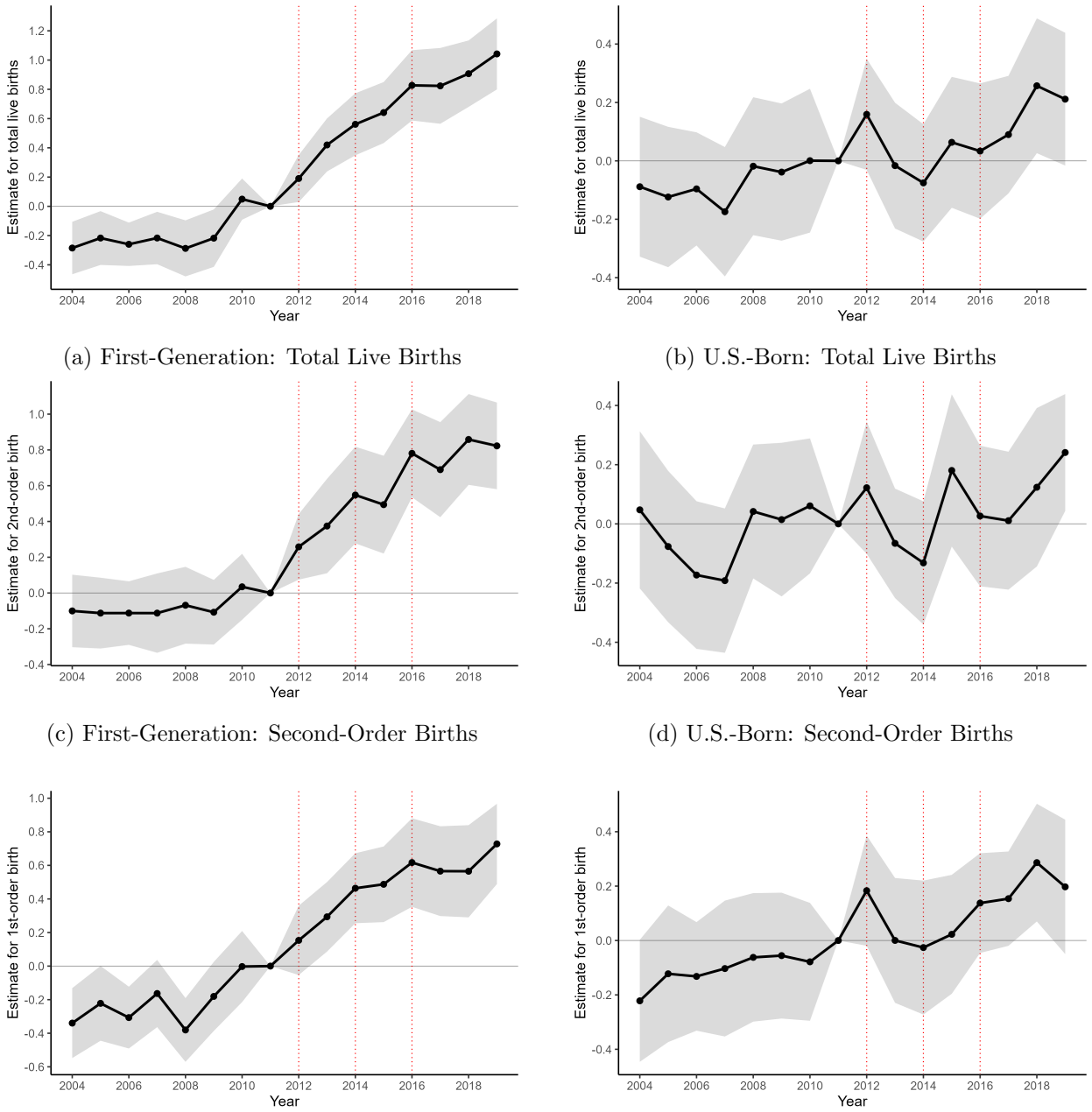
Notes: This table presents synthetic difference-in-differences post-treatment estimates for maternal age and birth intervals. For time-averaged ATT estimates only, bootstrap standard errors (400 replications) are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Values in brackets are 95% bootstrap confidence intervals (1,000 replications).

Appendix

Table A1: Summary Statistics: First-Generation Mothers by Asian Ethnicity

Variable	Chinese Mainland	Korean	Japanese	Vietnamese
Total births (2004–2011)	80,532	36,955	13,282	59,066
Birth Parity Distribution				
First-order births (%)	51.16	49.73	52.52	41.70
Second-order births (%)	39.78	36.87	35.35	38.94
Higher-order births (%)	9.05	13.40	12.12	19.36
Birth Spacing				
Interval (months)	50.37	44.29	44.40	50.81
	(37.99)	(30.84)	(29.28)	(38.10)
Mother's Characteristics				
Age at birth	32.97	32.60	33.78	32.15
	(4.45)	(4.01)	(4.52)	(4.80)
Bachelor's degree (%)	76.28	81.87	76.20	48.18
High school only (%)	14.30	12.59	16.66	28.40
Father's Characteristics				
Age	36.31	35.15	36.13	36.87
	(5.96)	(4.85)	(6.31)	(5.96)
Same ethnicity (%)	82.50	78.87	40.63	81.60
White ethnicity (%)	11.07	13.26	41.51	9.54
Sample Size				
Total births (2004–2019)	239,475	61,733	24,227	100,287

Notes: This table presents summary statistics for first-generation mothers of various Asian ethnicity (Chinese Mainland, Korean, Japanese, and Vietnamese) based on births in California from 2004 to 2019. For continuous variables, means are reported with standard deviations in parentheses.



(a) First-Generation: Total Live Births

(b) U.S.-Born: Total Live Births

(c) First-Generation: Second-Order Births

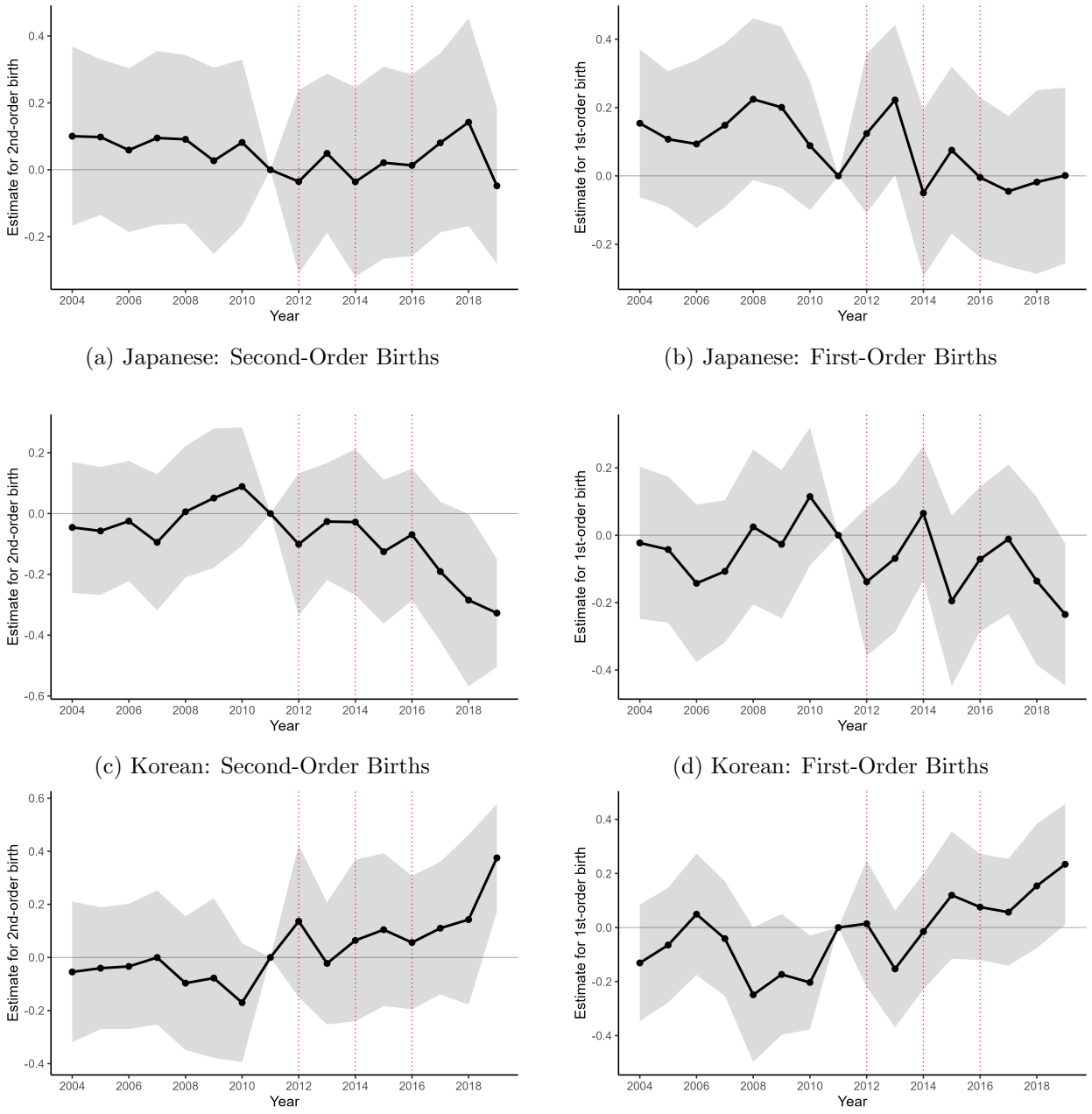
(d) U.S.-Born: Second-Order Births

(e) First-Generation: First-Order Births

(f) U.S.-Born: First-Order Births

Figure A1: Event Study Estimates for California by Generation and Birth Order: Other Asian as Control.

Notes: Event-study estimates from difference-in-differences models with 2011 as the reference period (omitted). We use ethnicity of Chinese Mainland as treated and Korean, Japanese, and Vietnamese as control. Panels (a), (c), and (e) show results for first-generation mothers across total, second-, and first-order births. Panels (b), (d), and (f) show results for U.S.-born mothers across total, second-, and first-order births. All estimates include 95% confidence intervals. Vertical dotted lines (red) indicate expected fertility responses in 2012, 2014, and 2016, accounting for the timing of gestation following policy announcements.



(a) Japanese: Second-Order Births

(b) Japanese: First-Order Births

(c) Korean: Second-Order Births

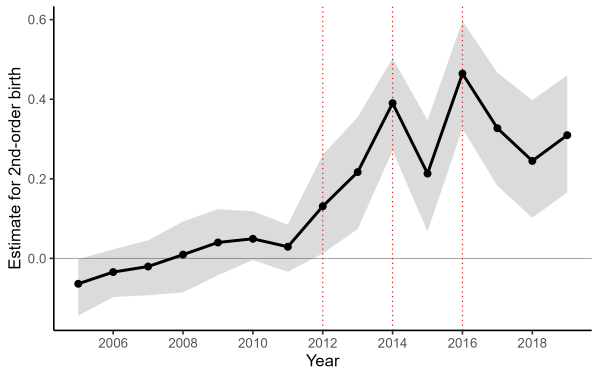
(d) Korean: First-Order Births

(e) Vietnamese: Second-Order Births

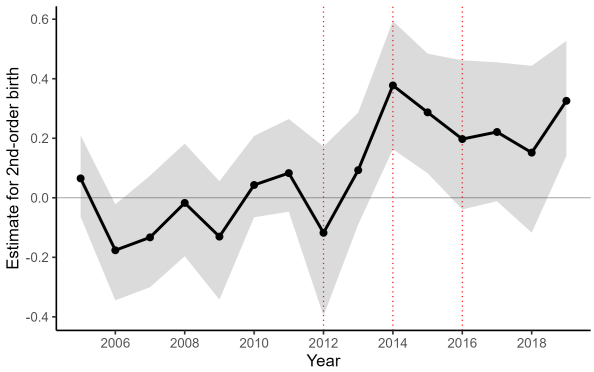
(f) Vietnamese: First-Order Births

Figure A2: Placebo Test: Event Study Estimates for First-Generation Mothers in California with Other Asian Ethnicity as Pseudo-Treatment Group.

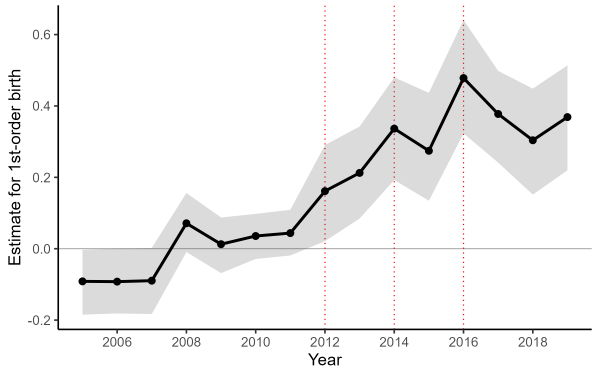
Notes: Estimates are obtained from difference-in-differences models for placebo tests. Panels (a) and (b) assign Japanese as the pseudo-treatment group, with other Asian ethnicity serving as control. Panels (c) and (d) assign Korean as the pseudo-treatment group, and panels (e) and (f) assign Vietnamese as the pseudo-treatment group. All estimates include 95% confidence intervals. Vertical dotted lines (red) indicate expected fertility responses in 2012, 2014, and 2016, accounting for the timing of gestation following policy announcements.



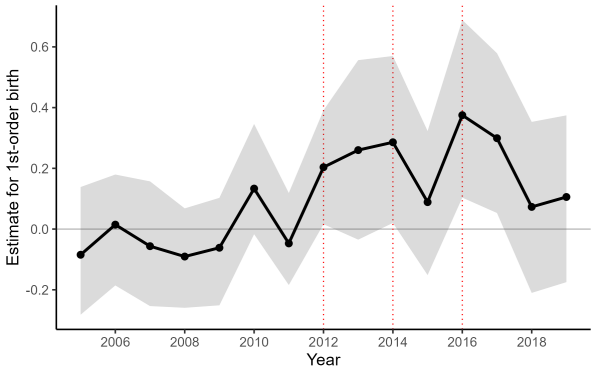
(a) States with Large Chinese Community: Second-Order Births to First-Generation Mothers



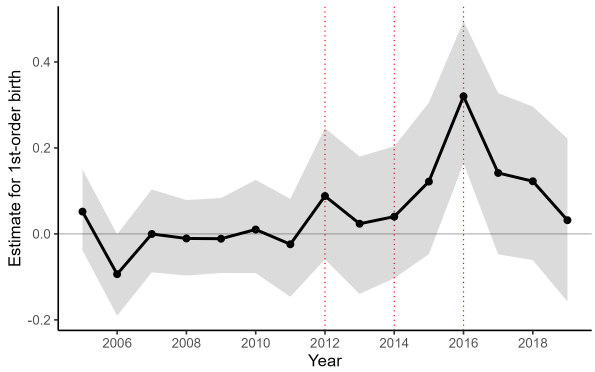
(b) States with Small Chinese Community: Second-Order Births to First-Generation Mothers



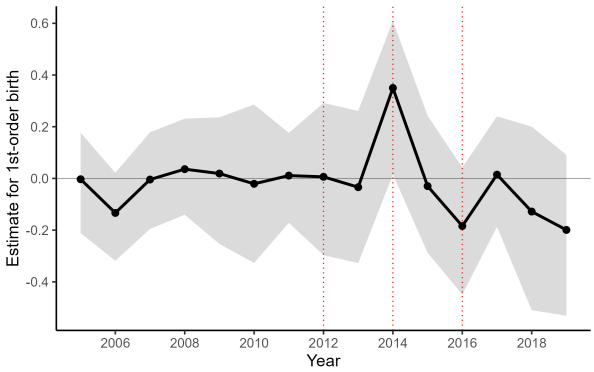
(c) States with Large Chinese Community: First-Order Births to First-Generation Mothers



(d) States with Small Chinese Community: First-Order Births to First-Generation Mothers



(e) States with Large Chinese Community: First-Order Births to U.S.-Born Mothers



(f) States with Small Chinese Community: First-Order Births to U.S.-Born Mothers

Figure A3: Analysis for Other States: Synthetic Difference-in-Differences Estimates for First-Generation and U.S.-Born Mothers.

Notes: Estimates are obtained from synthetic difference-in-differences models based on the size of the local Chinese community. States with a Large Chinese Community refer to California, Texas, Washington, Pennsylvania, and Florida, while states with a Small Chinese Community refer to New Hampshire, Kentucky, Kansas, South Carolina, Tennessee, Missouri, and Indiana. The states are selected for high reporting rates in maternal ethnicity and birthplace early to 2006. For first-generation mothers, we use Chinese Mainland as treated and the HMT regions (Hong Kong, Macau, Taiwan) as control. For mothers born in the United States, we use ethnicity of Chinese (including HMT) as treated and Korean, Japanese, and Vietnamese as control. Panels (a), (c), and (e) show results for states with a Large Chinese Community. Panels (b), (d) and (f) show results for states with a Small Chinese Community.

Table A2: Analysis for Other States: Time-Averaged ATT Estimates from Synthetic Difference-in-Differences

	1st-order birth		2nd-order birth	
	States with Large Chinese Community	States with Small Chinese Community	States with Large Chinese Community	States with Small Chinese Community
Panel (a): Births to First-Generation Mothers (Chinese Mainland vs HMT)				
Time-Averaged ATT	0.314***	0.211**	0.287***	0.192**
	(0.054)	(0.102)	(0.050)	(0.084)
Observations	3,540	1,440	3,540	1,440
Panel (b): Births to U.S.-Born Mothers (Chinese including HMT vs Other Asian)				
Time-Averaged ATT	0.111**	-0.026	0.087	0.159
	(0.056)	(0.067)	(0.062)	(0.119)
Observations	2,460	540	2,460	540

Notes: Estimates are obtained from synthetic difference-in-differences models based on the size of the local Chinese community. States with a Large Chinese Community refer to California, Texas, Washington, Pennsylvania, and Florida, while states with a Small Chinese Community refer to New Hampshire, Kentucky, Kansas, South Carolina, Tennessee, Missouri, and Indiana. The states are selected for high reporting rates in maternal ethnicity and birthplace early to 2006. For first-generation mothers, we use Chinese Mainland as treated and the HMT regions (Hong Kong, Macau, Taiwan) as control. For mothers born in the United States, we use ethnicity of Chinese (including HMT) as treated and Korean, Japanese, and Vietnamese as control. Bootstrap standard errors (500 replications) are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

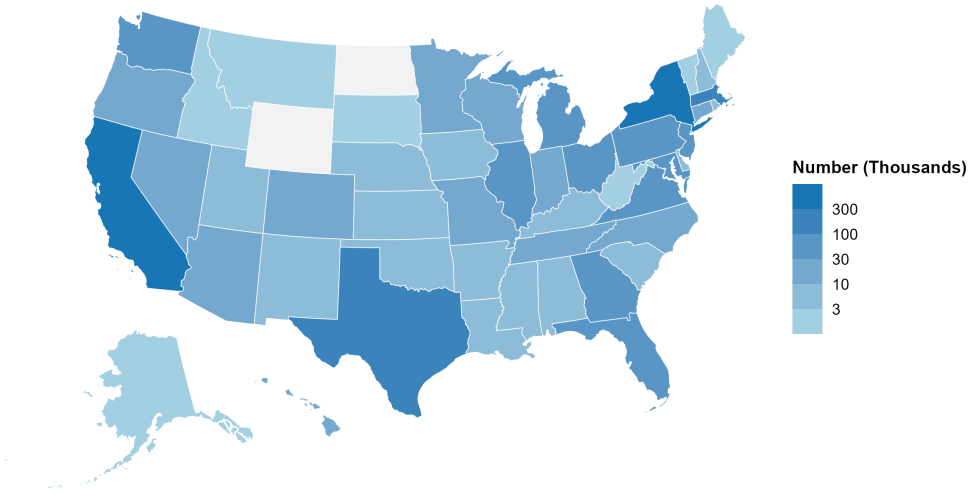


Figure A4: Histogram Plot of Birth Order.

Notes: Data sourced from the National Center for Health Statistics Vital Statistics Birth Data.

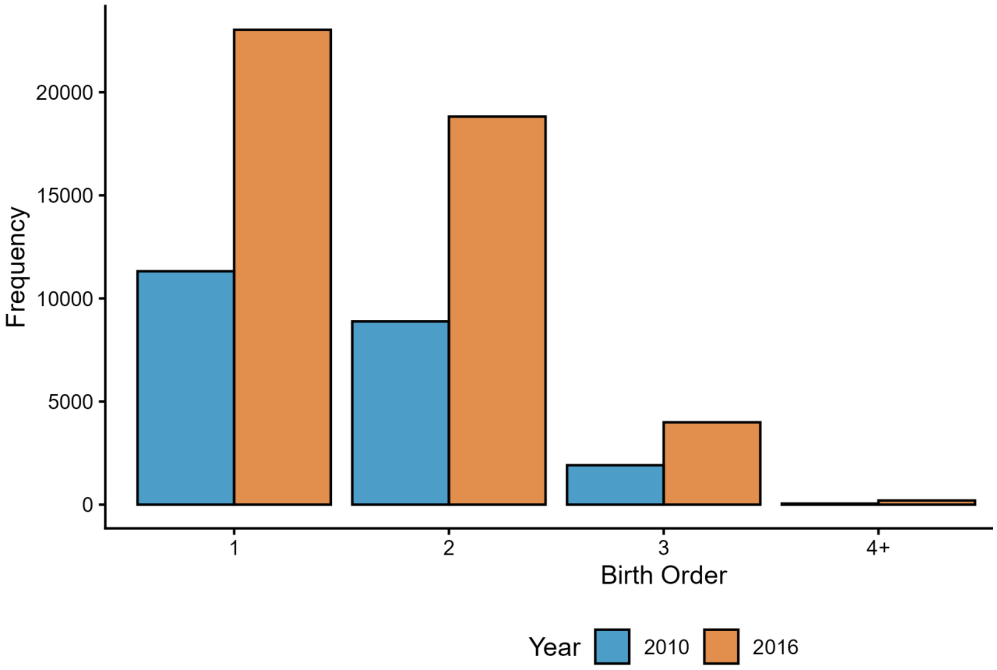


Figure A5: Geographic Distribution of Chinese Immigrants in 2019.

Notes: Data sourced from the Migration Policy Institute.