THE DEMOGRAPHIC LEGACY OF THE VIETNAM WAR: EVIDENCE FROM THE 1969 DRAFT LOTTERY

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April 11, 2020

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Abstract:

During the Vietnam War, deferments for "hardship" incentivized millions of would-be draftees to father children. Using the 1969 draft lottery, we find that a higher risk of being drafted significantly increased subsequent childbearing. States like New York and California, where anti-war sentiment was higher, showed larger responses. After Nixon eliminated paternity as grounds for deferment in 1970, fertility rates fell nationwide and fell more sharply in California and New York—so-called "early repeal" states that legalized abortion in 1970 as well. Our results caution against attributing this sharper, post-1970 decline in childbearing in early repeal states solely to abortion legalization.

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Acknowledgements:

During work on this project, Chyn was supported by the NICHD (T32 HD0007339) as a UM Population Studies Center Trainee. We gratefully acknowledge the use of the services and facilities of the Population Studies Center at the University of Michigan (funded by NICHD Center Grant R24 HD041028). We are also grateful for helpful comments from Emily Beam, Kasey Buckles, Charlie Brown, and John DiNardo. Exceptional research assistance was provided by Anna Erickson, Rachel Bacille, Mari Hashimoto, and Annie Wentz.

The Vietnam War had a defining effect on a generation. The War not only affected nearly 9 million Americans who served in the military, but it also shaped the lives of the civilian population seeking to dodge the draft. Finding ways to avoid military service in an unpopular war became a preoccupation for many young men. Some enrolled in college to obtain student deferments (Card and Lemieux 2001), while others took more extreme measures such as committing felonies to avoid service (Kuziemko 2010). Fathering a child provided another option for avoiding military service. After President Kennedy's Executive Order 11098 on March 14, 1963, draft registrants could qualify for a hardship deferment (III-A) if they had a child, an option so popular men choosing to do so were known as "Kennedy fathers." As the Vietnam War escalated after 1965, these "paternity deferments" were extremely popular, with over 4 million men holding them in 1969—more than twice the number of men holding education deferments.

Time-series evidence suggests that paternity deferments raised fertility rates during the Vietnam era. Birth rates were 13 percent higher (relative to trend) in 1970, which temporarily reversed the aggregate decline in birth rates and resulted in a fertility notch peaking in 1970. The notch was comprised of elevated *first births* (hardship deferments required only one dependent child) among women in their *early twenties* who were likely to be partnered with draft-eligible men. Fertility rates declined sharply for these same women following President Nixon's Executive Order in April of 1970, which eliminated paternity as grounds for a deferment. However, the importance of the Vietnam War in shaping U.S. fertility rates is difficult to infer from time series alone, because the 1960s were also shaped by the diffusion of the birth control pill (Bailey 2006, Bailey 2010, Bailey 2012), the legalization of abortion (Levine et al. 1999, Gruber, Levine, and Staiger 1999), and significant changes in family formation and marriage (Goodman-Bacon and Cunningham 2019, Bitler and Schmidt 2012).

This paper uses the 1969 Vietnam Draft Lottery to estimate the causal effect of draft risk—and the availability of paternity deferments—on U.S. fertility rates. Pooling the 1973 and 1976 *National Surveys of Family Growth* (NSFG), we show that women married to men randomly assigned high-risk numbers were over 40 percent more likely to give birth nine to 11 months after the 1969 draft relative to women with low risk husbands. Childless women drive this effect, with their likelihood of giving birth after the

1969 lottery elevated by almost 90 percent. Consistent with the paternity deferment explaining this response, we find no such patterns for women with children at the time of the lottery whose husbands were eligible for deferments without having an additional child. Placebo tests also show no evidence of fertility responses to draft risk in the 1970, 1971, and 1972 lotteries, which took place after Nixon had eliminated paternity as grounds for new deferments in April of 1970.

We also study how eliminating the paternity deferment affected the decline in fertility rates after 1970. Importantly, we find that the fertility responses to the 1969 lottery were uneven across states, with those living in states that legalized abortion in 1970 (Levine et al. 1999)—the so-called "early repeal" states—exhibiting much larger fertility responses to low draft numbers. This differential fertility increase is consistent with Gallup polls showing stronger anti-war sentiment in early repeal states. Extrapolations of these lottery-based fertility responses to the population suggest that birth rates in early repeal states would have been significantly lower in 1970 in the absence of abortion legalization. Consequently, a large part of the post-1970 decline in birth rates in early repeal states, which differences-in-differences analyses have solely attributed to the legalization of abortion, may be due to the elimination of hardship deferments.

This paper contributes to a deeper understanding of the demographic legacy of the Vietnam War, as well as the role of abortion legalization in reducing U.S. fertility rates after 1970. Previous research has examined the impact of the Vietnam War on veterans and those who avoided service (Angrist 1990, Card and Lemieux 2001, Angrist and Chen 2008, Angrist, Chen, and Frandsen 2009, Eisenberg and Rowe 2009, Kuziemko 2010, Conley and Heerwig 2011, Lindo and Stoecker 2012). This paper suggests that the Vietnam War had intergenerational effects as well, because dodging service by fathering a child altered the timing of childbirth and the living circumstances of children born.

I. SHORT HISTORY OF VIETNAM ERA SELECTIVE SERVICE POLICY CHANGES

In the early 1960s, nearly all 18 to 26-year-old American male citizens and most non-citizens living in the U.S. and its territories were required to register for the draft. Presidential Proclamation 2799 (July 20, 1948) required men to register at their nearest draft board within 5 days of their 18th birthday (Tatum

and Tuchinsky 1970). The U.S. Selective Service classified registrants as available for civilian (I-A-O) or military service (I-A), deferred, or ineligible for service. Men who enrolled in college could apply for II-S deferments, and those with a "bona fide" relationship with a child could apply for III-A "hardship" deferments. After receiving a III-A deferment, men could avoid service so long as they maintained this relationship. All men classified as I-A were considered available for military service, and local draft boards were instructed to prioritize calls within the I-A class as follows (from highest to lowest priority): delinquents, volunteers, single men, and married men, with the oldest in each category called first.[1]

In 1965, the rapid escalation in the Vietnam War increased the likelihood that I-As would be called. President Johnson sent the first brigade of combat troops in March and rapidly increased ground force levels thereafter (VanDeMark 1991). The sharp increase in inductions resulted in a sharp increase in deferments, with education and hardship deferments being especially popular (Appendix Figure A1).

With growing opposition to the War, newly elected President Richard Nixon moved swiftly to increase the transparency of the draft, equalize the risk of induction across race and class, and limit the duration of each man's eligibility for the draft. On May 13, 1969, Nixon asked Congress to change the order of calls from *youngest to oldest* and limit eligibility for draft to *one* year and proposed a lottery that would distribute the risk of induction equally "by lot" among all who were eligible. However, he did *not* announce when the lottery would be held. The Selective Service Amendment Act of November 26, 1969, signed both requests into law. The first draft lottery took place on December 1, 1969, to call men for examination as early as January 1, 1970.

The lottery specified that all I-A classified men who were 19 to 25 years old (born from 1944 to 1950) would be called in order of their birthdates and then permutations of their last, first and middle

[1] The first four categories included men ages 19-25 only. There were two additional priority categories within the I-A and I-A-O classification after married men: men ages 26, youngest called first, and men between age 18 and six months and age 19, oldest called first.

names.[2] Capsules with numbers for each of the 366 days of the year (the extra day is February 29th) were drawn sequentially from a glass jar and assigned induction priority. The first date drawn, September 14, assigned non-deferred men born from 1944 to 1950 on that date to be called on January 1, 1970. The second date drawn, April 24, assigned non-deferred men born in the same cohorts to be called second and so forth. Because the birth days were inadequately mixed in the jar, later months (e.g., December) tended to have higher lottery numbers than early months (e.g., January) (Starr 1997). This feature of the 1969 lottery motivates the inclusion of month-of-birth fixed effects in our analysis. In addition, the 1969 lottery did not supersede existing deferments, which leads to an intention-to-treat analysis interpretation of our lottery estimates.

In addition, Nixon announced Executive Order 11527 in his Special Message to Congress on Draft Reform on April 23, 1970 (Anderson and Tollison 1991, Nixon 1970), directing that no future deferments would be granted for employment or paternity, except in cases where a local draft board determines that "extreme hardship" would result. However, all those holding occupational or hardship deferments at the time of the announcement, as well as any who would have been granted deferments in pending applications, were grandfathered in.[3] Subsequent draft lotteries were conducted on July 1, 1970, for those born in 1951 and on August 5, 1971, for those born in 1952. Draft lotteries were also conducted after 1971, but no one was called to service as a result.

II. Evidence Regarding The Effects of the Vietnam War on Adult Outcomes

A large literature considers the effects of the Vietnam War on veterans.[4] But the literature most closely related to this study examines how the Vietnam War affected the adult outcomes of *non*-veterans,

[2] The Selective Service Amendment Act of 1969 (Public Law 91-124) gives the sequence of induction as follows: (1) men 19-25 (either unmarried or married after August 26, 1965) in order of their random selection. (2) men 19 to 25, married before August 26, 1965, in the order of their random selection.

[3] Nixon's April 23 speech also requested that Congress restore Presidential discretionary authority on the deferment of students seeking BAs, but his Executive Order eliminating student deferments was not issued until later in 1970.

[4] A number of studies use the Vietnam-era lottery to examine the impact of the War on veterans' post-war earnings, disability, and labor-force outcomes (Angrist 1990, Angrist and Chen 2008, Angrist, Chen, and Frandsen 2009). Subsequent studies extend Angrist's draft-lottery instrumental variables research design to examine the effects of

especially men who received deferments or otherwise dodged the draft. Card and Lemieux (2001) find that the availability of II-S deferments increased college enrollment during the Vietnam War, and Kuziemko (2010) finds that many lower-SES men (presumably those who could not obtain a II-S) committed crimes to avoid serving in the war.

The literature contains little evidence that the hardship deferment (III-A) increased fertility rates. Kutinova's (2009) differences-in-differences analysis shows that marital fertility rates *increased* after President Johnson eliminated lower draft prioritization for married men in late 1965—suggestive evidence that more married men sought paternity deferments. On the other hand, Bitler and Schmidt (2012) show that the *reduction* in marriageable men in the late 1960s due to inductions worked to *depress* fertility rates. A recent paper by Bailey and Chyn (forthcoming) presents descriptive evidence that the net effect of the Vietnam War on fertility rates was positive, arguing that Vietnam-era mobilization corresponds to the sizable notch in the time series for the general fertility rate (GFR) during the late 1960s.

Figure 1 summarizes this time series evidence. Panel A shows that, after falling from a high of around 120 births per 1,000 women in 1957, the decline in the general fertility rate (GFR) slowed in 1965 and even *increased* briefly between 1968 and 1970. Consistent with III-A deferments causing fertility rates to rise, much of the increase in childbearing was driven by elevated first birth rates (dashed line), the number of first births per 1,000 women ages 15 to 44. Panel B shows this elevated rate was especially prominent among women likely to be mates of draft-eligible men—women ages 20 to 24 and, to a lesser degree, women ages 25 to 29.[5] In 1965, first births among women ages 20 to 24 stopped falling and increased slightly from 1965 to 1970, reversing their downward trend. A modest elevation in first births among 15-

Vietnam-era military service on other outcomes among veterans. Conley and Heerwig (2011) find no effect of veteran status on housing tenure and mixed evidence of effects on residential stability and extended family living arrangements. Eisenberg and Rowe (2009) show that Vietnam-era service is associated with increased smoking in the shorter-term but that these effects fade with age. Lindo and Stoecker (2012) find a positive effect of Vietnam-era service on violent crime and a negative effect on non-violent crime. Neither Conley and Heerwig (2011) nor Angrist and Chen (2008) find evidence of an impact of Vietnam-era military service on veteran's mortality.

[5] We use mothers' ages, because the age of the father is not available for all births in Vital Statistics.

to-19 and 25-to-29-year-old women is also evident, where first births appear slightly above trend. After President Nixon eliminated paternity as a reason for a III-A deferment in April 1970, the GFR, first birth rates, and first birth among 20-to-24-year-old women dropped sharply.[6]

These patterns are consistent with the Vietnam War causing a temporary increase in fertility rates, but the evidence is not conclusive. These dramatic shifts in fertility rates occurred during a period of tremendous social and demographic change, and the time-series evidence may conflate different social and economic factors. One potential confounder is the uneven diffusion of the birth control pill between 1960 and 1970 (Bailey 2006, 2010, 2012, 2013, Guldi 2008, Ananat and Hungerman 2012).[7] Another is the legalization of abortion, which occurred in five states in 1970 and nationwide in 1973 with *Roe v. Wade* (Levine et al. 1996, Levine, Trainor, and Zimmerman 1996, Ananat, Gruber, and Levine 2007, Joyce, Tan, and Zhang 2013, Rotz 2012).[8] Separating the effect of eliminating paternity deferments and the legalization of abortion in New York is challenging, because New York legalized abortion on April 11, 1970, less than two weeks before Nixon's elimination of the paternity deferment on April 23, 1970.

III. Causal Evidence using the 1969 Draft Lottery that Paternity Deferments Increased Childbearing

This paper uses the *random assignment* of induction risk in the December 1, 1969, draft lottery to isolate the causal role of draft risk on U.S. fertility rates. If men responded to greater draft risk by fathering a child, we expect those randomly assigned to lower numbers (facing more risk) to have more incentive to

[6] A comparison of the U.S. and Canadian fertility time series provides suggestive evidence on the link between draft avoidance and childbearing. Appendix Figures A2 and A3 show that the U.S. and Canadian total fertility rates were different in levels but similar in trends from 1940 to 1980—including during World War II, the baby boom, and the early 1960s. Because Canada did not participate in the Vietnam War, a departure from U.S.-Canadian similitude would be expected from 1965 to 1970 if draft avoidance increased fertility rates in the U.S. The figures suggests this: fertility rates during the Vietnam era shows a divergence of the U.S. from Canadian trends. As the decline in the U.S. total fertility rate slowed and then reversed between 1965 and 1970, the Canadian total fertility rate continued to fall between 1965 and 1970.

[7] See Bailey et al. (2011) and Guldi (2011) for a summary of state legal changes.

[8] Joyce, Tan, and Zhang (2013) argues that New York's legalization of abortion affected birth rates in states within driving distance, with closer states more strongly affected.

father a child. At the same time, we expect that fertility responses would be limited among men who did not have time to be reclassified.

Taking these factors into account, we hypothesize that few men with numbers in the lower third of the draft number distribution would have been able to get a paternity deferment. The fastest scenario for conceiving would be ovulation and conception on the date of the lottery: December 1. Next, a physician would need to verify the pregnancy (~3 weeks later), the registrant would submit required paperwork, and the draft board would need to re-review the case—all *before* January 1. This timeline makes it unlikely that reclassification could occur for the lowest numbers, but the chances increased for higher numbers.[9] The exact timing of classification and induction varied across draft boards, but men with numbers in the lower third of the draft-number distribution were likely to be inducted before they could be reclassified.[10] However, men with slightly higher draft numbers had more time to respond, even though those with the highest draft numbers were unlikely to be called. Note that the exact cutoff for not being called (195) was not announced until later in 1970.

These responses imply a hump-shaped pattern of fertility responses illustrated in Figure 2A. Men with very low lottery numbers would have been unlikely to get a deferment by fathering a child so they would have had less incentive to try. In contrast, men with middle-range draft numbers would have had both the incentive and the time to obtain a hardship deferment. Finally, men with the highest draft numbers, who knew they were unlikely to be inducted, would have little incentive to father a child to obtain a deferment.

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[9] Tatum and Tuchinsky (1970) write, "when an unborn child is the only basis of the III-A deferment, you must send the board the doctor's letter before an induction order is issued or you may not receive the deferment [REG 1622.30(c)(3)]. Despite this regulation, it may be possible to show that you didn't learn of the pregnancy until after the induction order was issued. If so, learning that the child is expected is 'a change in the registrant's status resulting from circumstances over which the registrant had no control' [REG 1625.2], and the local board may reopen the classification and cancel the induction order."

[10] This timing is difficult to document, but it was typically very soon after the lottery. Tracy (2005) notes, "A man with draft a number of 131 was ordered to report for his physical exam on February 18, 1970, and subsequently classified as 1-A" (p. 45).

We test this prediction using the 1973 and 1976 NSFG surveys, which asked respondents for a complete birth history and the exact date of birth of their husbands (Smock, Granda, and Hoelter 2013). Pooling surveys yields a sample of 4,574 women who had partners subject to the 1969 lottery. Another 1,122 women reported birth dates for their first husbands who would have been subject to the 1970, 1971, and 1972 draft lotteries. The NSFG also helps address several potential sources of bias. First, the NSFG surveys *women* about their childbearing and husbands, which avoids the problem of missing responses from men who deployed to Vietnam. Second, the NSFG asks women about *all* husbands, which means the analysis can examine the relationship of *past* childbearing with an *earlier* husband, even if she is no longer married to him due to a divorce or his death in Vietnam.

The following linear probability model studies fertility responses as a function of a spouse's randomly assigned risk of being drafted,

$$Birth_i = \boldsymbol{X}_i'\boldsymbol{\beta} + \sum_k \gamma_k DraftRisk_{k(i)} + \varepsilon_i, \quad (1)$$

where *Birth* is equal to 1 if woman *i* gave birth nine to 11 months after the 1969 lottery. We include a set of *k DraftRisk* dummy variables for groups of lottery numbers (*k* defined subsequently), $\boldsymbol{X}$ is a column vector of husband month-of-birth fixed effects (to account for non-random assignment of birth month in the 1969 lottery) and a dummy variable for 1976 (to capture unobserved changes across NSFG waves). Estimates of γ_k summarize the intention-to-treat effects of randomly assigned draft risk on the likelihood of having a child nine to 11 months after the 1969 draft lottery relative to the highest draft risk men (who comprise the omitted category).

A. The Causal Effects of the Vietnam War on U.S. Fertility Rates

Panel B of Figure 2 presents results for childless women (solid line) using 10-equal sized lottery-number groupings (i.e., *k*=10). Consistent with the hypothesized hump-shape response in Panel A, fertility responses were small and indistinguishable from zero for women married to men with very low draft numbers (with little time to respond) and the highest draft numbers (with little risk of induction). Women

married to men at high risk of induction with more time to respond (numbers 110-296) show large effects. For example, men with draft lottery numbers 110-146 (likely called in February) were around *68 percent* more likely to have fathered a child in late 1970. Because some couples would have tried to conceive a child before learning that 195 would be the highest number called, fertility rates are slightly elevated above this threshold (numbers 185-296).

Table 1 summarizes models that use three equal-sized lottery number groups (k=3): 1-122 (omitted), 123-244, and 245-366. Having a husband with high draft risk *and* time to respond raises the likelihood of giving birth after the lottery by 52 percent (0.018 over the mean for the untreated group of 0.034, presented in the last row, column 1). Consistent with random assignment, Appendix Table A1 shows that the estimated magnitudes are negligibly affected by including various controls for education, race, mother's birth cohort and state fixed effects.

Because the hypothesized mechanism for these effects is draft dodging, women without children would have had the most incentive to respond. In contrast, women with children (whose partners would have already been eligible for III-A deferments) had much less incentive to respond. Consistent with this hypothesis, subsequent childbearing among women *without* children before the 1969 lottery who were married to men with numbers 123-244 rose by 90 percent (=0.030/0.033, column 2), whereas women with children before the 1969 lottery did not appear to respond (column 3). This corresponds to Figure 2B, which shows the absence of the hump shape for women who *already* had children before the 1969 draft lottery (dashed line). The data reject equality of effects for childless women and women with children for those with partners with draft lottery numbers 110-146 and 147-184. As a placebo test, Table 1 also examines responses among women with partners subject to the 1970-72 draft lotteries—lotteries held after Nixon eliminated paternity as grounds for deferment. Owing to smaller sample sizes, these effects are less precisely estimated but show no evidence of similar fertility responses (column 4). In short, childbearing was higher after the 1969 draft lottery among childless women married to men with a high risk of being inducted and enough time to be reclassified. The implication is that fertility rates—especially first birth

rates—were significantly elevated in 1970 due to the Vietnam War and the availability of hardship deferments.

B. Heterogeneity in the Causal Effects of the Vietnam War on U.S. Fertility Rates

Given the magnitude of the childbearing increase due to the Vietnam War, our final analysis considers how Nixon's elimination of the paternity deferment in 1970 affected the decline in U.S. fertility during this period. We are specifically interested in whether childbearing responses to the Vietnam War were different in states that repealed their abortion bans around 1970, such as California, New York, Washington, Hawaii, and Alaska—the so-called "early repeal states." If so, prior studies that have attributed the larger decline in fertility rates in these states after 1970 to the legalization of abortion may either understate or overstate the role of abortion (Levine et al. 1999, Gruber, Levine, and Staiger 1999, Ananat, Gruber, and Levine 2007, Ananat et al. 2009, Rotz 2012, Charles and Stephens 2006).

Studies of the role of abortion have used a differences-in-differences research design, which compares states legalizing abortion around 1970 ("early repeal states") and abortion reform states to "control states." Using this methodology, Levine et al. (1999) find that abortion legalization caused aggregate fertility rates to fall by around 4 to 5 percent, due to large reductions in teen and non-marital childbearing.[11] Angrist and Evans (1999) build on this identification strategy using the number of years of a cohort's exposure to legalized abortion and show that legalized abortion reduced teen birth rates by 2.2 percent among whites and 10 percent among blacks. They also find that this policy change led to an 18-percent decline in non-marital childbearing among black teens (born 1949-1954) though none among whites. Myers (2017) builds on the Angrist and Evan's exposure specification and shows that abortion access for young women led to a 34 percent reduction in first births.[12]

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[11] In specifications that account for distance from early legalizing states to capture inter-state commuting, their estimates double to around 8 percent.

[12] Myers' focus is the interaction of abortion legalization and laws allowing young, unmarried women to consent to abortion. Because Alaska, California, Hawaii, New York, and Washington had passed consent laws prior to 1971, the change in early consent to abortion in these states is coincident with legalization in 1970. Other states in her analysis

The childbearing response to paternity deferments could bias these estimates in either direction. If the childbearing responses to the Vietnam War were *smaller* in early repeal states than elsewhere, we would expect the decline in childbearing after the paternity deferment was eliminated in 1970 to be *smaller* than elsewhere. This would lead previous analyses to underestimate the fertility effects of abortion legalization relative to the true effect. On the other hand, if the childbearing responses to the Vietnam War were larger in early repeal states, we would expect the decline in childbearing in early repeal states after 1970 to reflect the end of the paternity deferment as well as abortion. This would lead the differences-in-differences estimates to find fertility effects of abortion legalization that are larger than the true effect.

Table 2 examines heterogeneity in the effects of draft risk by allowing the effect to vary with abortion legalization status before *Roe v Wade*. Following Levine et al. (1999), we interact *DraftRisk* with a dummy variable for early repeal states and abortion reform states, where state is where NSFG respondents lived between ages 6-18. (This is also the state in which her husband would have likely registered for the draft.) In models that exclude and include state fixed effects, childbearing appears significantly more elevated in response to the Vietnam draft lottery in early repeal states. Models that include individual controls for age, race, and education yield almost identical estimates (see Appendix Table A2). Consistent with fertility rates in repeal states being lower than in control states throughout the 1960s and 1970s, the point estimates show that women with partners who had the lowest draft numbers in early repeal states had significantly lower birth rates in the latter part of 1970. However, men with high induction risk and more time to respond (numbers 123-244) in early repeal states were 5.3 percentage points more likely to become fathers after the 1969 lottery. The magnitude of this estimate is more than *8 times as large as* the main effect which represents effects for women in control states (0.6 percentage points). Interestingly, there are economically significant positive estimates for women in repeal states in the highest draft number (lowest risk) group, but they are not precisely estimated. We also find less evidence of large fertility responses to

code legal consent for young women ages 18 to 20 to abortion in 1971 (District of Columbia) and 1974 (Massachusetts, Missouri, North Dakota, South Carolina, Table 1).

the draft lottery in states where abortion restrictions were reformed (but not repealed) relative to control states. As expected, childbearing responses for childless women in repeal states (column 3) are larger than for their counterparts who already had children (column 4). Overall, the results suggest that childbearing responses to the 1969 lottery were significantly higher in states legalizing abortion in 1970 relative to states legalizing abortion in 1973 with *Roe v. Wade.* Given the coincidence of the repeal of abortion bans and Nixon's elimination of the paternity hardship deferment, these results imply that previous studies likely *overstated* the role of abortion legalization in reducing fertility rates.

Why would draft-dodging via childbearing occur more often in early repeal states? Contemporaneous Gallup polls suggest that respondents under age 36 were significantly more likely to report views opposing the Vietnam War. In January 1973, Gallup respondents in early repeal states were 18 percentage points more likely to say they thought the U.S. had made a mistake in sending troops to fight in Vietnam, after controlling for sex and race fixed effects. Using the same model, these respondents were 10 percentage points less likely to believe that the Nixon Administration was telling the public all they should know about the Vietnam War; 13 percentage points more likely to oppose resuming bombing if North Vietnam refused to agree to "reasonable peace terms;" 14 percentage points more likely to favor that Congress cut war funding if peace was not reached in two months; and 8 percentage points more likely to disapprove of the way President Nixon was handling the Vietnam War (Appendix Table A3 provides information about the Gallup survey questions and detailed regression results).

IV. The Demographic Legacy of the Vietnam War

In the late 1960s, dodging the Vietnam draft was a preoccupation for many young men—driving some to desperate measures to avoid serving in an unpopular war. This paper quantifies the importance of paternity deferments on U.S. fertility rates by studying responses to the 1969 Vietnam draft lottery. Consistent with the time-series fertility notch, our results show that having a spouse randomly assigned to a higher risk number led to a *90 percent* increase in the likelihood that a childless woman would give birth nine to 11 months after the December 1969 lottery. In addition, we find that childbearing responses to the

risk of being drafted were *eight times larger* in states that legalized abortion prior to *Roe v. Wade*—a finding consistent with New York and California being hotbeds of opposition to the Vietnam War.

A simple counterfactual analysis illustrates the magnitudes of these estimates (see Appendix B for details). Assuming all men subject to the draft would have responded to the Vietnam draft in the same manner as men in the 1969 lottery,[13] the counterfactual U.S. GFR in 1970 is 85 births per 1,000 women versus the observed GFR of 88.2—implying the Vietnam draft increased aggregate fertility rates by 3.5 percent. This lottery-based counterfactual is much more conservative than a polynomial extrapolation, which suggests that the actual GFR rate exceeded the counterfactual by 13 percent in 1970, or 10 births per 1,000 women (Bailey and Chyn forthcoming) (see Appendix Figure B1 and B2).

Repeating this analysis for early repeal states, the lottery-based GFR counterfactual is about 75 births per 1,000 women for 1970 versus the observed 85.4 births per 1,000 women—implying that the Vietnam draft elevated birth rates by 14 percent. In states that did not legalize or reform abortion, the lottery-based GFR counterfactual implies virtually no effect on fertility rates (see Appendix Figure B3).[14] Taken at face value, this means that (1) there was little fertility response to the Vietnam War in control states, (2) local draft boards in control states were less likely to grant last-minute requests for reclassification after the 1969 lottery, or (3) draft-eligible men in control states did not respond as quickly to their lottery numbers (they sought deferments and had children prior before the 1969 lottery rather than in response to their lottery numbers). The first seems unlikely because control states have a visible fertility notch as well. The second and third explanations seem plausible and would lead to a fertility notch and a smaller response to the draft lottery in 1970.

[13] This is consistent with all men having time to respond by fathering a child and no "safe" number allowing them to escape service. All individuals in our lottery sample, as in the population, would have had access to other deferments.
[14] The point estimate for women from control states (Table 2, Column 2) is 0.2 percent. A simple extrapolation implies that the counterfactual birth rate for control states would be 0.40 births lower (see Appendix B). Given that the observed birth rate in control states was about 90 births per 1,000 women, this represents a decrease of less than half of a percent.

This paper shows that the availability of paternity deferments during the Vietnam War led to elevated fertility rates during the late 1960s. The analysis also shows that fertility rates rose much more in response to the War in states repealing abortion in 1970. This finding implies that the subsequent, relatively large fall in fertility rates in early repeal states is in part attributable to the end of paternity deferments. Said another way, previous research regarding the effects of abortion legalization has likely *overstated* its importance in reducing birth rates after 1970 and improving children's lives. Overall, our findings suggest that the Vietnam War had large effects on the next generation by altering the timing of childbearing and their living circumstances.

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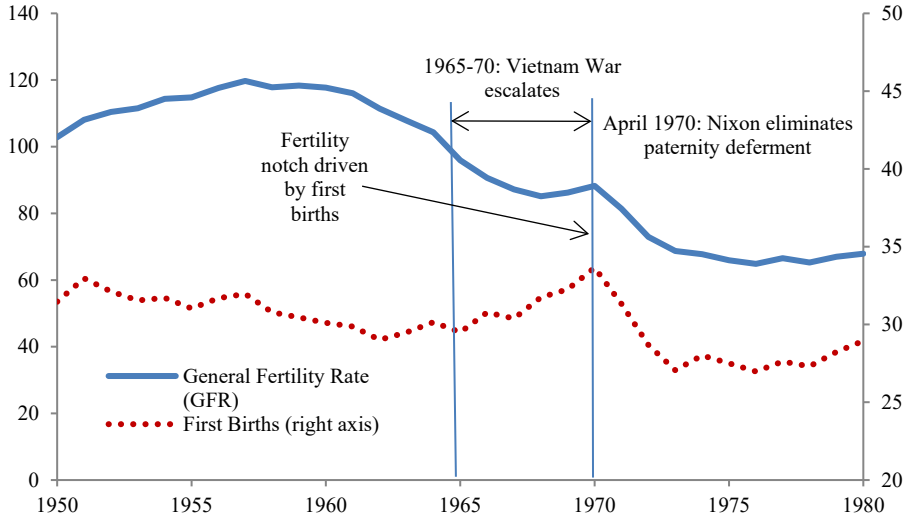
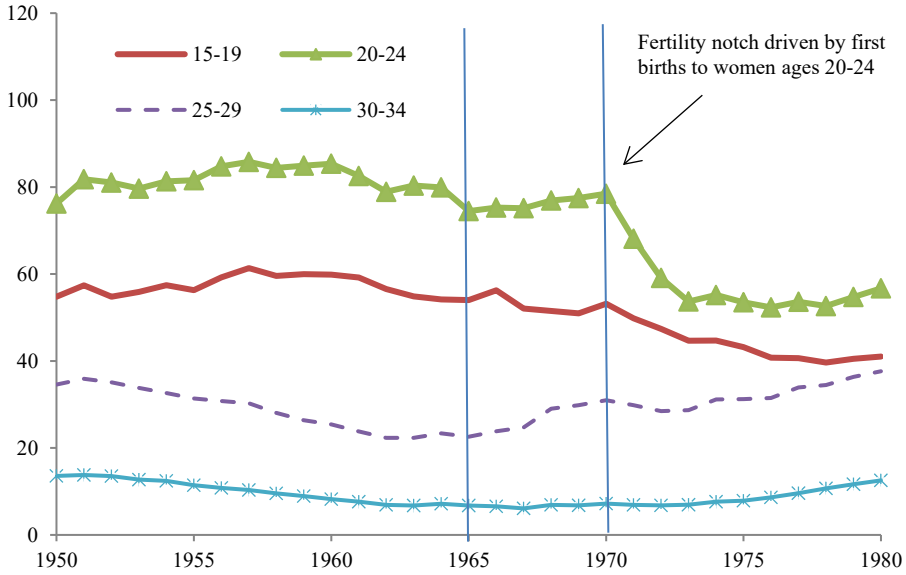
Figure 1. U.S. Fertility Rates, 1950 to 1980

A. U.S. General Fertility Rate and First Birth Rate



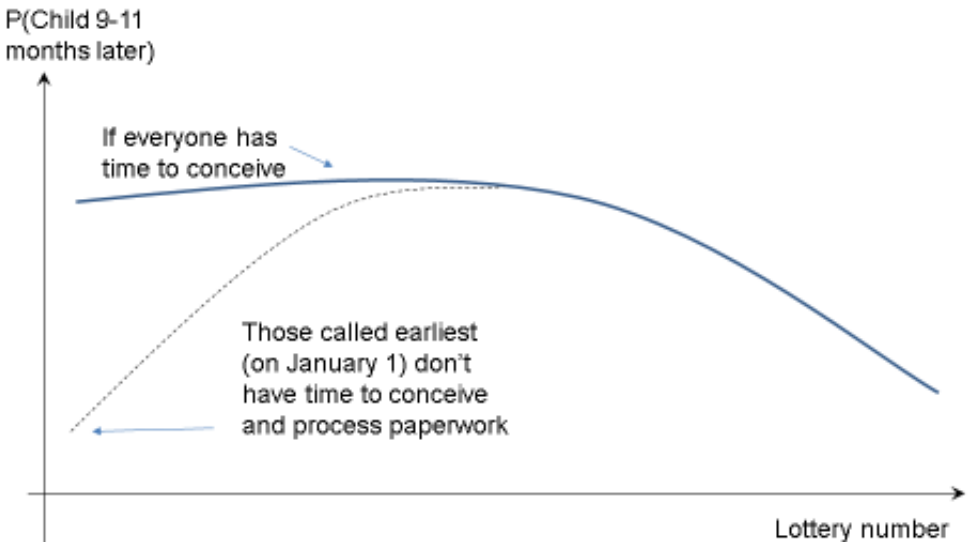
B. Age-Group-Specific First Birth Rates (First Births per 1000 Women in Age Group)



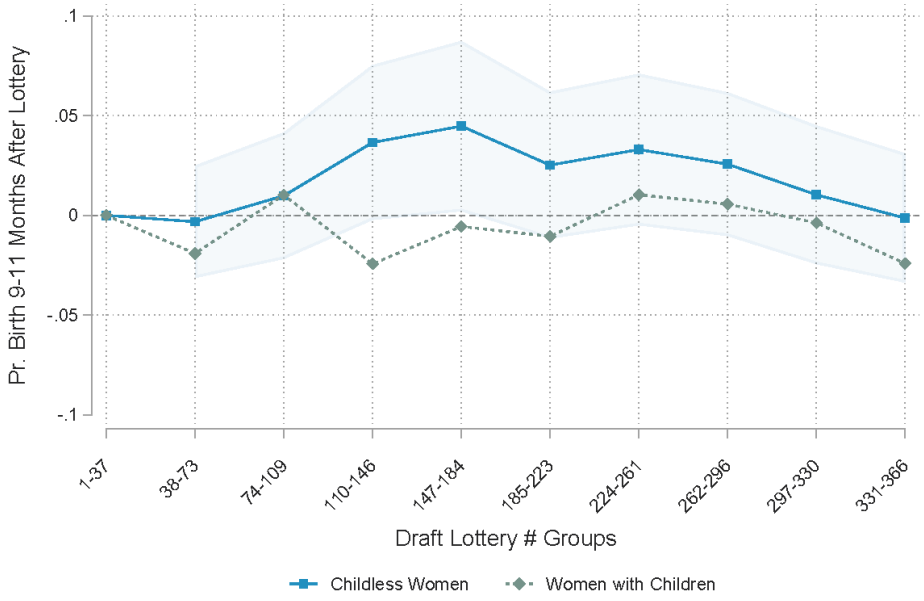
Note: The general fertility rate is measures as births per 1,000 women ages 15 to 44. The first birth rate is computed by dividing the number of first births by the number of women ages 15 to 44 (panel B) and the number of women in the indicated age group (panel C) and multiplying by 1,000. Sources: 1950 to 1967 Vital Statistics Volumes (Bailey 2010) and 1968 to 1980 Natality Files (US DHHS 2002).

Figure 2. The Effect of the 1969 Draft Lottery on Childbearing Nine to 11 Months Later

A. Hypothesized Childbearing Response



B. Heterogeneous Effects of the Draft on Births After the 1969 Draft Lottery



Notes: Panel A provides a stylized illustration of unconstrained and constrained fertility responses to draft lottery numbers. Panel B plots point estimates from linear probability regression models where the dependent variable is an indicator for having a birth nine to 11 months after the 1969 draft lottery. We divide lottery numbers into 10 equal-sized groups. The omitted group indicator is the group containing the first 37 lottery numbers. We also include controls for the husband's birth month and controls for the respondent's age, education and race in the results. Estimates are presented separately for women who were childless in December 1969 (solid line) and women who had children then (dashed line). For childless women, the shaded area corresponds to the 95-percent, point-wise confidence interval. Source: 1973 and 1976 NSFG (Smock et al. 2012).

Table 1. The Effect of Draft Risk on Childbearing Nine to 11 Months after the Draft Lotteries

	(1)	(2)	(3)	(4)
	Dependent Variable: 1=Gave Birth Nine to 11 Months After the Draft Lottery			
Lottery	1969 Draft Lottery			1970-1972 Draft Lotteries
Sample	All women	Childless women	Women with a child	Childless women
Draft # 123-244	0.018**	0.030**	-0.002	0.008
	[0.009]	[0.012]	[0.012]	[0.018]
Draft # 245-366	0.005	0.008	-0.0002	0.004
	[0.008]	[0.010]	[0.013]	[0.016]
Observations	4,574	2,518	2,056	872
R-squared	0.002	0.006	0.007	0.019
Mean DV. for Draft # 1-122	*0.034*	*0.033*	*0.036*	*0.032*

Notes: Robust standard errors in brackets. The dependent variable is an indicator for a birth in September, October or November 1970 in cols. 1-3 and in the year after the respective lottery in col. 4. The covariates include husband birth month FE and a survey year dummy for 1976. Statistical significance denoted by * for p-value < 0.10, ** for p-value < 0.05, *** for p-value < 0.01. Source: 1973 and 1976 NSFG (Smock et al. 2012).

Table 2. Heterogeneity in the Impact of Draft-Induced Childbearing in 1970

	(1)	(2)	(3)	(4)
Lottery	1969 Draft Lottery			
Sample	*All women*	*All women*	*Childless women*	*Women with children*
Draft # 123-244	0.006	0.002	0.013	-0.013
	[0.011]	[0.011]	[0.014]	[0.015]
Draft # 245-366	0.003	0.001	0.000	0.001
	[0.010]	[0.010]	[0.013]	[0.017]
Reform	-0.006			
	[0.013]			
Reform × Draft # 123-244	0.015	0.018	0.019	0.016
	[0.021]	[0.021]	[0.029]	[0.030]
Reform × Draft # 245-366	-0.004	-0.003	0.004	-0.011
	[0.019]	[0.018]	[0.023]	[0.028]
Repeal	-0.021*			
	[0.012]			
Repeal × Draft # 123-244	0.053**	0.060**	0.074**	0.029
	[0.025]	[0.024]	[0.036]	[0.028]
Repeal × Draft # 245-366	0.015	0.024	0.041	0.000
	[0.020]	[0.018]	[0.028]	[0.022]
Observations	4,574	4,574	2,518	2,056
R-squared	0.004	0.028	0.045	0.071
State fixed effects		X	X	X
Mean DV. for Draft # 1-122 Control States	0.039	0.039	0.039	0.039
Mean DV. for Draft # 1-122 Repeal States	0.018	0.018	0.015	0.023

Notes: The sample in column 3 includes women without a child prior to the 1969 draft lottery, and the sample in column 4 includes women with a child prior to the 1969 draft lottery. The coding for *Reform* and *Repeal* states comes from Levine et al. (1999). The covariates include husband birth month FE and a survey year dummy for 1976. Statistical significance denoted by * for p-value < 0.10, ** for p-value < 0.05, *** for p-value < 0.01. Source: 1973 and 1976 NSFG (Smock et al. 2012).

ONLINE APPENDIX

FOR "THE DEMOGRAPHIC LEGACY OF THE VIETNAM WAR"

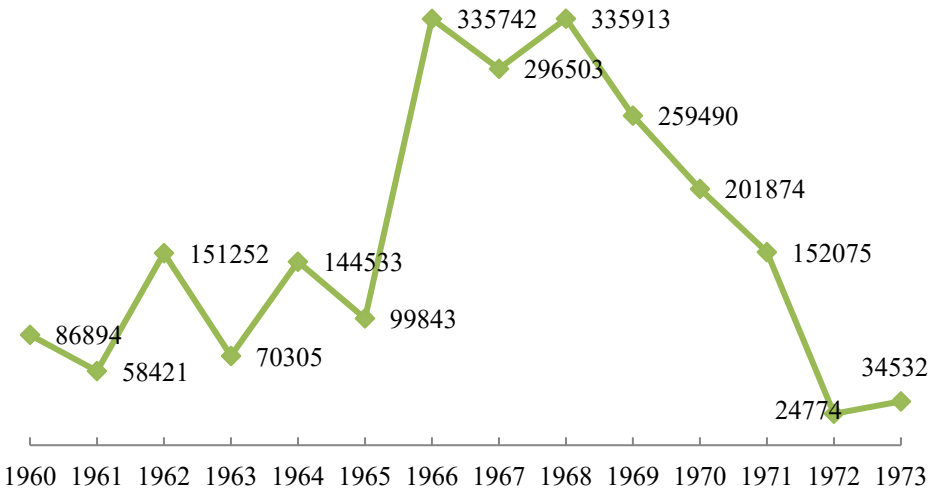
By Martha J. Bailey and Eric Chyn

April 11, 2020

Appendix A. Tables and Figures

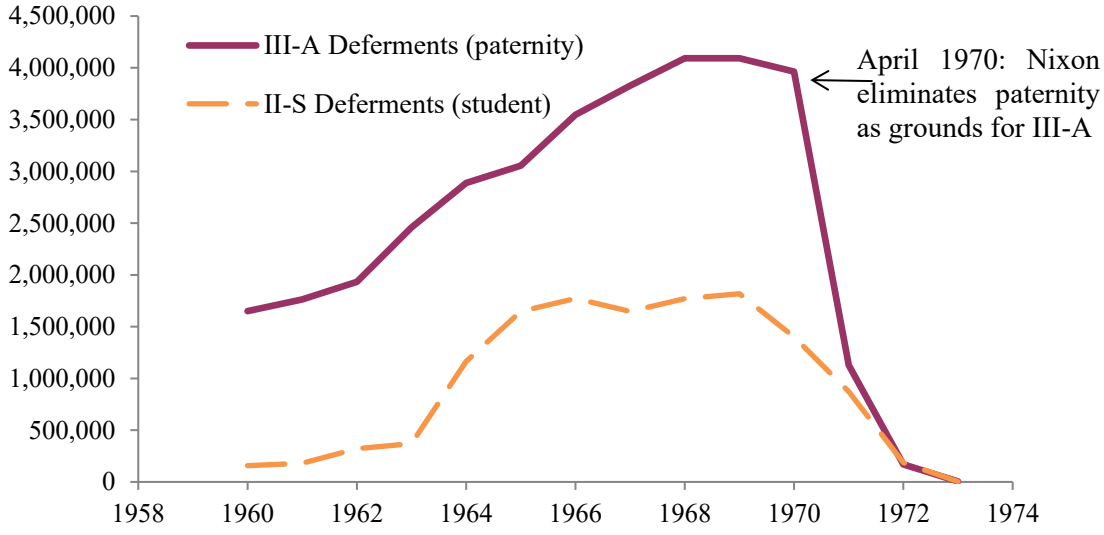
Figure A1. Inductions and Deferments, 1960 to 1973

A. *Inductions, 1960 to 1973*



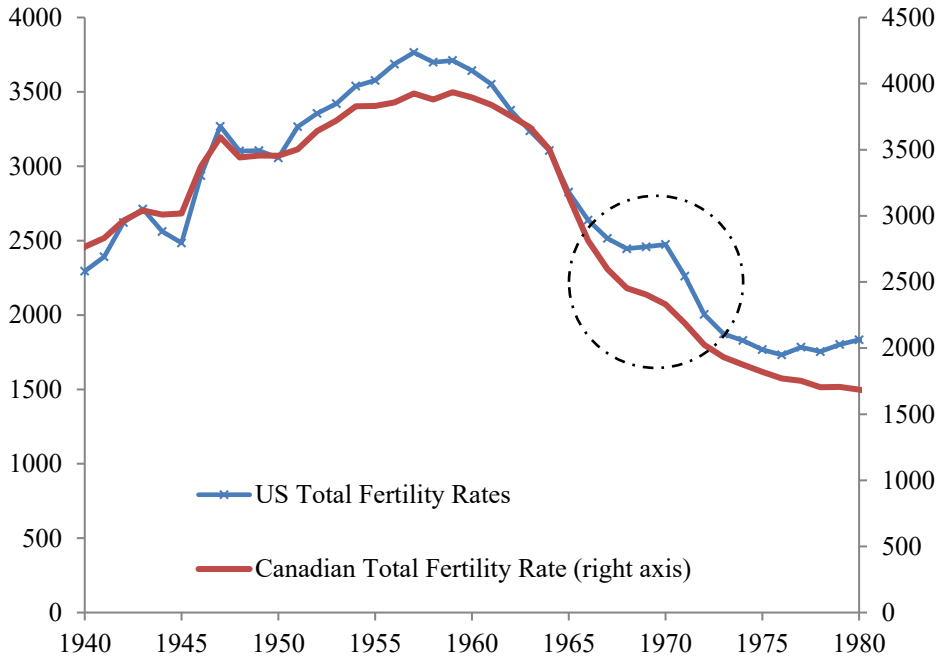
Notes: Total inductions by fiscal year exclude U.S. territories. Fiscal years run from July of the previous year to June of the current year (i.e. 1961 data reflects inductions from July 1, 1960-June 30, 1961). Source: Annual data from annual and semi-annual Selective Service reports, 1960-1973.

B. Hardship and Education Deferments, 1960 to 1973



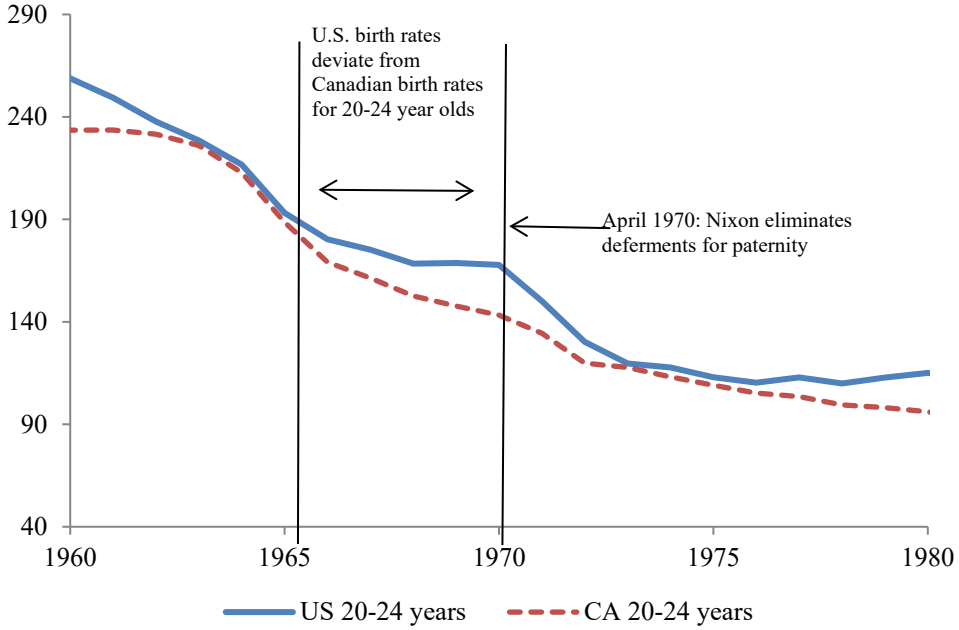
Notes: Source: Annual data from annual and semi-annual Selective Service reports, 1960-1973.

Figure A2. U.S. and Canadian Total Fertility Rates, 1940-1980



Notes: The total fertility rate is the sum of age-specific birth rates multiplied by 1,000. Source: Canadian fertility rates Milan (2013); U.S. fertility rates: Bailey et al. (2016) and U.S. Department of Health and Human Services and National Center for Health Statistics (2013).

Figure A3. U.S. and Canadian Birth Rates for Women Ages 20 to 24, 1960-1980



Notes: See Figure A2 notes for sources.

Appendix Table A1. The Effect of Draft Risk on Childbearing after the 1969 Draft Lottery

	(1)	(2)	(3)	(4)	(5)	(6)
A. Sample: Childless Women with 1969 Draft-Eligible Husband						
Draft # 123-244	0.029**	0.030**	0.029**	0.029**	0.020*	0.019
	[0.012]	[0.012]	[0.012]	[0.013]	[0.012]	[0.012]
Draft # 245-366	0.007	0.008	0.007	0.007	-0.004	-0.003
	[0.010]	[0.010]	[0.010]	[0.010]	[0.010]	[0.010]
Mean of DV. for Draft #1-122	0.033	0.033	0.033	0.033	0.045	0.045
Observations	2,518	2,518	2,512	2,512	2,518	2,512
R-squared	0.004	0.006	0.016	0.052	0.006	0.041
B. Sample: Women with Children and 1969 Draft-Eligible Husband						
Draft # 123-244	-0.004	-0.002	-0.003	-0.005	0.009	0.008
	[0.012]	[0.012]	[0.013]	[0.011]	[0.010]	[0.010]
Draft # 245-366	0.005	-0.0002	-0.002	-0.003	0.011	0.010
	[0.013]	[0.013]	[0.013]	[0.012]	[0.011]	[0.011]
Mean of Dep. Var. for Draft #1-122	0.036	0.036	0.036	0.036	0.033	0.033
Observations	2,056	2,056	2,055	2,055	2,056	2,055
R-squared	0.000	0.007	0.013	0.076	0.007	0.039
C. Sample: Childless Women with Husband Eligible for 1970-1972 Draft Lotteries						
Draft Number 123-244	0.006	0.008	0.010	0.016	0.014	0.021
	[0.019]	[0.018]	[0.019]	[0.019]	[0.017]	[0.018]
Draft Number 245-366	0.003	0.0043	0.004	0.009	-0.001	0.006
	[0.016]	[0.016]	[0.016]	[0.017]	[0.016]	[0.017]
Mean of Dep. Var. for Draft #1-122	0.032	0.032	0.032	0.032	0.040	0.040
Observations	872	872	862	862	872	862
R-squared	0.000	0.019	0.029	0.099	0.019	0.094
Covariates						
Husband Birth Month FE		X	X	X	X	X
Survey Year (1976 Dummy)		X	X	X	X	X
Age of Birth (Categorical Dummy)			X	X		X
Race FE			X	X		X
Education FE			X	X		X
State FE (Residence at Ages 6-16)				X		X
Weights	X	X	X	X		

Notes: Robust standard errors in brackets. In panels A and B, the dependent variable is an indicator for a birth in September, October or November 1970. In panel C, the dependent variable is an indicator for a birth in nine to 11 months after the 1970, 1971, and 1972 draft lotteries. The final two columns omit NSFG post-stratification weights which means that over-sampled groups receive more weight in the regression. Statistical significance denoted by * for p-value < 0.10, ** for p-value < 0.05, *** for p-value < 0.01. Source: 1973 and 1976 NSFG (Smock et al. 2012).

Appendix Table A2. Heterogeneity in the Impact of Draft-Induced Childbearing in 1970, Robustness

	(1)	(2)	(3)	(4)
Sample	*All women*	*All women*	*Childless women*	*Women with children*
Draft # 123-244	0.005	0.002	0.009	-0.015
	[0.011]	[0.011]	[0.015]	[0.015]
Draft # 245-366	0.003	0.001	-0.003	0.000
	[0.010]	[0.010]	[0.013]	[0.017]
Reform	-0.010			
	[0.013]			
Reform × Draft # 123-244	0.018	0.019	0.023	0.019
	[0.022]	[0.021]	[0.029]	[0.031]
Reform × Draft # 245-366	-0.004	-0.003	0.006	-0.012
	[0.019]	[0.018]	[0.023]	[0.028]
Repeal	-0.023*			
	[0.012]			
Repeal × Draft # 123-244	0.054**	0.062**	0.080**	0.029
	[0.025]	[0.025]	[0.036]	[0.027]
Repeal × Draft # 245-366	0.015	0.024	0.042	-0.000
	[0.020]	[0.019]	[0.029]	[0.022]
Observations	4,567	4,567	2,512	2,055
R-squared	0.008	0.031	0.056	0.077
Covariates				
Husband Birth Month FE	X	X	X	X
Survey Year (1976 Dummy)	X	X	X	X
Age of Birth (Categorical Dummy)	X	X	X	X
Race FE	X	X	X	X
Education FE	X	X	X	X
State FE (Residence at Ages 6-16)		X	X	X
Mean DV. for Draft # 1-122 Control States	0.039	0.039	0.039	0.039
Mean DV. for Draft # 1-122 Repeal States	0.018	0.018	0.015	0.023

Notes: The sample in column 3 includes women without a child prior to the 1969 draft lottery, and the sample in column 4 includes women with a child prior to the 1969 draft lottery. The coding for *Reform* and *Repeal* states comes from Levine et al. (1999). The covariates always include husband birth month FE and a survey year dummy for 1976. Statistical significance denoted by * for p-value < 0.10, ** for p-value < 0.05, *** for p-value < 0.01. Source: 1973 and 1976 NSFG (Smock et al. 2012).

Appendix Table A3. Support for the Vietnam War in Gallup Polls in Early Repeal States

Dependent variable	(1) 1=U.S. made a mistake in sending troops to Vietnam	(2)	(3) 1=Nixon is telling truth	(4) 1=Oppose resuming bombing	(5) 1=Favor cutting war funds	(6) 1=Disapprove Nixon handling of Vietnam
1=Early repeal state	0.124*	0.181***	0.0994**	0.131**	0.138**	0.0798
	(0.0692)	(0.0574)	(0.0453)	(0.0617)	(0.0690)	(0.0616)
1=Reform state	0.0226	-0.0511	-0.0202	-0.107**	0.0765	-0.0805
	(0.0530)	(0.0514)	(0.0413)	(0.0501)	(0.0503)	(0.0506)
1=Male	-0.0563	0.0394	-0.00337	-0.136***	-0.0412	0.0196
	(0.0469)	(0.0424)	(0.0345)	(0.0424)	(0.0440)	(0.0421)
1=Nonwhite	0.186**	0.162***	0.150***	0.124**	0.194***	0.241***
	(0.0771)	(0.0525)	(0.0343)	(0.0539)	(0.0540)	(0.0468)
Constant	0.489***	0.573***	0.775***	0.671***	0.501***	0.578***
	(0.0385)	(0.0369)	(0.0300)	(0.0360)	(0.0380)	(0.0368)
Observations	455	508	520	509	509	514
R-squared	0.022	0.034	0.028	0.050	0.035	0.045

Notes: The dependent variable in columns 1 and 2 is equal to 1 if the respondent answered yes to this question (no=0, no opinion is missing): "In view of the developments since we entered the fighting in Vietnam, do you think the U.S. made a mistake sending troops to fight in Vietnam?" The dependent variable in column 4 is equal to 1 if the respondent answered "IS NOT" to this question ("IS"=0, no opinion is missing): "Do you think the Nixon Administration is or is not telling the public all they should know about the Vietnam War?" The dependent variable in column 5 is equal to 1 if the respondent answered "OPPOSE" to this question ("FAVOR"=0, no opinion is missing): "If North Vietnam refuses to agree to what we think are reasonable peace terms, would you favor or oppose resuming the bombing of Hanoi and Haiphong again?" The dependent variable in column 6 is equal to 1 if the respondent answered "FAVOR" to this question ("OPPOSE"=0, no opinion is missing): "It has been proposed that Congress cut off all funds to carry on the war in Vietnam if a peace settlement has not been reached during the next two months. Do you favor or oppose this proposal?" The dependent variable in column 6 is equal to 1 if the respondent answered "DISAPPROVE" to this question ("APPROVE"=0, no opinion is missing): "Do you approve or disapprove of the way President Nixon is handling the situation in Vietnam?" Statistical significance denoted by * for p-value < 0.10, ** for p-value < 0.05, *** for p-value < 0.01. Source: Column 1 uses Gallup Poll 803 conducted April 2-7, 1970 (Gallup Organization 1970). Columns 2-6 use Gallup Poll 862 conducted January 12-15, 1973 (Gallup Organization 1973).

Appendix B. Counterfactual Fertility Estimates for the U.S.

Counterfactual estimates shed light on the magnitude of the implied effects on national fertility rates. Our approach takes the local average treatment effect (LATE) for the middle group of lottery numbers (123-244) and scales it to generate a national general fertility rate (*GFR*) in the following manner,

$$\widehat{GFR_t} = GFR_t - \hat{\gamma}\,\varphi_t\,\omega_t 1{,}000. \quad (2)$$

If everyone in the U.S. had been at risk of the draft, the national effect of the lottery might be inferred directly using $\hat{\gamma}$ from Table 1. However, $\hat{\gamma}$ is estimated only for the population that is both subject to the draft and represented in the 1973 and 1976 *NSFG* sample frame. Assuming the effects of the 1969 lottery were zero for women whose husbands were not subject to the 1969 lottery and not in the *NSFG* sampling frame, we scale the lottery estimate by the share of women in the 1973 and 1976 *NSFG* samples who *were* married to someone in the 1969 lottery, φ, and the share of the childbearing population in the U.S. represented in the *NSFG* samples, ω. Fertility rates are, by convention, scaled by 1,000, which motivates our scaling in (2).

To generate the counterfactual GFR had the draft not occurred, we set t=1970. The 1973 and 1976 NSFG suggest that 25 percent of women of childbearing age would have been married to a first husband at risk for the draft in 1969. The 1970 Census indicates that 71 percent of the population of 15 to 44 year-old women in the U.S. should be represented in the NSFG sampling frame (Ruggles and al. 2015). Therefore, we compute that roughly 3 fewer births per 1,000 women would have occurred in 1970 (0.018 from Table 1, column 1 x 0.25 x 0.71 x 1,000) in the absence of the Vietnam draft. The counterfactual GFR in 1970 is, therefore, 85 (=88−3), depicted on Appendix Figure B1 as the blue dot labelled "Lottery counterfactual."

This counterfactual assumes that all men subject to the draft would have responded to the Vietnam draft in the same manner as men with the 123-244 lottery numbers. This makes sense if all men subject to the draft before 1969 had time to respond by fathering a child, and there would have been no "safe" number to allow them to avoid the draft. Moreover, all individuals in our lottery sample, as in the population at large, would have had access to other deferments. Keep in mind that this counterfactual ignores any

response to draft risk that occurred before the 1969 lottery's effects in September to November of 1970 and also assumes a zero response to draft risk for cohorts too young to be subject to the 1969 draft (but expecting to be subject to the 1970 draft lottery).[15] Finally, because the momentum of deciding to have a child with a partner may be difficult to reverse, we expect that the availability of paternity deferments until April 1970 may have also affected fertility rates into 1971.

The external validity of the lottery LATE is more difficult to assess. There are well-known limitations in extrapolating LATEs to the population (DiNardo and Lee 2011), and there are reasons why extrapolation may be of concern in our context. More risk-averse couples may have sought deferments for paternity *before* the 1969 draft lottery, which is consistent with the 10 percent increase in the first birth rate between 1965 and 1969. The men who had children in this period would have had no draft-avoidance motivation to respond to the 1969 lottery by conceiving another child, implying the lottery responses to the 1969 lottery may have been smaller than the population responses. In addition, childbearing responses to the lottery could have been smaller than in the population due to selection (the category still childless in 1969 is less prepared or least motivated to dodge via paternity) or larger due to the salience of risk (deployment was imminent in 1969). The fact that our lottery-based counterfactual is *much* smaller than the likely Vietnam War induced fertility notch suggests our lottery-based counterfactual estimate is conservative. Eliminating the notch entirely (i.e., obtaining an estimate roughly in line with the linearly interpolated estimate) would require an effect over three times as large as the lottery-based counterfactual.

[15] These effects are likely large. For instance, men anticipating that they could be subject to a lottery (based on Nixon's May 1969 announcement of his plans) could have begun fathering children before the official November 1969 change in legislation. Younger men expecting to be subject to the lottery in 1970 could have begun fathering children before Nixon's April 23 elimination of paternity as a grounds for deferment, which would have elevated birth rates for all men—not just those with lottery numbers. Conceptions before Nixon's April 23 elimination of paternity as grounds for deferment would have been born as late January 1971.This calculations assumes a 28-day menstrual cycle and that women beginning their last period on April 9 would have conceived on around April 23. Assuming 40 weeks of gestation from the first day of the last period, these babies would have been due around January 14, 1971, and could have arrived in early or late January, due to variation in gestational length across women.

We also consider the counterfactual for first births.[16] As before, we obtain parameters for these estimates from the *NSFG* and Census. The 1973 and 1976 *NSFG*s suggest that 15.9 percent of women of in their sampling frame would have been *childless and married* to a first husband at risk for the draft in 1969. The 1970 Census indicates that only 71 percent of U.S. women of childbearing ages (15 to 44) were sampled in the *NSFG*. We, therefore, compute that roughly 3 fewer births per 1,000 women would have occurred in 1970 (0.030 from Table 1, column 2 x 0.159 x 0.71 x 1,000) had the 1969 Vietnam lottery not taken place. This implies a counterfactual 1970 first birth rate of about 30, which is ten percent lower than the observed rate in 1970 As in the case for the *GFR*, the lottery-based counterfactual is *much* smaller than the likely Vietnam War induced fertility notch. This again suggests our lottery-based counterfactual estimate is conservative.

We also construct counterfactual fertility rates by state groups, g, in the same manner ($\hat{\gamma}_{gt}, \varphi_{gt}$, and ω_{gt}), where g represents Repeal, Reform, or Control states in t=1970.[17] The 1973 and 1976 NSFG show that 25, 26.2, and 28.9 percent of this sample in repeal, reform, and control states, respectively, would have been married to a first husband at risk for the draft in 1969. The 1970 Census indicates that 70.6, 73, 69.7 percent of women in repeal, reform, and control states, respectively, would have represented in the 1973 and 1976 samples. Using parameters from the 1970 Census and NSFG together with information from Table 2, we calculate that the lottery counterfactual fertility rate for 1970 in repeal states was 75 births per 1,000 women – a reduction from the observed fertility rates of 12.4 percent.

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[16] We estimate $\widetilde{FBR}_t = FBR_t - \hat{\gamma}\,\varphi_t\,\omega_t 1{,}000$. The national effect of the lottery on first births could be inferred directly from panel B of table 1, $\hat{\gamma}$. However, $\hat{\gamma}$ is only estimated for the population of nulliparous women married to first husbands subject to the draft and in the 1973 and 1976 *NSFG* sample frame. Assuming the effects of the 1969 lottery were zero for individuals with husbands not subject to the 1969 lottery and not in the *NSFG* sampling frame, we scale the lottery estimate by the share of women in the 1973 and 1976 *NSFG* samples who were married to someone in the 1969 lottery and childless, φ, and the share of the childless childbearing population in the U.S. represented in the *NSFG* samples of childless women, ω.

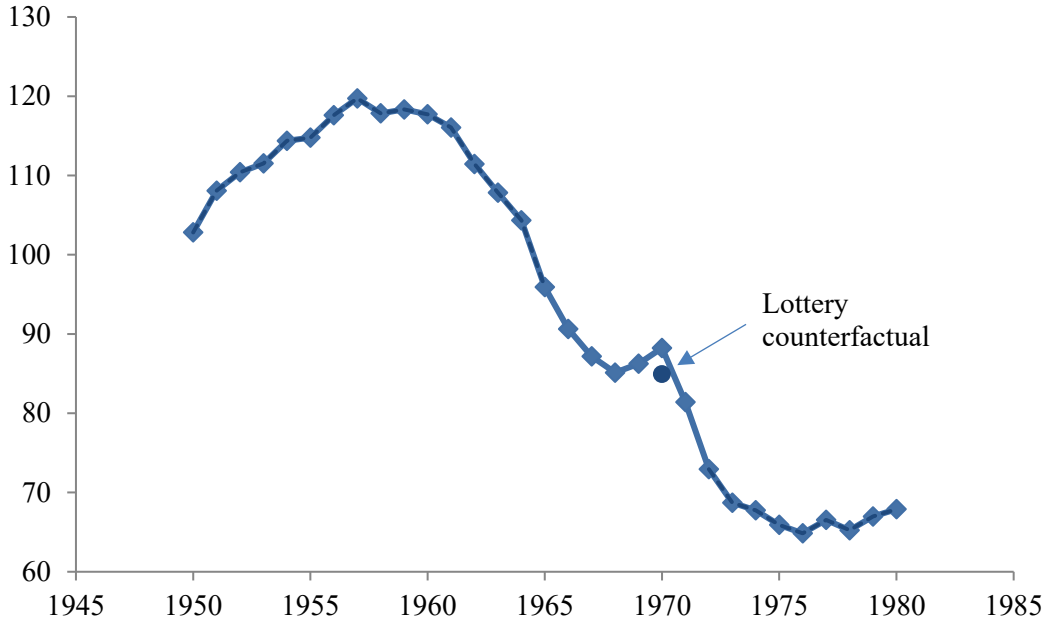
[17] Recall that repeal, reform and control state designations are based on Levin et al. (1999) who defined these categories based on abortion status before *Roe v. Wade*. See main text for details.

Counterfactuals for both control and repeal states are plotted in Appendix Figure B3. The lottery estimate completely eliminates the fertility notch in repeal states but, as implied by Table 2, has virtually no effect on the fertility notch in control states.[18] Taken literally, this implies either (1) that there was very little fertility response to the Vietnam War in control states, (2) that local draft boards in control states were unlikely to entertain a last-minute request for a change of status after the 1969 lottery, or (3) that draft-eligible men in control states had children *in advance of the 1969 lottery* to defer service (rather than in response to their 1969 lottery numbers). The first seems unlikely because control states have a visible fertility notch as well. The second and third explanations would lead to a fertility notch—though one that is not as large in 1970—as well as lead the 1969 draft lottery counterfactual to understate aggregate responses.

An alternative approach to estimating the effect of the draft *dodging* (not the draft lottery) on births uses non-linear, time series interpolation between 1965 and 1972. We implement this by regressing the general fertility rate (GFR) on a set of state group fixed effects, *g*, interacted with a sixth-order polynomial (sextic) in year of observation, *t*, or $GFR_{st} = \sum_{p=0}^{6} \beta_p f_{g(s)} t^p + \varepsilon_{st}$. We use this flexible polynomial to fit the evolving *GFR* in the 1955-1965 and 1972-1980 periods for control, reform and repeal state groups. Then we use this model to predict counterfactual fertility rates for the Vietnam War period, 1966-1971. The resulting counterfactual estimates are plotted in Appendix Figure B3. Notably, this counterfactual is lower than the lottery-based counterfactual for early repeal states, predicting a GFR in 1970 of 71.8 (versus 75.6 for the lottery-based estimate)—a reduction of 16 percent from the observed rate of 85.4. The time series counterfactual, however, implies a much larger reduction in the GFR in control states by 1970 of 79.6—a reduction of 12 percent from the observed GFR of 90.5.

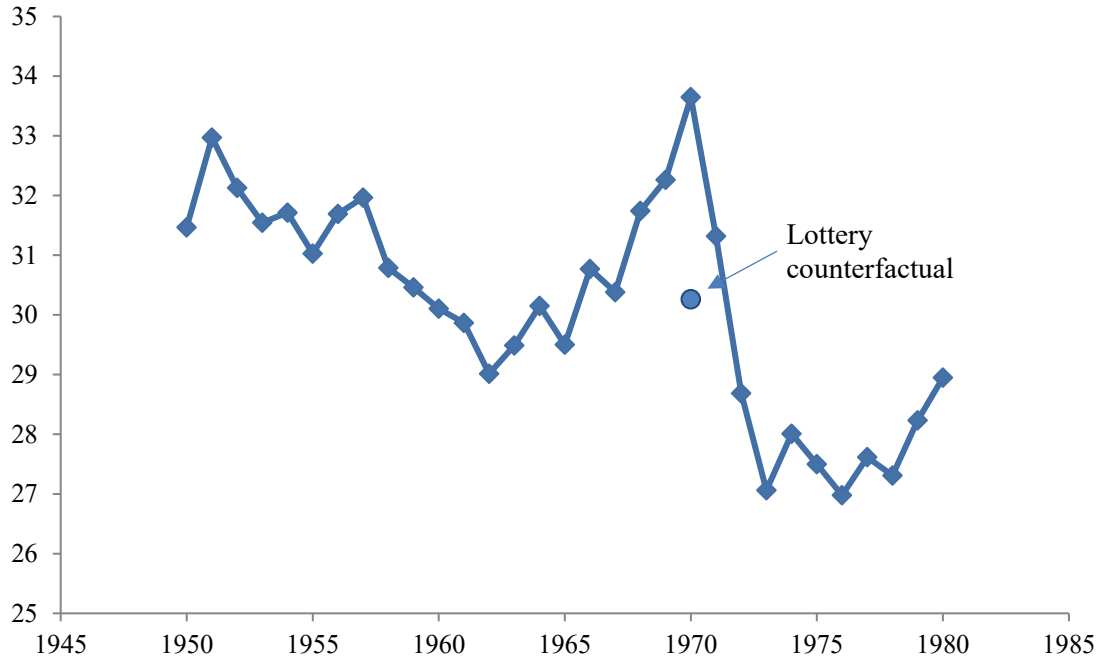
[18] The point estimate for women from control states (Table 2, Column 2) is 0.2 percent. The simple extrapolation implies that the counterfactual birth rate for control states would be about 0.40 births lower (= 0.002 from Table 2, column 2 x 0.289 x 0.697 x 1,000 = 0.403).

Appendix Figure B1. National General Fertility Rates and a Counterfactual for 1970



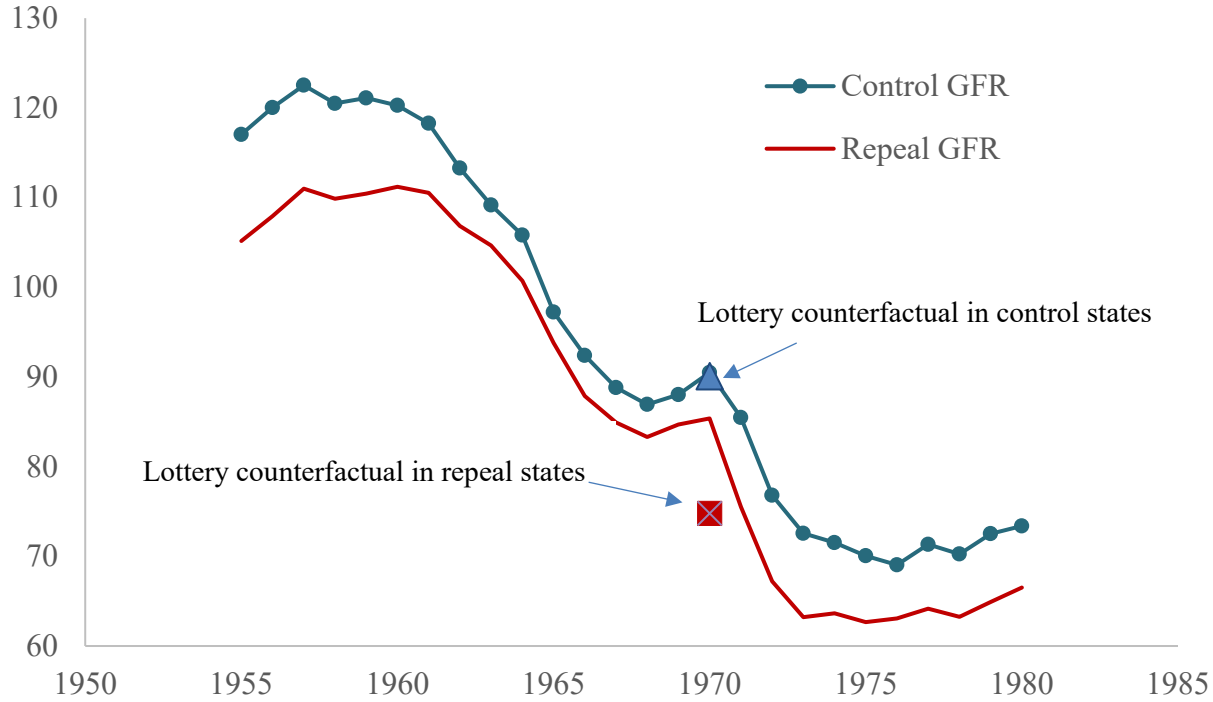
Notes: The lottery-based counterfactual is constructed by subtracting the quantity 0.018*.71*.28*1000 from the observed GFR in 1970.

Appendix Figure B2. First Birth Rates and a Counterfactual for 1970



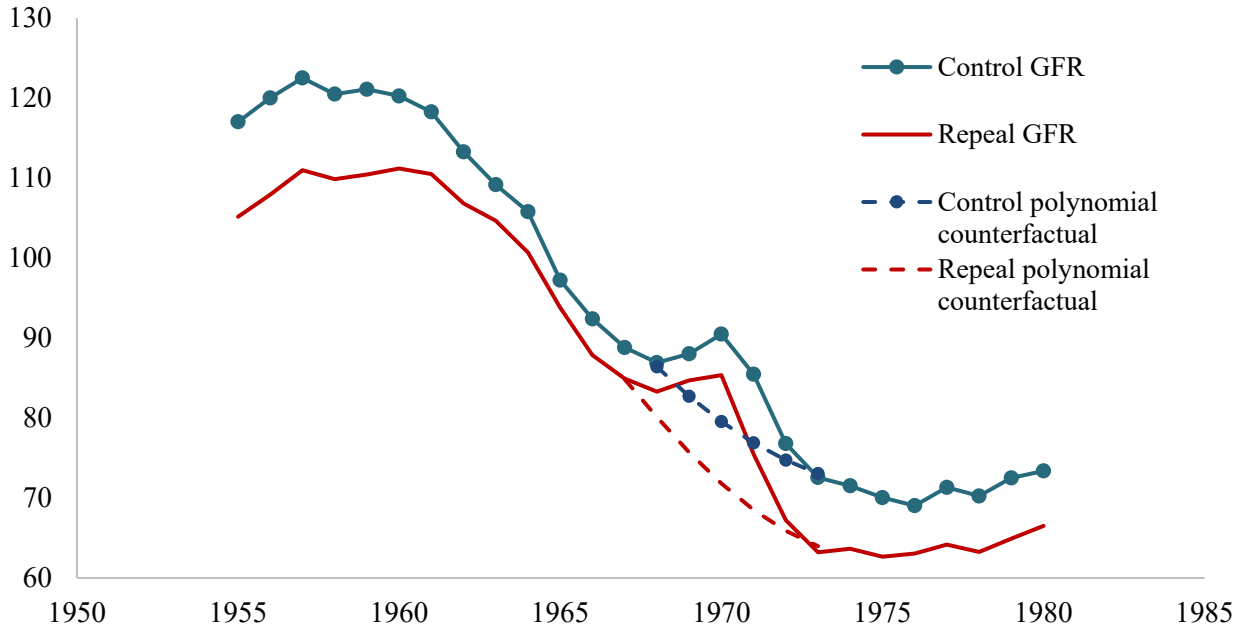
Notes: The lottery-based counterfactual is constructed by subtracting the quantity 0.030*.71*.159*1000 from the observed GFR in 1970.

Appendix Figure B3. Counterfactual General Fertility Rates in 1970, by the Legality of Abortion



Notes: The lottery-based counterfactuals are constructed by subtracting the quantities 0.06*0.25*0.706*1000 and 0.002*0.289*0.697*1000 from the observed GFR in repeal and control states, respectively.

Appendix Figure B4. Counterfactual General Fertility Rates in 1970 Using Polynomial Estimates, by the Legality of Abortion



Notes: The polynomial counterfactuals are constructed by fitting a sextic interacted with state groups for the 1955-1965 and 1972-1980 periods and predicting fertility rates in the Vietnam era. See text for details.