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Post-Roe Planning: The Effect of Dobbs v. Jackson on Contraceptive and Sterilization Choices

Yana Gallen and Daisy Lu

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THE UNIVERSITY OF CHICAGO
BECKER FRIEDMAN INSTITUTE FOR ECONOMICS

5757 S. University Ave.
Chicago, IL 60637
Main: 773.702.5599
bfi.uchicago.edu

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Abstract

This study examines the impact of the *Dobbs v. Jackson Women's Health Organization* ruling which removed federal protections for abortion on contraceptive and sterilization decisions. Using health insurance records of millions of Americans, we find that the ruling led to an increase of 22% in the monthly rate of female sterilization procedures, 18% increase in male sterilization procedures, and a 15% increase LARC insertions in states hostile to abortion compared to other states in the months immediately following the ruling. For most sub-groups we study, effects fade by 2023. However, we find lasting effects on sterilization rates for individuals aged 18-25.

Keywords: abortion; contraception; family planning

JEL Codes: J13, I18

*Gallen: University of Chicago, Harris School of Public Policy. E-mail: yana@uchicago.edu. Lu: University of Chicago, Harris School of Public Policy. E-mail: daisylu@uchicago.edu. Thank you to Gustavo Luchesi, Regina Isabel Medina Rosales, and Aline Vandenbroeck for excellent research assistance and conversations throughout this process. Thank you to Martha Bailey, Zarek Brot, Joshua Gottlieb, Phillip Levine, Robert Pollak, Maggie Shi, and Xueshi Wang for their helpful comments and suggestions. Thank you also to participants at SOLE and ASHEcon for their comments and suggestions. Certain data used in this study were supplied by Merative as part of one or more MarketScan Research Databases. Any analysis, interpretation, or conclusion based on these data is solely that of the authors and not Merative.

1 Introduction

This paper studies the impact of state-level abortion bans on individuals' contraceptive choices. Recent legal and legislative shifts, particularly following the Supreme Court's decision in *Dobbs v. Jackson Women's Health Organization* (2022), provide a natural experiment for understanding how individuals respond to constraints on abortion access. We compare states hostile and non-hostile to abortion before and after *Dobbs* to estimate how this change in abortion policy affects take-up of short-acting and long-acting reversible contraceptives (SARC and LARC), as well as sterilization procedures.

Although *Roe v. Wade* (1973) established federal abortion protections, states have been enacting legislation related to abortion for decades. By the time of the *Dobbs* decision in 2022, thirteen states had enacted trigger laws set to ban or restrict abortion immediately if *Roe* were overturned, and many others were expected to follow quickly.[1] We find that states hostile to abortion diverge from others in July 2022, immediately after the *Dobbs* decision was officially released. Both women and men are more likely to undergo sterilization procedures and women are more likely to initiate LARC use. These differences are short-lived: by September of 2022, female sterilization procedures and LARC initiation converge to their pre-*Dobbs* differences across states, the effect on male sterilization fades by the end of the year. We find one age subgroup in which effects do not fade: young women (18-25) are more than 80% more likely to undergo sterilization procedures in 2023 as in 2021 in states hostile to abortion relative to other states.[2] Young men are 40% more likely to undergo sterilization in this time-period.

Our primary data source is the Merative™ MarketScan® Commercial Database, a longitudinal dataset covering both inpatient, outpatient procedures, and prescription drug claims from May 1, 2021 to December 31, 2023. We use this dataset to create a balanced panel of individuals enrolled in employer-sponsored health insurance (ESI). Employers contribute de-identified billing records for employees, their dependents, and partners. The sample covers a large fraction of the privately insured U.S. population and has wide geographic coverage Bae et al. (2025). The individual-level nature of the data allows us to analyze demographic patterns in contraceptive and sterilization responses, for example, by age. The panel structure also enables analysis by individuals' pre-Dobbs contraceptive behavior. Both of these features are informative for understanding the extent to which post-Dobbs decisions may prevent future births.

We find little evidence of a switch to LARCs driven by those at (relatively) high risk of unplanned

[1] For references on state-level legislation before the Dobbs ruling, see "A Surge of State Abortion Restrictions Puts Providers—and the Women They Serve—in the Crosshairs" (Guttmacher Institute, 2024).

[2] To assuage the concern that pre-leak differences in policy would also affect contraceptive and sterilization use, we show that for all outcomes where we see an effect, pre-leak trends were similar. We see no significant effect on short-acting birth control and in 2022 the difference between treatment and control states is completely flat. However, there is some suggestive evidence of diverging trends in 2021 and again in 2023, making inference challenging. When we focus only on states that had trigger laws to ban abortion, there are neither pre-trends, nor effects of the ban on SARC prescriptions.

pregnancy. LARC initiation is similar among younger women and women age 26-35, significant only for the latter subgroup, and similar among those who were vs. weren't using SARCs pre-*Dobbs*.[3] We do not find evidence of a long-term shift to LARCs, and point estimates suggest that the increase in LARC use lasted only for about two months. For men, we see a pattern similar to LARC initiation by women: men of all ages are more likely to be sterilized in states hostile to abortion following *Dobbs* but the effect does not last.

We find that sterilization rates for women also increase temporarily for all age groups. The short-term effect among both men and women in the sterilization rate is proportionally large: about 10% of the baseline rate. There is no evidence of a long-term effect of abortion bans on monthly sterilization rates. At the same time, these trends are not consistent with *Dobbs* simply causing women to change their contraception sooner than they otherwise would have. Overall, our estimates imply that around 600 (0.1 percent) more women in our sample, and—if we extrapolate—about 18,500 more women with access to private insurance living in states hostile to abortion are sterilized or receive a LARC as a result of the *Dobbs* ruling. However, for younger women (age 18-25), we see a doubling of the monthly sterilization rate relative to pre-*Dobbs* months, with little evidence of fade-out.[4] In addition, the effect on sterilizations is driven completely by women who were previously using SARCs, suggesting that these women were sexually active and may avoid unplanned pregnancy as a result of sterilization. Finally, we see that the increase in sterilizations is largest among women with no child on their plan. By electing to undergo a permanent procedure, they may also curtail their ability to have wanted children in the future.

Much of the past literature on the impacts of abortion policy has focused on fertility and other downstream outcomes.[5] As discussed in the conceptual framework, contraception choice and abortion choices interact dynamically to determine fertility. Decomposing the total impact of *Dobbs* on fertility is challenging. Despite widespread abortion bans, the total number of abortions in the U.S. *increased* by 11% from 2020 to 2023, reaching an estimated 1,037,000 procedures, according to the Guttmacher Institute's Monthly Abortion Provision Study.[6] This increase is partly due to a surge in donations to abortion funds and an expansion of telehealth abortion services following *Dobbs* (Littlefield, 2023). Overall, Dench et al. (2023a) finds that birth rates increased by 2.3 percent as a result of abortion bans post-*Dobbs*.[7] In light of the dynamic nature of

[3]The fraction of pregnancies which are unintended is 83% among 18-19 year olds and 64% among 20-24 year olds. The rates are 30-40% for older subgroups (Finer and Zolna, 2011). There is one exception: the unintended pregnancy rate is 48% for women over 40. For men, the unintended pregnancy age gradient is similar, but less steep, to that of women (Lindberg and Kost, 2014).

[4]This does not show up as a long run increase in the sterilization rate in states hostile to abortion when aggregating across ages because the point estimate is actually negative in the 26-35 year old subgroup, where sterilization is also the most common.

[5]Exceptions studying the impact of abortion legalization in the context of contraceptive choice are Goldin and Katz (2002) and Bailey (2006), which focus on ruling out abortion legalization as a driver of employment, education and marriage patterns when studying the impact of birth control access on these outcomes.

[6]The Monthly Abortion Provision Study, conducted by the Guttmacher Institute, collects data on procedural and medication abortions.

[7]Levine et al. (1999) finds an overall 4.1 percent reduction in the birth rate as a result of abortion legalization in *Roe v. Wade*. Other work on the relationship between abortion and fertility includes Lahey (2014), Levine and Staiger (2004), and

abortion on future fertility, we focus on the question: "whose contraceptive choices respond most to abortion restrictions?" and discuss the potential long-term fertility impacts of changes in contraceptive choices. Given changes in the type of contraception women use today relative to the past, our results may reconcile earlier, larger estimates of the impact of abortion policy on fertility with the result of Dench et al. (2023b).

Our paper complements emerging work on the determinants of take-up of effective contraception. A recent review, Bailey (2025), summarizes the role of contraceptive access and abortion access on demographic trends in the US over the past century. Buckles et al. (2022) focuses on more recent cohorts and argues that since the Great Recession, there has been a substantial decline in unintended pregnancy driven in part by shifts to more effective contraception. Pennington and Venator (2024) examine the impact of elections which threatened abortion access on women's contraception choices, finding that in the 2014 to 2020 period, reproductive policy uncertainty caused women who visit Planned Parenthood to switch to more effective but less preferred birth control, such as IUDs. Combining the anticipation results of Pennington and Venator (2024) with the context that changing contraceptive methods takes time and pregnancy is usually noticed many weeks after conception, we believe it makes the most sense to focus on expected policy changes following the *Dobbs* leak, not on the dates of law changes in hostile states.[8] Bailey et al. (2023) offers a randomized subset of women in a low-income, uninsured population vouchers to subsidize the cost of IUDs and finds that this has a large effect on take-up. Using Texas hospital claims data, Crowe et al. (2024) studies male sterilization and female LARC use in response to Texas' 2013 shuttering of over half of all abortion clinics in the state. The authors find that this policy led to an increase in LARC usage and had no effect on male sterilization. In contrast, Pierson et al. (2024) studies the rate of male sterilization among those in the military health system, finding that sterilization increased more after *Dobbs* in Texas (a ban state) than Vermont (a non-ban state), and that over time, the newly sterilized were younger and less likely to be married than in the past.[9] Finally, Strasser et al. (2025) study the impact of the *Dobbs* decision on young people's sterilization procedures through 2022 in a difference-in-differences setting similar to ours. Our results for this subset of the population are consistent with theirs.

Our study contributes to this literature in three key ways. First, we analyze a privately insured, nation-

González et al. (2018) who find abortion access reduces fertility. Mølland (2016) finds improvements on economic outcomes in Norway without a decline in fertility over the life course. Londoño Vélez and Saravia (2025) finds that women in Colombia permitted to have an abortion have higher earnings and fewer children in the long term than those denied an abortion. Work by Gruber et al. (1999), Donohue III and Levitt (2001), Pop-Eleches (2006), and Ananat et al. (2009) find that children on the margin of being aborted do not fare well later in life on a variety of outcomes.

[8] Indeed, we find similar effects when we consider all states perceived as hostile to abortion in our treatment group as when we include only the 13 states with trigger laws. This suggests that perceptions of abortion access affect behavior, consistent with Pennington and Venator (2024). When we use a Callaway and Sant'Anna (2021) event study focused on the impact of abortion bans, we find muted and mis-timed effects, also consistent with the leak being the more salient and relevant information for contraceptive choice.

[9] Although it is commonly studied, Texas had already implemented a six-week abortion ban by mid-2021, well before *Dobbs*. As a result, any post-*Dobbs* treatment effects in Texas are difficult to interpret, given that legal access was already highly constrained. Our results are robust to excluding Texas, suggesting that in Texas, perceptions of post-*Dobbs* bans differed from pre-*Dobbs* restrictions which were considered by activists equivalent to a ban.

wide population, complementing the literature focused on individuals already engaged with family planning providers like Planned Parenthood.[10] Second, we study effects up to 18 months following the *Dobbs* ruling, finding an important difference between short-term and long-term responses. Finally, we discuss heterogeneity by age, past birth control use, and presence of children, tying treatment effects to the likelihood of unplanned pregnancy and future ferility.

2 Conceptual Framework

We assume that women choose a contraceptive method $c \in \{\text{none}, \text{SARC}, \text{LARC}, \text{sterilization}\}$ in each period in order to maximize their lifetime expected utility.[11] Method c prevents pregnancy with probability p_c and entails a non-pregnancy cost κ_c (including price, side-effects, and any discomfort).[12]

If contraception fails, the individual faces a second decision: whether to terminate the pregnancy or carry to term (Levine, 2004). Because preferences and circumstances evolve, these utilities are treated as expectations formed when contraception is chosen.[13] Abortion is associated with a cost ϕ which includes the monetary and moral/psychological cost but also legal and logistical considerations, which we assume rise post-*Dobbs* in states hostile to abortion.[14]

Let R be the set of reversible contraception methods (the set excluding sterilization).[15] For each method c in R, period expected utility is given by:

$$Eu_t(c) = p_c \cdot u_t(B=0|P=0) + (1-p_c) \cdot E\left[\max\left\{u_t(B=1|P=1),\ u_t(B=0|P=1) - \phi\right\}\right] - \kappa_c$$

where P indicates pregnancy and B indicates giving birth to a child. In contrast to other forms of birth control, sterilization is an absorbing state with

$$EU_t(sterilization) = \sum_{k=0}^{\infty} \beta^k E_t u_{t+k}(B=0|P=0) - \kappa_{sterilization}$$

[10] As the risks of genetic defects and miscarriage increase with age (Magnus et al., 2019; Frederiksen et al., 2018), restricted abortion access might have a salient effect among older couples.

[11] For simplicity, we model the decision of women individually, though of course, in many cases, couples jointly make contraceptive choices and, in other cases, single men make decisions for themselves. It is interesting but beyond the scope of this paper to think about how these decision and the impact of abortion policy differ.

[12] We acknowledge that as in Michael and Willis (1976), various methods differ in fixed and marginal costs. We abstract from this for the purpose of this conceptual framework, but given the large price elasticities reported in Bailey et al. (2023), up-front costs for LARCs may be important barrier to adoption for many women.

[13] Relationships, financial situations, and preferences all may evolve between pregnancy and the choice of abortion.

[14] It is interesting to note that the monetary cost of an abortion fell for most women post-*Dobbs* (Littlefield, 2023). However, in our subsample of employer-insured individuals, it is unlikely that the monetary cost was a significant barrier to abortion, relative to other costs.

[15] We also abstract from the potential reversibility of tubal ligation. Reversal is uncertain and costly, but these would be important considerations if estimating the model. It is also important to note that women may become pregnant through IVF following tubal ligation, but this is also costly.

The recursive problem for individuals who are not sterilized is given by

$$V_t = \max\{\max_{c \in R}\{Eu_t(c) + \beta E[V_{t+1}]\}, EU_t(sterilization)\}$$

If individuals perceive abortion as more costly (higher ϕ), then we would expect shifts to more effective birth control among individuals who (1) have a high probability of pregnancy and (2) low expected utility of having a child conditional on pregnancy. Compared to a LARC or SARC, sterilization is chosen among those who have low expected utility from having a child conditional on pregnancy for all periods in the future. Those who use irreversible methods to eliminate the chance of pregnancy may later regret their choice, as fertility preferences are not stable over the life course (Lazzari and Beaujouan, 2025; Müller et al., 2022).

3 Institutional Background

3.1 Reproductive Policies

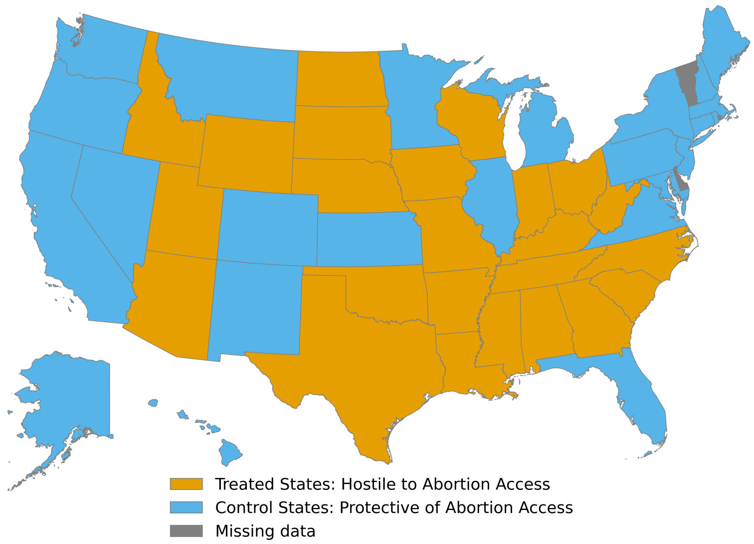
Prior to the Supreme Court's decision in *Dobbs v. Jackson Women's Health Organization (2022)*, the legal framework for abortion in the United States was shaped primarily by two landmark decisions: *Roe v. Wade (1973)* and *Planned Parenthood v. Casey (1992)*. *Roe* established a constitutional right to obtain an abortion before fetal viability, while Casey upheld this core right but allowed states to impose regulations on abortion services, provided they did not place an "undue burden" on a person seeking an abortion.

Given legal challenges to national abortion protection, many states prepared to immediately restrict abortion as soon as federal policy allowed. By the time of the Dobbs decision in 2022, thirteen states had passed "trigger laws" or other statutes designed to ban or severely restrict abortion if *Roe* were overturned and a larger group of states was widely expected to restrict or ban abortion in the aftermath of Dobbs. While the official decision release occurred on June 24, 2022, an unsanctioned draft of Justice Samuel Alito's majority opinion on the case was leaked by Politico on May 2, 2022.[16]

Following the Center for Reproductive Rights' classifications—archived via the Wayback Machine two months after the decision—we define a broader set of states where abortion access was likely to be substantially reduced. This includes states with pre-*Roe* bans, previously enjoined laws that could now be enforced, or legislatures with demonstrated intent to pass new restrictions. With the Dobbs decision, twenty-four states had policies in place that were hostile to abortion, detailed in Figure 1.

[16] "Supreme Court has voted to overturn abortion rights, draft opinion shows" (Politico, 2022).

Figure 1: Map of treated and control states



Note: We define states hostile to and protective of abortion access following data on abortion policies gathered by the *Center for Reproductive Rights*. We used the Wayback Machine to view their classification of states in 2022, two months after the *Dobbs* decision passed. A full list of treated and control states are listed in Appendix Table A1.

4 Data

We use proprietary healthcare claims data from the MarketScan Databases covering May 1, 2021 to December 31, 2023 to identify contraceptive and sterilization choices. The database contains de-identified, person-level records on privately insured paid medical and prescription drug claims for about 23 million individuals each year contributed by employers and health plans that have business relationships with Merative. These private-sector health data are drawn from a group of around 350 payers, including large employers, health insurance companies, and public sector organizations. For each year of our study period, the MarketScan database includes over 150 million records of either mail-order or retail pharmacy prescription drug claims.

Our primary study sample consists of female enrollees aged 18 to 45 years and male enrollees aged 18 years or older, who have had continuous healthcare coverage and have not moved throughout our study period. We have complete data for all states in our study period with the exception of Vermont and Delaware (MarketScan does not have any enrollees for these states beginning in 2022). To ensure that enrollee characteristics are balanced over our time period and that results are not driven by compositional changes, we restrict in our main specification to a balanced panel of enrollees who have not moved in our sample period. Appendix Figure A1 shows robustness to alternative samples (the results are somewhat stronger in an unbalanced panel).

4.1 Contraception

Long-Acting Reversible Contraception

For our analysis, we consider intrauterine devices (IUDs) and contraceptive implants which are over 99% effective in preventing pregnancy. In the MarketScan data, we observe the inpatient or outpatient procedure associated with the LARC insertion. Our data do not include prescriptions that are filled by the provider, as is commonly the case when getting an IUD. We selected codes associated with the insertion procedure for IUDs or the implantation procedure for contraceptive implants which can be found in Appendix Table A2. The MarketScan data also provides up to five diagnosis and procedure codes for inpatient and outpatient services, so we search across all fields in the inpatient and outpatient claims for a match.

We then construct a procedure rate for a given state-month by calculating the total number of female enrollees aged 18 to 45 years that have gotten a LARC in that state and month divided by the total number of female enrollees aged 18 to 45 years. For both LARCs and sterilization procedures, we choose the earliest service date for each enrollee associated with a procedure as the date of the procedure and do not double count follow-ups.

Short-Acting Reversible Contraception

In addition to LARCs, we also consider short-acting reversible contraception. This includes injectable contraception, oral contraceptive pills, contraceptive patches, and vaginal rings. Appendix Table A2 lists the prescription codes we use to identify SARCs. We then construct a measure of total SARC prescriptions in a given state-month divided by the total number of female enrollees aged 18 to 45 years in that state-month.

Permanent Contraception

In our analysis, we include both female and male sterilization procedures, which are both considered permanent methods of contraception and are both generally outpatient procedures. For female sterilization, we consider tubal ligation procedures and hysterectomies and for male sterilization, we consider vasectomies. We calculate sterilization procedure rates for male and female enrollees separately.

4.2 Summary Statistics

Table 1 shows summary statistics comparing “All MarketScan,” which is all enrollees in the MarketScan data for the entire study period, regardless of age, to the “Study Sample” which is the subset of continuously-enrolled female enrollees aged 18 to 45 years and male enrollees aged 18 years and older which did not move at any point during our study period. We aggregate the enrollee-level data to state-months from May 2021 to December 2023, across forty-nine states.[17]

Table 1: Summary Statistics

	All MarketScan		Study Sample (W18-45, M18+)	
Total Enrollees	32,286,172		3,953,428	
Age (Mean)	33.96		40.27	
Age (SD)	17.85		12.39	
	Count	*% of Total*	*Count*	*% of Total*
Total Women	16,503,695	51.12%	1,369,232	34.63%
Total Women with Prescription Coverage	14,832,040		1,289,682	
Total Men	15,782,477	48.88%	2,584,196	65.37%
	Count	*% of Total*	*Count*	*% of Total*
Enrollees with LARC insertions	372,448	2.26%	116,213	8.49%
Enrollees with Sterilizations (F)	48,004	0.29%	18,593	1.36%
Enrollees with Sterilizations (M)	104,781	0.66%	50,062	1.94%
Total SARC prescriptions	10,576,802		3,599,629	

Note: This table presents the summary statistics of the MarketScan data for May 1, 2021 to December 31, 2023. "All MarketScan" refers to all enrollees in the data for the entire study period, regardless of age. "Study Sample" refers to the subset of continuously-enrolled female enrollees age 18 to 45 years and male enrollees age 18 years and older who did not move. The "Total Women with Prescription Coverage" is distinct from "Total Women" because prescription coverage is separate from medical coverage in our data. The "Total Women" is the relevant denominator for LARCs and sterilizations, while "Total Women with Prescription Coverage" is relevant for the SARC prescriptions. The 'count' column is the total number of enrollees who meet the given criteria on the left, while the '% of total' column is the percentage of enrollees who meet the criteria on the left divided by the total number of enrollees in the data.

5 Empirical Strategy

For our analysis, we create a panel dataset aggregating individual claims to a state and month-year level. Because we want to capture individuals' decisions in anticipation of likely reproductive changes, our treatment date is the date of the *leaked* Dobbs decision, May 2, 2022. The official Supreme Court decision was on June 24, 2022 (the end of month one in event time).

To estimate the causal effect of the Dobbs decision leak on contraception and sterilization choices, we use a difference-in-differences (DID) event study:

$$y_{st} = \sum_{\tau \neq -1} \delta_\tau D_s \times \lambda_\tau + \alpha_s + \beta_t + \varepsilon_{st} \tag{1}$$

where y_{st} is the outcome of interest for state s at month-year t, D_s is an indicator variable for state s having policies that are hostile to abortion rights, and λ_τ are indicators of months since May, 2022. In this

[17] We count Washington, D.C. as a separate "state."

specification, δ_τ captures the effect of the Dobbs decision leak on the outcome τ months from the treatment. The treatment time is normalized to $\tau = 0$ and we exclude $\tau = -1$ as the base period. Again, we include state and month-year fixed effects, α_s and β_t respectively, and cluster by state.[18]

For this specification to capture the causal impact of hostility to abortion post-*Dobbs* on behavior, we (1) must assume that individuals do not anticipate the decision before the leak and (2) must assume that were it not for the *Dobbs* decision leak, states assigned to treatment would have followed the same path over time (though perhaps with different levels) as non-hostile states. We assess the plausibility of the parallel trends assumption by presenting the event study plots in pre-*Dobbs* months. We discuss this in Section 6.

We also estimate a difference-in-difference specification to compare the short-term and long-term effects of the leaked Dobbs decision on our outcomes of interest:

$$y_{st} = \delta_{\text{short}} D_s \times \lambda_{\text{short}} + \delta_{\text{long}} D_s \times \lambda_{\text{long}} + \alpha_s + \beta_t + \varepsilon_{st} \tag{2}$$

where y_{st} is the outcome of interest for state s at month-year t, D_s is an indicator variable for state s having policies that are hostile to abortion rights, λ_{short} is a time indicator for the "short-term" post-period of May, 2022 to December, 2022, and λ_{long} is a time indicator for the "long-term" post-period of January, 2023 to December, 2023. The coefficients of interest are δ_{short} and δ_{long} which capture the effect of the Dobbs decision leak on the outcome in the short- and long-term, respectively. As before, we include state and month-year fixed effects, and cluster our standard errors by state.

Lastly, we estimate a Poisson regression, using the model below:

$$\log(E(Y_{st})) = \Delta_{\text{short}} D_s \times \lambda_{\text{short}} + \Delta_{\text{long}} D_s \times \lambda_{\text{long}} + \alpha_s + \beta_t \tag{3}$$

where Y_{st} is the count of procedures for state s at month-year t, which we assume are distributed Poisson. The coefficients of interest are Δ_{short} and Δ_{long}, which after applying the transformation, $(exp(\Delta) - 1) \times 100$, provide the percentage change in procedures relative to the pre-treatment rate. For LARCs and sterilizations, we also account for the fact that a person who obtains effective contraception will not need to do so later. We set the exposure equal to the "at-risk" population, defined as the total number of enrollees at time t minus the cumulative number of procedures performed up to period $t - 1$. Standard errors are clustered by state.

We note that Appendix Table A3 presents mean procedure rates over time in the control states. We

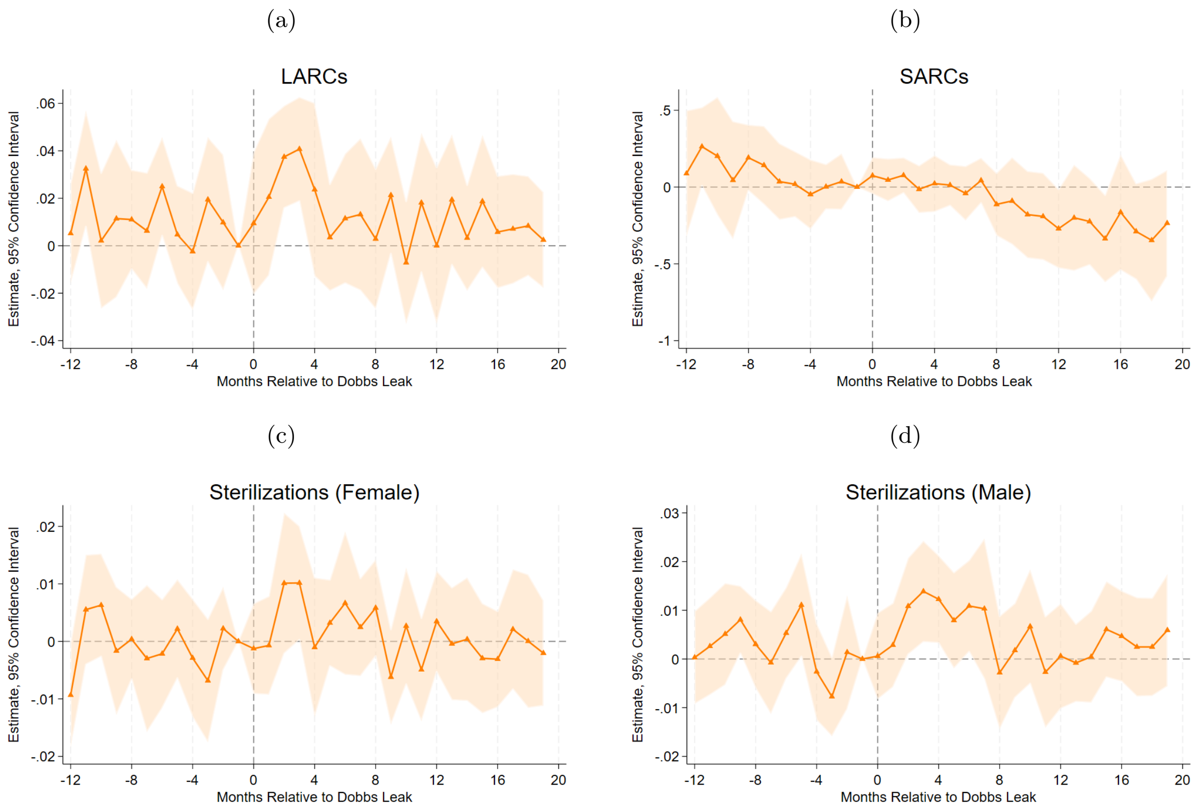
[18] In Appendix Figure A2, we also present estimates of the impact of abortion ban *enactment* on the outcome of interest, controlling for constant state-fixed effects and month-year fixed effects. We implement the methodology of Callaway and Sant'Anna (2021).

don't see a substantial increase in the rate of LARC prescriptions or female sterilizations post-*Dobbs* in our population, so we interpret our effects as the effect of *Dobbs*, not the effect of *Dobbs* in hostile vs. non-hostile states. We do see a rise in male sterilization in non-hostile states, which suggests some caution in interpreting our results as the total effect of *Dobbs* for male sterilization—they are an underestimate.

6 Results and Discussion

We present the month-by-month differences in all outcomes in the event-study below in Figure 2.[19]

Figure 2: Event Study Estimates, Main Effects



Note: This figure displays the impact of the Dobbs decision leak, or May, 2022, on procedure rates (y-axis) by time since the leak (x-axis). The vertical dashed line marks the Dobbs leak ($t = 0$). The graphs report the estimate of the coefficient of interest, δ_τ, which is the effect (in percentage points) of the Dobbs decision leak on states hostile to abortion for time τ, from Equation 1. The regressions are weighted by number of enrollees. Standard errors are clustered on the state level. Both state and month-year fixed effects are included. Sample: Women age 18 to 45 years relative to 2021 for LARCs, SARCs, and female sterilizations; men age 18 and older relative to 2021 for male sterilizations.

We see approximately a 0.04 percentage point increase in the rate of LARC insertions two months after the *Dobbs* leak, relative to a pre-leak monthly average rate of 0.26 percent in treated states in April, 2022

[19]Appendix Figure A3 provide a visual summary of the difference in procedure rates for treated and control states. The effects described in this paper are visually apparent, but for inference we focus on estimating equation 1.

(see Appendix Figure A3 for rates over time in treated vs. control states).[20] We detect no changes in SARC prescription rates in any month around the *Dobbs* leak. We see flat trends six months before the leak and eight to nine months after, but outside of this window treatment states are declining in their use of SARCs more than control states. This complicates the interpretation of an event study and suggests that a different research design may be better suited to understand the effect of *Dobbs* on SARC use.[21]

[20]Note that the rates reported in Table 1 are LARC insertions over the whole time period for our enrollee sample, while the rates here are monthly. There are 32 months in our sample.

[21]However, when we restrict to only the 13 states who had bans ready to take effect upon the overturning of *Roe v. Wade*, we see flat pretrends and no effect of the bans on SARC use (see Appendix Figure A4).

Table 2: Difference-in-Differences Estimates, Age Breakdown

Panel (A)

	LARCs				SARCs			
	All	18-25	26-35	36-45	All	18-25	26-35	36-45
Short-Term Post × Treated	0.010*	0.011	0.016**	0.002	-0.054	-0.085	0.000	-0.045
	(0.005)	(0.009)	(0.007)	(0.007)	(0.103)	(0.188)	(0.105)	(0.053)
Long-Term Post × Treated	-0.002	-0.006	-0.004	0.002	-0.301	-0.466	-0.190	-0.195**
	(0.006)	(0.008)	(0.009)	(0.006)	(0.194)	(0.345)	(0.192)	(0.087)
Treated Mean at $t = -1$	0.263	0.317	0.310	0.182	9.297	14.297	8.944	5.920
Percent Change, Short-Term	3.6%	3.5%	5.0%	1.2%	-0.6%	-0.6%	0.0%	-0.8%
Percent Change, Long-Term	-0.8%	-1.7%	-1.4%	1.1%	-3.2%	-3.3%	-2.1%	-3.3%
State-Month Observations	1,568	1,568	1,568	1,568	1,568	1,568	1,568	1,568
Total Enrollees	1,369,232	374,815	464,679	529,738	1,289,682	351,875	438,213	499,594
R-Squared	0.74	0.57	0.52	0.50	0.97	0.97	0.95	0.94

Panel (B)

	Sterilizations (Female)				Sterilizations (Male)				
	All	18-25	26-35	36-45	All	18-25	26-35	36-45	46 and over
Short-Term Post × Treated	0.004**	0.006***	0.002	0.006*	0.007***	0.004***	0.021***	0.006	0.002**
	(0.002)	(0.002)	(0.004)	(0.003)	(0.002)	(0.001)	(0.006)	(0.005)	(0.001)
Long-Term Post × Treated	0.000	0.006***	-0.006*	0.002	-0.000	0.003*	0.003	-0.006	0.000
	(0.002)	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.006)	(0.004)	(0.001)
Treated Mean at $t = -1$	0.047	0.007	0.082	0.046	0.059	0.008	0.138	0.121	0.013
Percent Change, Short-Term	9.5%	83.5%	2.1%	12.5%	11.2%	57.9%	15.2%	4.8%	17.2%
Percent Change, Long-Term	0.7%	84.1%	-7.6%	3.7%	-0.1%	40.0%	2.4%	-4.5%	3.1%
State-Month Observations	1,568	1,568	1,568	1,568	1,568	1,568	1,568	1,568	1,568
Total Enrollees	1,369,232	374,815	464,679	529,738	2,584,196	386,588	442,257	607,092	1,148,259
R-Squared	0.54	0.30	0.47	0.21	0.58	0.21	0.57	0.39	0.15

Note: This table reports the impact of the Dobbs decision leak on procedure rates in the "short-term" and "long-term" post-periods. The standard difference-in-difference estimates (in percentage points) of the coefficients of interest λ_{short} and λ_{long} from Equation 2 are displayed as "Short-Term Post × Treated" and "Long-Term Post × Treated." The pre-treatment period is May, 2021 to April, 2022. The short-term post-treatment period is May, 2022 to December, 2022. And finally, the long-term post period is January, 2023 to December, 2023. The regressions are weighted by number of enrollees and the standard errors are clustered on the state level and both state and month-year fixed effects are included. The treated mean at $t = -1$ reported reflects the mean procedure rate in the treated states in April, 2022 in percentage points. Sample: Women by age group ("all" represents age 18 to 45) relative to 2021 for LARCs, SARCs, and female sterilizations; men by age group ("all" represents age 18 and older) relative to 2021 for male sterilizations.

Turning to sterilizations, we see a 0.01 percentage point increase in the rate of female and male sterilization two months after the *Dobbs* leak, on base rates of 0.05 percent and 0.06 percent, respectively. Impacts on sterilization are sizable (around 20% in those months), though estimates are noisy. The effect for LARCs and female sterilization lasts about two months, while the effect for male sterilization lasts for six months. As summarized in Table 2 point estimates imply no long-term effect. If we are willing to extrapolate from these numbers to all individuals with private health insurance, from equation 2, we estimate a total of 22,263 excess LARC insertions and sterilizations and an additional 20,418 male sterilizations as a result of the *Dobbs* ruling in hostile states compared to non-hostile states.[22]

Our main specification studies the average monthly procedure rate across states in a linear regression framework, which gives a fairly transparent comparison of state-level means. Robustness exercises, available in Appendix Table A4 implement a Poisson regression for our main outcomes. We find similar effects relative to the OLS specification, with the exception of the female sterilization result which is directionally the same but about half the size and no longer significant. In addition, Appendix Figure A1 compares the balanced panel to the effects using all enrollees, and to including movers (assigning them in different periods to different states). These sample changes do not change the results. Appendix Figure A5 presents results excluding TX from the treatment group (because it already had extremely restrictive abortion laws) and excluding MI and PA from the control group (since the expected response of these states to *Dobbs* was extremely uncertain). The results do not change. Finally, Appendix Figure A2 presents the Callaway and Sant'Anna (2021) estimates of the effect of abortion ban enactment (see Appendix Table A1 for definitions). When we use the date state-level abortion legislation actually changed, we see a more muted response and one which does not align with the change compared to our main specification. We interpret this as a sign that the national-level news coverage of the *Dobbs* decision made the possibility of abortion law changes salient to individuals in these states, relative to the actual laws governing abortion in a given state at a given time.

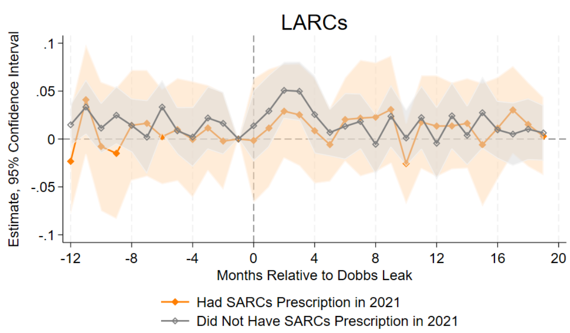
We next turn to understanding the characteristics of those whose birth control choices are most responsive to changes in abortion law. In Table 2 below, we see a similar LARC response for women age 18 to 35, and a smaller response for older women. Male sterilization increases in the short run for all age groups, and there is the largest percentage increase in the oldest and youngest groups, where sterilization is least common. We see no evidence of a long-term effect, except among the youngest men where rates are 40% higher in 2023 relative to pre-*Dobbs*, but the baseline rate is extremely low. Female sterilization rates also increase the most, both in percentage points and relative to baseline rates, for younger women. For young women, there is an 84% increase in the monthly rate in 2022 following the *Dobbs* decision leak in states hostile to

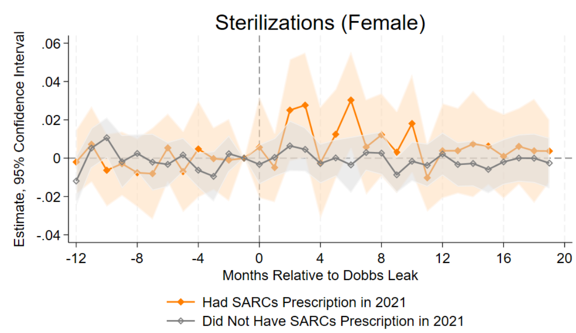
[22] Using the 2023 ACS, we estimate 18,552,852(36,461,478) women(men) living in hostile states between age 18 and 45(over age 18) with private health insurance (Ruggles et al., 2025).

abortion relative to other states. In 2023, these states *still* have sterilization rates 84% higher than their pre-*Dobbs* mean for women age 18-25. Event study estimates by age are available in Appendix Figure A6 and the point estimates don't suggest fading effects throughout 2023.[23] As for men, the baseline rate is very low for these women. If we extrapolate from this pattern over time and to all women 18-25 in states hostile to abortion with private insurance, we'd expect to see an additional 3,661 sterilizations per year in these states.[24] We note that this long term effect among young women does not show up in our estimates of aggregate sterilization rates because point estimates imply a long term reduction in the probability of sterilization among slightly older women, and young women make up a small share of overall sterilizations.

To understand whether more effective contraception is being taken up by women at relatively high risk of pregnancy, we study effect heterogeneity by past contraceptive history. We split female enrollees by whether they had ever filled a SARC prescription in 2021 (before *Dobbs*). In Figure 3, we see that the LARC effect

Figure 3: Event Study Estimates, Previous SARC Usage





Note: This figure displays the impact of the Dobbs decision leak, or May, 2022, on procedure rates (y-axis) by time since the leak (x-axis). The vertical dashed line marks the Dobbs leak ($t = 0$). The graphs report the estimate of the coefficient of interest, δ_τ, which is the effect (in percentage points) of the Dobbs decision leak on states hostile to abortion for time τ, from Equation 1. The regressions are weighted by number of enrollees. Standard errors are clustered on the state level. Both state and month-year fixed effects are included. Sample: Women age 18 to 45 years relative to 2021 who have had any SARC prescription in 2021, compared to those who did not have any SARC prescription in 2021.

is larger among women who did not have a SARC prescription in 2021, suggesting switching from one fairly effective form of birth control to more effective LARCs is not the main channel for increased LARC use in this sample. In contrast, there is no effect on sterilizations in this subgroup and all of the sterilization effect is driven by women who were taking some form of short acting birth control in 2021.

Finally, we examine heterogeneity by whether women were on plans which also included children under age 18, as a proxy for whether these women had children themselves. Appendix Table A5 suggests that the increase is driven by women without children, both for LARC use and sterilization, despite the fact that

[23]There may be some worry that individuals are dis-enrolled from their parent's insurance at age 26, so the older women in this subgroup are selected. Appendix Figure A7 shows estimates for women age 18-23 in 2021, and the results are similar.

[24]There are 5,085,516 women age 18-25 in hostile states in 2023 with access to private insurance (Ruggles et al., 2025).

sterilization is five times more common among women with a child on the plan. This result, combined with the fact that younger women have a large response in relative terms suggests the potential for long term effects on fertility.

Has the switch to effective contraception following *Dobbs* reduced the birth rate in states hostile to abortion? Even a temporary increase may have long term effects, especially if the change occurs among nulliparous women who are far from the end of their fertility window. For comparison, the annual number of births in these states is 1,638,190, per the CDC Wonder database (Centers for Disease Control and Prevention, 2025). Even if we assume that all sterilizations are among young people who would have counterfactually had two children in their lifetimes, the rates we see among young women imply only a reduction of only 0.45 percentage points in the annual fertility rate.[25] In our population, we see little evidence of a large, lasting movement to more effective contraception following *Dobbs*, suggesting that overall, the legality of abortion is not a major determinant of contraceptive choice, though in the immediate aftermath of the *Dobbs* decision we see a substantial response among both men and women. If we combine male sterilization, female sterilization, and female LARC insertion into one indicator and estimate the population-level shift to avoiding pregnancy using extremely effective methods, our long term point estimates are negative and allow us to rule out long term effects larger than a 0.0038 percentage point increase monthly, or a 2.6 percent increase, in the use of effective methods (see Appendix Figure A8).

[25] It is worth noting that the effects could certainly be larger in a lower-income population using Medicaid rather than private insurance.

References

Ananat, E. O., J. Gruber, P. B. Levine, and D. Staiger (2009, February). Abortion and selection. *Review of Economics and Statistics 91*(1), 124–136.

Bae, H., K. Meckel, and M. Shi (2025). Dependent insurance coverage and parental job lock: Evidence from the affordable care act. *Journal of Public Economics 248*, 105439.

Bailey, M. J. (2006, August). More power to the pill: The impact of contraceptive freedom on women's life cycle labor supply. *The Quarterly Journal of Economics 121*(1), 289–320.

Bailey, M. J. (2025, June). Economics of childbearing: Trends, progress, and challenges. NBER Working Paper 33970, National Bureau of Economic Research.

Bailey, M. J., V. W. Lang, A. Prettyman, I. Vrioni, L. J. Bart, D. Eisenberg, P. Fomby, J. Barber, and V. Dalton (2023, June). How costs limit contraceptive use among low-income women in the u.s.: A randomized control trial. Working Paper 31397, National Bureau of Economic Research.

Buckles, K., M. Guldi, and L. Schmidt (2022). The great recession's baby-less recovery: The role of unintended births. *Journal of Human Resources*.

Callaway, B. and P. H. C. Sant'Anna (2021, December). Difference-in-Differences with multiple time periods. *J. Econom. 225*(2), 200–230.

Centers for Disease Control and Prevention, N. (2025). National vital statistics system, natality on cdc wonder online database. `http://wonder.cdc.gov/natality-expanded-current.html`. Data from the Natality Records 2016–2023, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed on June 25, 2025 at 7:33:22 PM.

Crowe, B., G. Gardner, and C. Haughey (2024, October). The effects of restricted abortion access on iuds and vasectomies: Evidence from texas. Technical report, SSRN.

Dench, D., M. Pineda-Torres, and C. K. Myers (2023a, November). The effects of the dobbs decision on fertility. IZA Discussion Paper 16608, Institute of Labor Economics (IZA).

Dench, D., M. Pineda-Torres, and C. K. Myers (2023b). The effects of the dobbs decision on fertility. *SSRN Electronic Journal*.

Donohue III, J. J. and S. D. Levitt (2001). The impact of legalized abortion on crime. *The Quarterly Journal of Economics 116*(2), 379–420.

Finer, L. B. and M. R. Zolna (2011, November). Unintended pregnancy in the united states: incidence and disparities, 2006. *Contraception 84*(5), 478–485. Epub 2011 Aug 24.

Frederiksen, L. E., A. Ernst, N. Brix, L. L. Braskhøj Lauridsen, L. Roos, C. H. Ramlau-Hansen, and C. K. Ekelund (2018, March). Risk of adverse pregnancy outcomes at advanced maternal age. *Obstetrics amp; Gynecology 131*(3), 457–463.

Goldin, C. and L. F. Katz (2002). The power of the pill: Oral contraceptives and women's career and marriage decisions. *Journal of Political Economy 110*(4), 730–770.

González, L., S. Jiménez-Martín, N. Nollenberger, and J. Vall Castello (2018). The effect of abortion legalization on fertility, marriage, and long-term outcomes for women. *Barcelona GSE Working Paper Series* (1043).

Gruber, J., P. B. Levine, and D. Staiger (1999, February). Abortion legalization and child living circumstances: Who is the 'marginal child?'. *Quarterly Journal of Economics 114*(1), 263–292.

Lahey, J. N. (2014). The effect of anti-abortion legislation on nineteenth century fertility. *Demography 51*(3), 939–948.

Lazzari, E. and Ã. Beaujouan (2025, 04). Self-assessed physical and mental health and fertility expectations of men and women across the life course. *Demography 62*(2), 543–569.

Levine, P. B. (2004). *Sex and Consequences: Abortion, Public Policy, and the Economics of Fertility.* Princeton, NJ: Princeton University Press.

Levine, P. B. and D. Staiger (2004). Abortion policy and fertility outcomes: The eastern european experience. *Journal of Law and Economics 47*(1), 223–243.

Levine, P. B., D. Staiger, T. J. Kane, and D. J. Zimmerman (1999). Roe v. wade and american fertility. *American Journal of Public Health 89*(2), 199–203.

Lindberg, L. D. and K. Kost (2014, April). Exploring u.s. men's birth intentions. *Maternal and Child Health Journal 18*(3), 625–633.

Littlefield, A. (2023, December). As costs and demand skyrocket, abortion funds struggle to keep up. *The Nation*.

Londoño Vélez, J. and E. Saravia (2025, 01). The impact of being denied a wanted abortion on women and their children. *The Quarterly Journal of Economics 140*(2), 1061–1110.

Magnus, M. C., A. J. Wilcox, N.-H. Morken, C. R. Weinberg, and S. E. Håberg (2019, March). Role of maternal age and pregnancy history in risk of miscarriage: prospective register based study. *BMJ*, l869.

Michael, R. T. and R. J. Willis (1976). Contraception and fertility: Household production under uncertainty. In N. E. Terleckyj (Ed.), *Demographic Behavior of the Household*, pp. 25–98. Cambridge, MA: National Bureau of Economic Research.

Mølland, E. (2016). Benefits from delay? the effect of abortion availability on young women's fertility and educational attainment. *Labour Economics 43*, 6–28.

Müller, M. W., J. Hamory, J. Johnson-Hanks, and E. Miguel (2022, July). The illusion of stable fertility preferences. *Population Studies (Cambridge) 76*(2), 169–189. Epub 2022 May 16.

Nash, E. and I. Guarnieri (2022). 13 states have abortion trigger bansâhere's what happens when roe is overturned. `https://www.guttmacher.org/article/2022/06/13-states-have-abortion-trigger-bans-heres-what-happens-when-roe-overturned`. Accessed: 2025-08-08.

Pennington, K. and J. Venator (2024, May). Reproductive policy uncertainty and defensive investments in contraception. *NBER Summer Institute*.

Pierson, B. C., A. Banaag, M. L. Janvrin, and T. P. Koehlmoos (2024, May). Vasectomy incidence in the military health system after the reversal of roe v. wade. *International Journal of Impotence Research*.

Pop-Eleches, C. (2006). The impact of an abortion ban on socioeconomic outcomes of children: Evidence from romania. *Journal of Political Economy 114*(4), 744–773.

Ruggles, S., S. Flood, M. Sobek, D. Backman, G. Cooper, J. A. R. Drew, S. Richards, R. Rodgers, J. Schroeder, and K. C. W. Williams (2025). IPUMS USA: Version 16.0 [acs 2023].

Strasser, J., E. Schenk, S. Luckenbill, D. Tsevat, L. King, Q. Luo, and J. Maslowsky (2025, January). Tubal sterilization and vasectomy increased among us young adults after the Dobbs supreme court decision in 2022. *Health Affairs (Millwood) 44*(1), 99–107.

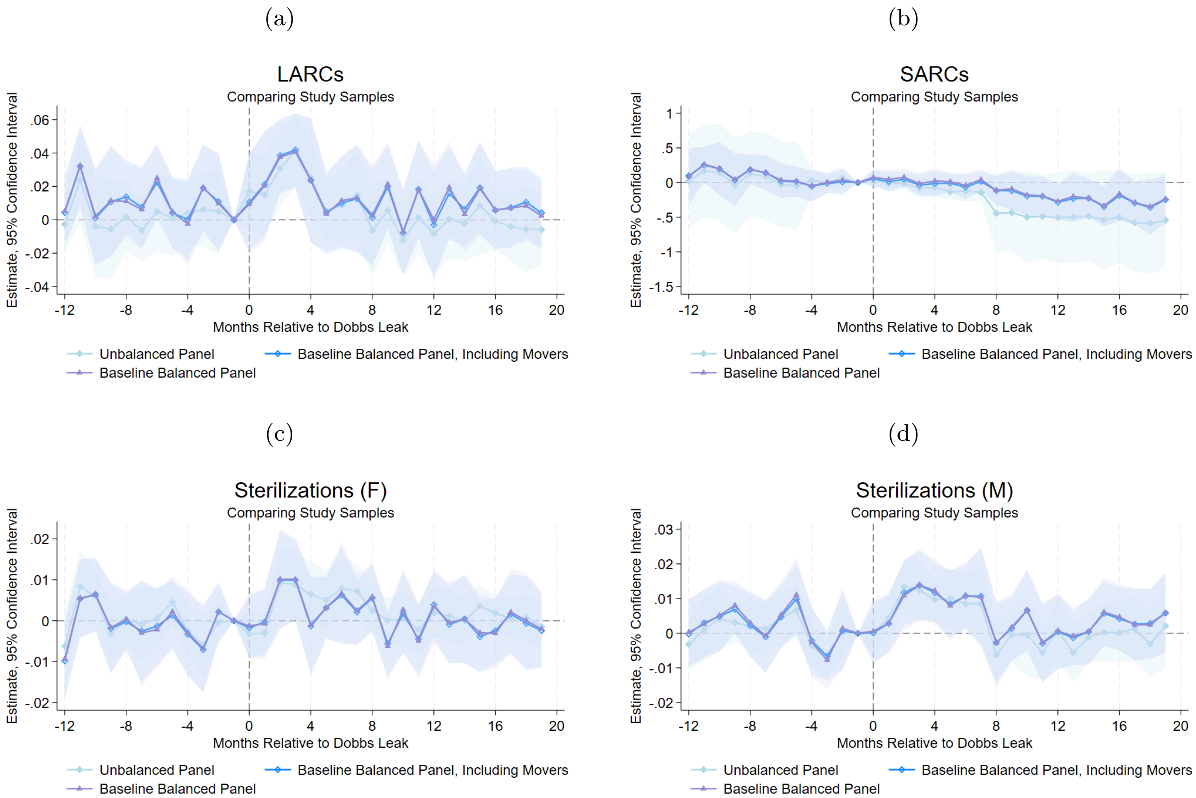
U.S. Department of Health and Human Services, Office of Population Affairs (2023). Contraceptive care measures. `https://opa.hhs.gov/research-evaluation/title-x-services-research/contraceptive-care-measures`. Accessed: 2025-08-08.

Appendix for:

Post-*Roe* Planning: The Effect of *Dobbs v. Jackson* on Contraceptive and Sterilization Choices

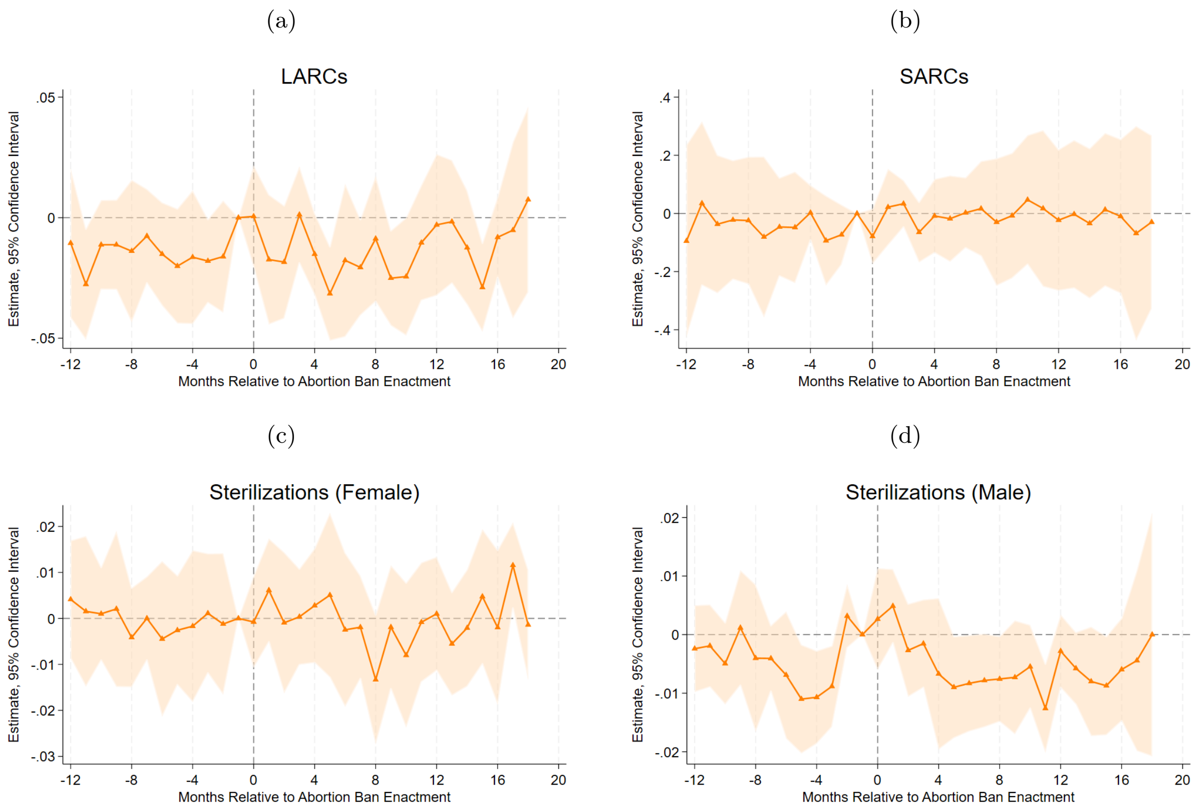
A Appendix Figures and Tables

Appendix Figure A1: Event Study Estimates, Comparing Study Samples



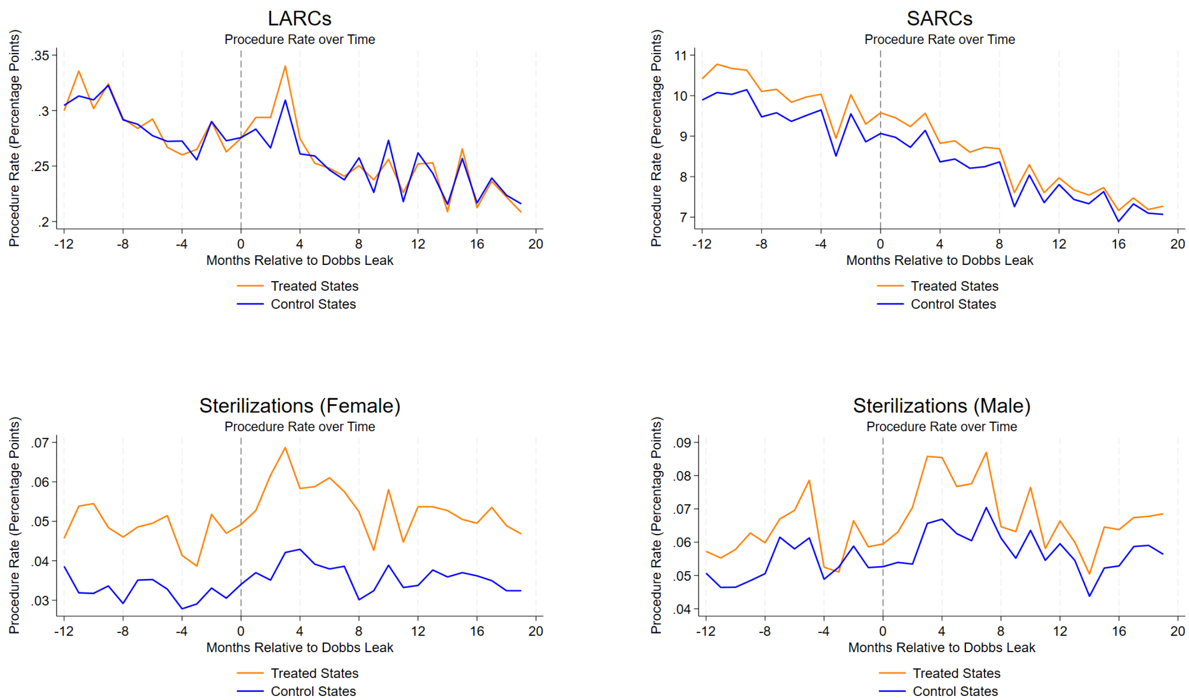
Note: This figure displays the impact of the Dobbs decision leak, or May, 2022, on procedure rates (y-axis) by time since the leak (x-axis). The vertical dashed line marks the Dobbs leak ($t = 0$). The graphs report the estimate of the coefficient of interest, δ_τ, which is the effect (in percentage points) of the Dobbs decision leak on states hostile to abortion for time τ, from Equation 1. Our baseline model for our main specification is the "baseline balanced panel" which is composed of women age 18 to 45 years (men age 18 and older for male sterilizations), who have been continuously enrolled and did not move from state to state during the study period of May 1, 2021 to December 31, 2023. The "baseline balanced panel, including movers" includes women (men) who have moved at any point during the study period. Finally, the "unbalanced panel" includes women age 18 to 45 years (men age 18 and older) regardless of whether they were continuously enrolled or moved. The regressions are weighted by number of enrollees. Standard errors are clustered on the state level. Both state and month-year fixed effects are included.

Appendix Figure A2: Effect of Abortion Ban Enactment: Staggered Treatment Timing



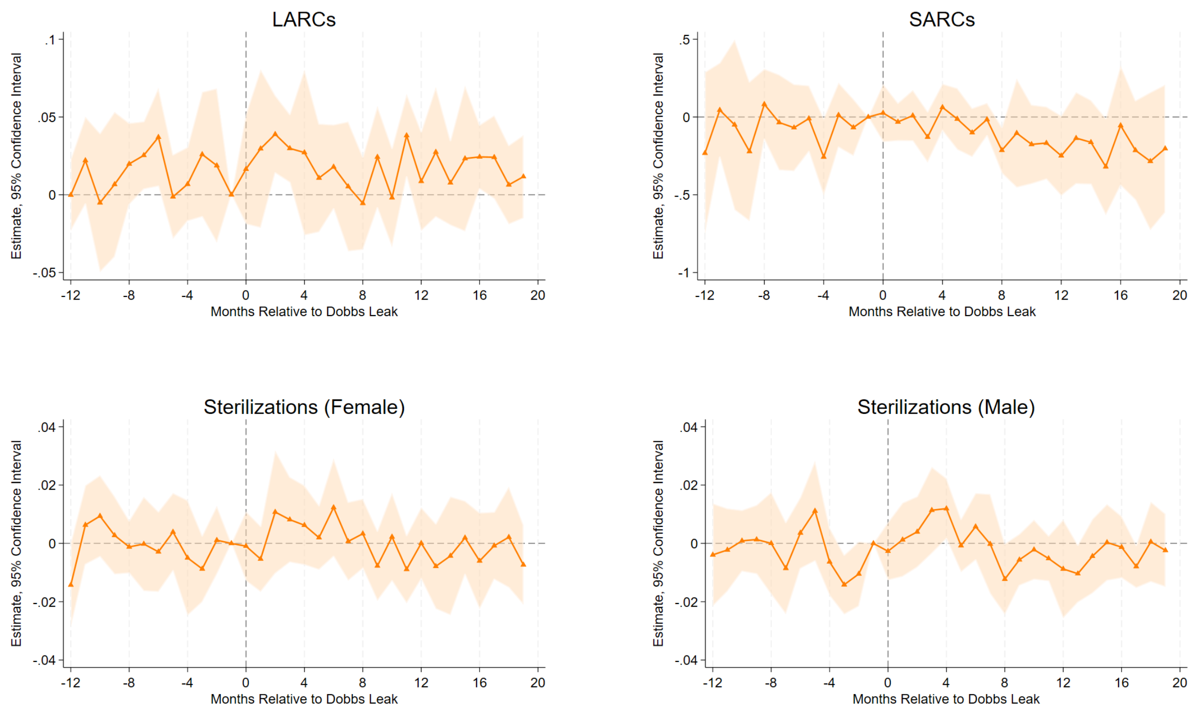
Note: This figure displays the impact of the abortion ban enactment on procedure rates (y-axis) by time since the ban enactment (x-axis). The vertical dashed line marks the ban enactment month-year ($t = 0$), with all dates in Appendix Table A1. The graphs report the estimate of the coefficient of interest, Δ_τ, which is the effect (in percentage points) of abortion ban enactment in time 0, estimated following Callaway and Sant'Anna (2021). The regression is weighted by the number of enrollees, with standard errors clustered by state.

Appendix Figure A3: Procedure Rates Over Time



Note: This figure displays the raw monthly procedure rates in percentage points for treated and control states. The vertical dashed line marks the Dobbs leak, or May, 2022 ($t = 0$). For LARCs and sterilizations, the procedure rate is the number of enrollees who have gotten the procedure divided by the total enrollees in that given month. For SARCs, the procedure rate is the number of prescriptions divided by the total number of enrollees in that given month. Sample: Women age 18 to 45 years relative to 2021 for LARCs, SARCs, and female sterilizations; men age 18 and older relative to 2021 for male sterilizations.

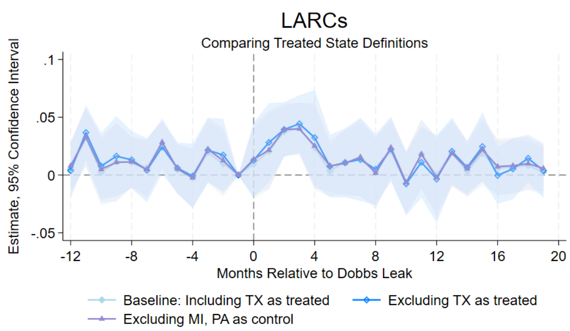
Appendix Figure A4: Event Study Estimates, 13 Ban States



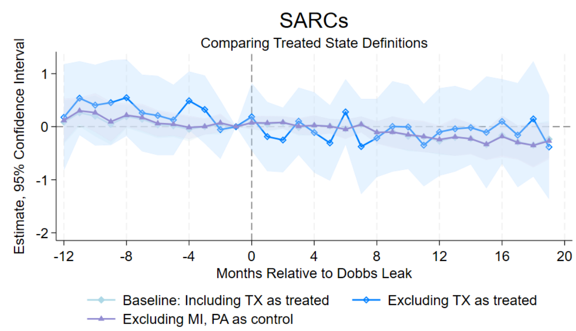
Note: This figure displays the impact of the Dobbs decision leak, or May, 2022, on procedure rates (y-axis) by time since the leak (x-axis). The vertical dashed line marks the Dobbs leak ($t = 0$). The graphs report the estimate of the coefficient of interest, δ_τ, which is the effect (in percentage points) of the Dobbs decision leak on the states that had bans ready to take effect upon the overturning of *Roe v. Wade* for time τ, from Equation 1. These treated states are the thirteen states with trigger bans listed in Nash and Guarnieri (2022). The control states are identical to the ones used for the main specification, listed in Appendix Table A1. The regressions are weighted by number of enrollees. Standard errors are clustered on the state level. Both state and month-year fixed effects are included. Sample: Women age 18 to 45 years relative to 2021 for LARCs, SARCs, and female sterilizations; men age 18 and older relative to 2021 for male sterilizations.

Appendix Figure A5: Event Study Estimates, Comparing Treated State Definitions

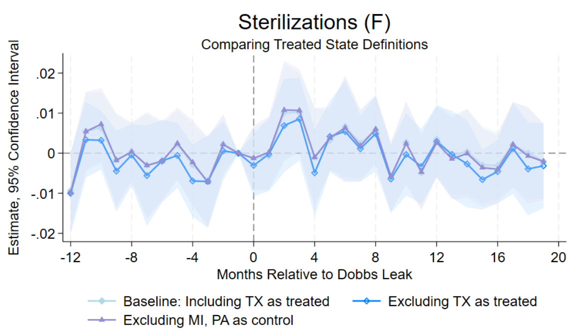
(a)



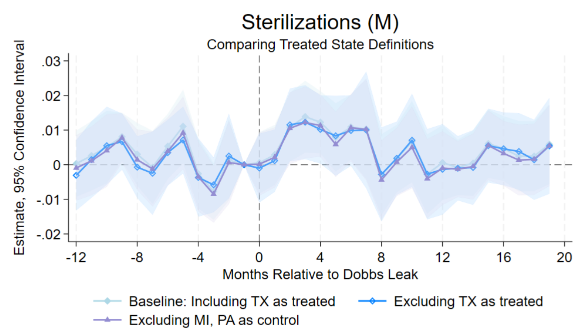
(b)



(c)



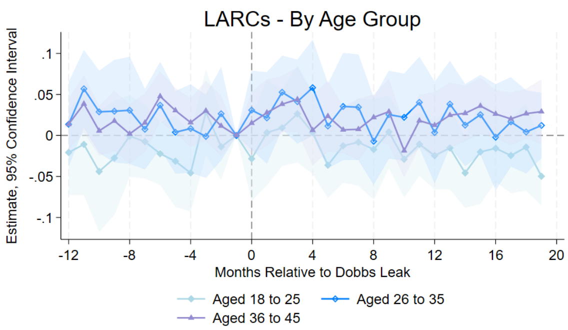
(d)



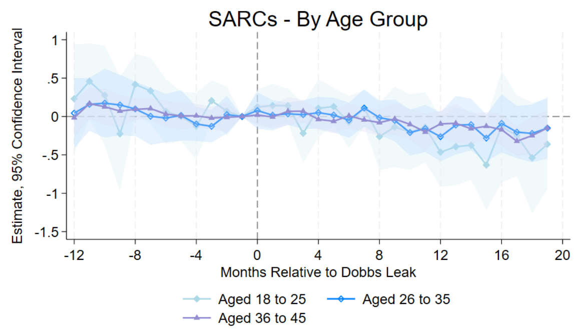
Note: This figure displays the impact of the Dobbs decision leak, or May, 2022, on procedure rates (y-axis) by time since the leak (x-axis). The vertical dashed line marks the Dobbs leak ($t = 0$). The graphs report the estimate of the coefficient of interest, δ_τ, which is the effect (in percentage points) of the Dobbs decision leak on states hostile to abortion for time τ, from Equation 1. Our baseline model for our main specification is the "Baseline: Including TX as treated" which includes all treated and control states as described in Appendix Table A1. The "Excluding TX as treated" definition has the same control states as the baseline specification, but omits Texas from the treated states. Finally, the "Excluding MI, PA as control" excludes Michigan and Pennsylvania from the control states and keeps the same treated states. All regressions are weighted by number of enrollees. Standard errors are clustered on the state level. Both state and month-year fixed effects are included. Sample: Women by age group relative to 2021 for LARCs, SARCs, and female sterilizations; men by age group relative to 2021 for male sterilizations.

Appendix Figure A6: Event Study Estimates, Heterogeneity by Age

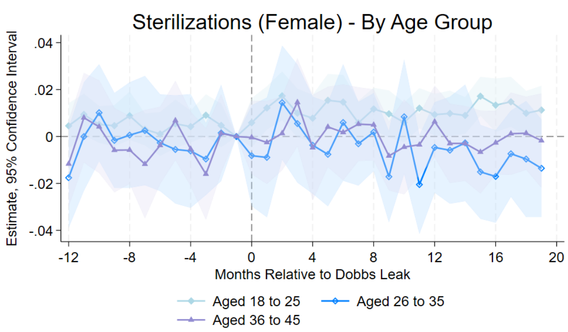
(a)



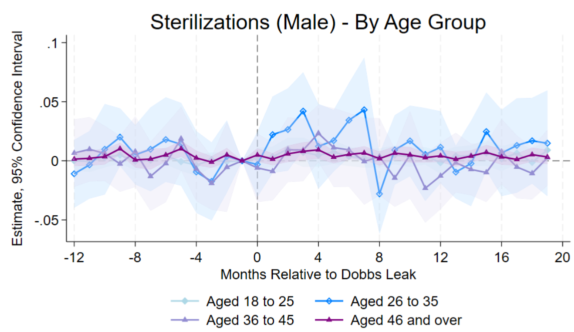
(b)



(c)



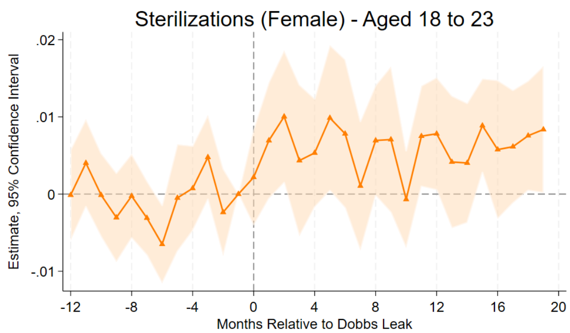
(d)



Note: This figure displays the impact of the Dobbs decision leak, or May, 2022, on procedure rates (y-axis) by time since the leak (x-axis). The vertical dashed line marks the Dobbs leak ($t = 0$). The graphs report the estimate of the coefficient of interest, δ_τ, which is the effect (in percentage points) of the Dobbs decision leak on states hostile to abortion for time τ, from Equation 1. The regressions are weighted by number of enrollees. Standard errors are clustered on the state level. Both state and month-year fixed effects are included. Sample: Women by age group relative to 2021 for LARCs, SARCs, and female sterilizations; men by age group relative to 2021 for male sterilizations.

Appendix Figure A7: Sterilizations for Women Aged 18 to 23

(a)



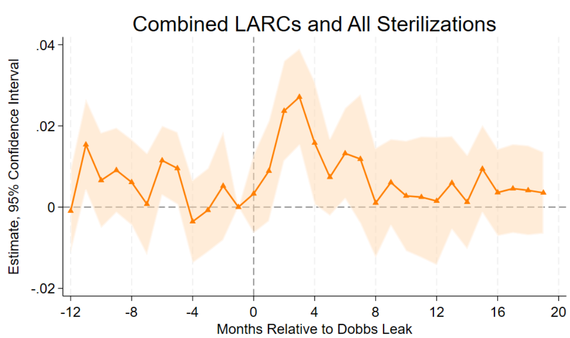
(b)

	Sterilizations (Female) Aged 18 to 23
Short-Term Post × Treated	0.006***
	(0.002)
Long-Term Post × Treated	0.007***
	(0.002)
Treated Mean at $t = -1$	0.006
Percent Change, Short-Term	116.2%
Percent Change, Long-Term	119.5%
State-Month Observations	1,568
Total Enrollees	340,776
R-Squared	0.27

Note: Panel (a) displays the impact of the Dobbs decision leak, or May, 2022, on the female sterilization rate (y-axis) by time since the leak (x-axis). The vertical dashed line marks the Dobbs leak ($t = 0$). The graph reports the estimate of the coefficient of interest, δ_τ, which is the effect (in percentage points) of the Dobbs decision leak on states hostile to abortion for time τ, from Equation 1. Panel (b) reports the impact of the Dobbs decision leak on female sterilization rates in the "short-term" and "long-term" post-periods. The standard difference-in-difference estimates (in percentage points) of the coefficients of interest λ_{short} and λ_{long} from Equation 2 are displayed as "Short-Term Post × Treated" and "Long-Term Post × Treated." The pre-treatment period is May, 2021 to April, 2022. The short-term post-treatment period is May, 2022 to December, 2022. And finally, the long-term post period is January, 2023 to December, 2023. Both regressions are weighted by number of enrollees. Standard errors are clustered on the state level. Both state and month-year fixed effects are included. Sample: Women age 18 to 23 years relative to 2021.

Appendix Figure A8: Combined LARCs and All Sterilizations

(a)



(b)

	LARCs and All Sterilizations
Short-Term Post × Treated	0.009***
	(0.003)
Long-Term Post × Treated	-0.001
	(0.002)
Treated Mean at $t = -1$	0.147
Percent Change, Short-Term	6.1%
Percent Change, Long-Term	-0.7%
State-Month Observations	1,568
Total Enrollees	3,953,428
R-Squared	0.76

Note: Panel (a) displays the impact of the Dobbs decision leak, or May, 2022, on procedure rates (y-axis) by time since the leak (x-axis). The vertical dashed line marks the Dobbs leak ($t = 0$). The procedure rate is calculated by the total number of LARCs and male and female sterilizations divided by the total number of men age 18 and older and women age 18 to 45 in a given state-month. The graph reports the estimate of the coefficient of interest, δ_τ, which is the effect (in percentage points) of the Dobbs decision leak on states hostile to abortion for time τ, from Equation 1. Panel (b) reports the impact of the Dobbs decision leak on procedure rates in the "short-term" and "long-term" post-periods. The standard difference-in-difference estimates (in percentage points) of the coefficients of interest λ_{short} and λ_{long} from Equation 2 are displayed as "Short-Term Post × Treated" and "Long-Term Post × Treated." The pre-treatment period is May, 2021 to April, 2022. The short-term post-treatment period is May, 2022 to December, 2022. And finally, the long-term post period is January, 2023 to December, 2023. Both regressions are weighted by number of enrollees. Standard errors are clustered on the state level. Both state and month-year fixed effects are included. Sample: Women age 18 to 45 years, combined with men age 18 and older, relative to 2021.

Appendix Table A1: Control and Treated State Definitions

Control States (Main Specification)	**Hostile States (Main Specification)**	**Ban Enacted**
Alaska	Alabama	Jun-22
California	Arizona	
Colorado	Arkansas	Jun-22
Connecticut	Georgia	Jul-22
Florida	Idaho	Aug-22
Hawaii	Indiana	Aug-23
Illinois	Iowa	
Kansas	Kentucky	Aug-22
Maine	Louisiana	Aug-22
Maryland	Mississippi	Jul-22
Massachusetts	Missouri	Jun-22
Michigan	Nebraska	
Minnesota	North Carolina	
Montana	North Dakota	Apr-23
Nevada	Ohio	
New Hampshire	Oklahoma	Jun-22
New Jersey	South Carolina	Aug-23
New Mexico	South Dakota	Jun-22
New York	Tennessee	Jun-22
Oregon	Texas	Aug-22
Pennsylvania	Utah	
Rhode Island	West Virginia	Sep-22
Virginia	Wisconsin	Jun-22
Washington	Wyoming	
Washington D.C.		

Note: This table presents the definition of treated and control states used in our analyses. Our main specification defines "hostile states" as treated. For robustness, we also restrict the set of treated states to those where abortion bans were enacted following the *Dobbs* decision. We consider abortion bans as legislation that completely, or nearly completely, prohibits abortion, including bans to abortion after six weeks of gestation ("fetal heartbeat laws"). The dates when these bans took effect were gathered through news searches and cross-validated using monthly state profiles published by the Center for Reproductive Rights between July 2022 and December 2023, archived via the Wayback Machine. Although Ohio had a ban in place from June 2022 to September 2022, the ban was subsequently blocked, leading abortion to remain legal. Thus, there is no ban enacted date for Ohio. Similarly, South Carolina briefly enforced a six-week ban in July 2022; the law was subsequently contested in court and did not ultimately take effect until August 2023.

Appendix Table A2: Sterilization and Contraceptive Codes

Contraceptive Type		CPT/HCPCS Codes	ICD-10 Codes
Sterilizations	Female	CPT: 0567T, 58565, 58600, 58605, 58611, 58615, 58670, 58671 HCPCS: A4264	Z30.2, 0U570ZZ, 0U573ZZ, 0U574ZZ, 0U577ZZ, 0U578ZZ, 0UL70CZ, 0UL70DZ, 0UL70ZZ, 0UL73CZ, 0UL73DZ, 0UL73ZZ, 0UL74CZ, 0UL74DZ, 0UL74ZZ, 0UL77DZ, 0UL77ZZ, 0UL78DZ, 0UL78ZZ, 0UT70ZZ, 0UT74ZZ, 0UT77ZZ, 0UT78ZZ, 0UT7FZZ
	Male	CPT: 55250, 55450	Z30.2
Long Acting Reversible Contraceptives (LARCs)	Intrauterine Device (IUD) / Intrauterine System (IUS)	CPT: 58300 HCPCS: J7296, J7297, J7298, J7300, J7301, S4981, S4989	Z30.430, 0UH90HZ, 0UH97HZ, 0UH98HZ, 0UHC7HZ, 0UHC8HZ
	Hormonal Implant	CPT: 11981, 11983 HCPCS: J7306, J7307	0JHD0HZ, 0JHD3HZ, 0JHF0HZ, 0JHF3HZ, 0JHG0HZ, 0JHG3HZ, 0JHH0HZ, 0JHH3HZ
Short Acting Reversible Contraceptives (SARCs)		**NDC Codes**	
	Oral Contraceptive Pills	1,019 NDC codes were used, see footnote.	
	Injectable (1-month / 3-months)	52 NDC codes were used, see footnote.	
	Patch	00378334016, 00378334017, 00378334032, 00378334053, 50090168300, 65162035801, 65162035803, 69238152101, 69238152103, 71671010001, 71671010003, 71671010011	
	Vaginal Ring	00052027301, 00052027303, 00052027304, 00052027305, 00052027381, 00052027385, 00093767901, 00093767902, 50090100800, 50090561100, 50090595900, 50261031301, 65162046932, 65162046935, 66993060536, 66993060581, 78206014601, 78206014603	

Note: This table shows the female contraceptive CPT, HCPCS, ICD-10, and NDC codes used for determining procedures (LARCs, sterilizations) or prescriptions (SARCs) from the MarketScan inpatient, outpatient, and prescription claims data. All female contraceptive codes were selected following a guide released by U.S. Department of Health and Human Services, Office of Population Affairs (2023). For female sterilizations and LARCs, we selected the codes associated with the procedure itself rather than the initial consultations for the procedures. For oral contraceptive pills and injectables, the drug codes were excluded from the table for brevity but can be found in the contraceptive care measures code sets. For male sterilization (vasectomies) shown above, we use codes following Pierson et al. (2024).

Appendix Table A3: Procedure Rates for Control States

Time	LARCs	Sterilizations (M)	Sterilizations (F)	SARCs
May-Aug, 2021	1.18%	0.17%	0.12%	35.16%
May-Aug, 2022	1.10%	0.20%	0.13%	30.72%
May-Aug, 2023	0.98%	0.18%	0.12%	26.46%

Note: This table reports raw procedure rates for control states in the main specification, which are listed in Appendix Table A1. For LARCs and sterilizations, the procedure rate is the number of enrollees who have gotten that procedure between May and August, divided by the total number of female enrollees age 18 to 45 years (male enrollees age 18 and older for male sterilizations) who appeared in MarketScan during any of the four months, regardless of whether they were continuously enrolled. For SARCs, the procedure rate is the number of prescriptions between May and August, divided by the number of female enrollees age 18 to 45 years with prescription coverage during any of the four months.

Appendix Table A4: Difference-in-Differences Estimates

Panel (A) - Baseline OLS Specification

	LARCs	SARCs	Sterilizations (Female)	Sterilizations (Male)
Short-Term Post × Treated	0.010^{*}	-0.054	0.004^{**}	0.007^{***}
	(0.005)	(0.103)	(0.002)	(0.002)
Long-Term Post × Treated	-0.002	-0.301	0.000	-0.000
	(0.006)	(0.194)	(0.002)	(0.002)
Treated Mean at $t = -1$	0.263	9.297	0.047	0.059
Percent Change, Short-Term	3.6%	-0.6%	9.5%	11.2%
Percent Change, Long-Term	-0.8%	-3.2%	0.7%	-0.1%
State-Month Observations	1,568	1,568	1,568	1,568
Total Enrollees	1,369,232	1,289,682	1,369,232	2,584,196
R-Squared	0.74	0.97	0.54	0.58

Panel (B) - Poisson Regression Accounting for At-Risk Population

	LARCs	SARCs	Sterilizations (Female)	Sterilizations (Male)
Short-Term Post × Treated	0.035^{**}	-0.000	0.029	0.074^{***}
	(0.017)	(0.008)	(0.041)	(0.024)
Long-Term Post × Treated	-0.009	-0.024^{*}	-0.011	-0.007
	(0.015)	(0.014)	(0.036)	(0.031)
State-Month Observations	1,568	1,568	1,568	1,568
Total Enrollees	1,369,232	1,289,682	1,369,232	2,584,196
Pseudo R-Squared	0.93	1.00	0.76	0.85

Note: This table reports the impact of the Dobbs decision leak on procedure rates in the "short-term" and "long-term" post-periods. Panel (A) reports standard difference-in-differences estimates (in percentage points) of the coefficients of interest, λ_{short} and λ_{long}, from Equation 2, labeled as "Short-Term Post × Treated" and "Long-Term Post × Treated." The regressions are weighted by the number of enrollees. The treated mean at $t = -1$ reflects the mean procedure rate in the treated states in April 2022, reported in percentage points. Panel (B) presents analogous difference-in-differences estimates using an alternative specification based on Poisson regressions following Equation (3).The change in procedure rates caused by the Dobbs decision leak can be calculated taking the coefficients λ_{short} and λ_{long} and applying the transformation: $(\exp(\lambda) - 1) \times 100$. The exposure is set to the "at-risk" population, or the total number of enrollees at time t minus the cumulative number of procedures performed up to $t - 1$. All regressions cluster standard errors at the state level and include both state and month-year fixed effects. Sample: Women age 18 to 45 years relative to 2021 for LARCs, SARCs, and female sterilizations; men age 18 and older relative to 2021 for male sterilizations.

Appendix Table A5: Difference-in-Differences Estimates, Child on Plan

	LARCs		Sterilizations (Female)	
	Child Under 18 in Plan	No Child Under 18 in Plan	Child Under 18 in Plan	No Child Under 18 in Plan
Short-Term Post × Treated	0.005	0.015*	0.003	0.006**
	(0.006)	(0.008)	(0.003)	(0.002)
Long-Term Post × Treated	0.002	-0.005	-0.001	0.002
	(0.007)	(0.007)	(0.003)	(0.001)
Treated Mean at $t = -1$	0.255	0.270	0.081	0.016
Percent Change, Short-Term	1.9%	5.7%	3.3%	39.7%
Percent Change, Long-Term	0.8%	-1.8%	-1.4%	11.3%
State-Month Observations	1,568	1,568	1,568	1,568
Total Enrollees	631,047	738,185	631,047	738,185
R-Squared	0.57	0.65	0.38	0.40

Note: This table reports the impact of the Dobbs decision leak on procedure rates in the "short-term" and "long-term" post-periods. The standard difference-in-difference estimates (in percentage points) of the coefficients of interest λ_{short} and λ_{long} from Equation 2 are displayed as "Short-Term Post × Treated" and "Long-Term Post × Treated." The pre-treatment period is May, 2021 to April, 2022. The short-term post-treatment period is May, 2022 to December, 2022. And finally, the long-term post period is January, 2023 to December, 2023. The regressions are weighted by number of enrollees and the standard errors are clustered on the state level and both state and month-year fixed effects are included. The treated mean at $t = -1$ reported reflects the mean procedure rate in the treated states in April, 2022 in percentage points. Sample: Women age 18 to 45 years relative to 2021 who have a child (or children) under 18 and denoted as a dependent on their plan and women who do not have a child (or children) under 18 and denoted as a dependent on their plan at any point in the study period.

Appendix Table A6: Difference-in-Differences Estimates, Previous SARC Usage

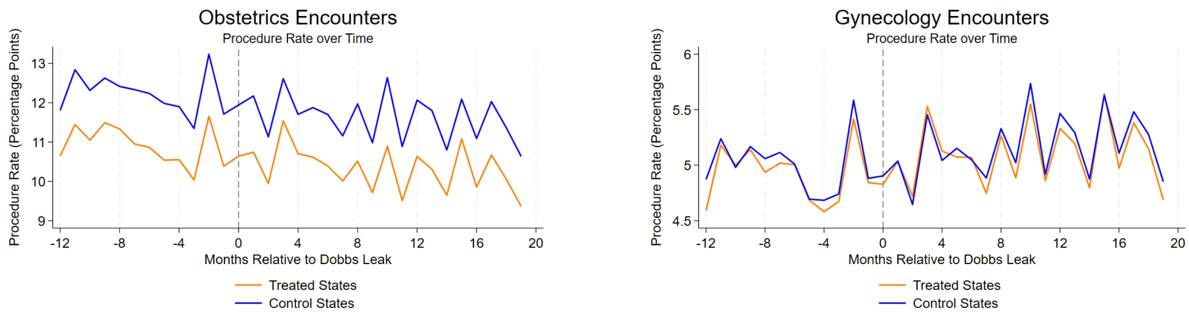
	LARCs		Sterilizations (Female)	
	SARCs in 2021	No SARCs in 2021	SARCs in 2021	No SARCs in 2021
Short-Term Post × Treated	0.010	0.011**	0.014***	0.002
	(0.010)	(0.005)	(0.005)	(0.002)
Long-Term Post × Treated	0.008	-0.005	0.006	-0.001
	(0.010)	(0.006)	(0.004)	(0.002)
Treated Mean at $t = -1$	0.270	0.256	0.050	0.047
Percent Change, Short-Term	3.6%	4.2%	27.8%	3.6%
Percent Change, Long-Term	3.0%	-1.9%	12.8%	-2.4%
State-Month Observations	1,568	1,568	1,568	1,568
Total Enrollees	334,716	954,966	334,716	954,966
R-Squared	0.37	0.69	0.39	0.42

Note: This table reports the impact of the Dobbs decision leak on procedure rates in the "short-term" and "long-term" post-periods. The standard difference-in-difference estimates (in percentage points) of the coefficients of interest λ_{short} and λ_{long} from Equation 2 are displayed as "Short-Term Post × Treated" and "Long-Term Post × Treated." The pre-treatment period is May, 2021 to April, 2022. The short-term post-treatment period is May, 2022 to December, 2022. And finally, the long-term post period is January, 2023 to December, 2023. The regressions are weighted by number of enrollees and the standard errors are clustered on the state level and both state and month-year fixed effects are included. The treated mean at $t = -1$ reported reflects the mean procedure rate in the treated states in April, 2022 in percentage points. Sample: Women age 18 to 45 years relative to 2021 who have had any SARC prescription in 2021, compared to those who did not have any SARC prescription in 2021.

B Obstetrics and Gynecology Encounters

In addition to our main results on contraceptive and sterilization decisions, we also consider obstetrics and gynecology encounters for female enrollees aged 18 to 45 years in our study period. Abortion bans may create reduced access to obstetrics and gynecology services more broadly, either due to physician exit or to different use of obstetrics and/or gynecology care when abortion is not possible, and this may drive changes in contraceptive use. The MarketScan database provides fields that classify inpatient and outpatient claims by provider type, major diagnostic category, and procedure code groups. The exact MarketScan codes used to separately identify obstetrics and gynecology procedures can be found in Table B1. We calculate the total number of obstetrics- and gynecology-related procedures in a given state-month and divide that by the total number of female enrollees aged 18 to 45.

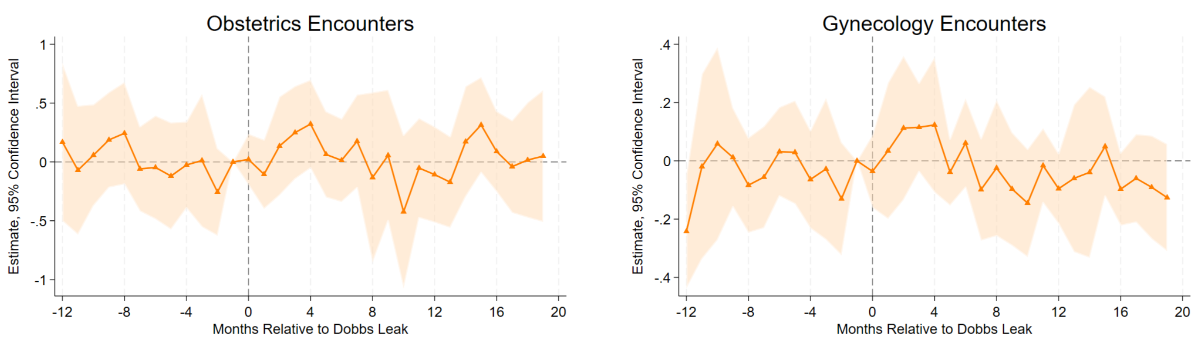
Appendix Figure B1: Obstetrics and Gynecology Procedures Rates Over Time



Note: This figure displays the raw monthly procedure rates in percentage points for treated and control states. The vertical dashed line marks the Dobbs leak, or May, 2022 ($t = 0$). For LARCs and sterilizations, the procedure rate is the number of enrollees who have gotten the procedure divided by the total enrollees in that given month. Sample: Women age 18 to 45 years relative to 2021.

Appendix Figure B2: Event Study Coefficient Plots, Obstetrics and Gynecology Services

(a) (b)



Note: This figure displays the impact of the Dobbs decision leak, or May, 2022, on procedure rates (y-axis) by time since the leak (x-axis). The vertical dashed line marks the Dobbs leak ($t = 0$). The graphs report the estimate of the coefficient of interest, δ_τ, which is the effect (in percentage points) of the Dobbs decision leak on states hostile to abortion for time τ, from Equation 1. The regressions are weighted by number of enrollees. Standard errors are clustered on the state level. Both state and month-year fixed effects are included. Sample: Women age 18 to 45 years relative to 2021.

Appendix Table B1: Obstetrics & Gynecology Procedure Filters

	Obstetrics	**Gynecology**
Outpatient Services	*Provider Type*: Obstetrics & Gynecology; Midwife *Major Diagnostic Category*: Pregnancy, Childbirth; Newborns *Procedure Group Code*: Dx ultrasound, pregnancy; Cesarean section deliveries; Vaginal deliveries; Major maternity procs & related care; Other maternity procs & related care	*Provider Type*: Obstetrics & Gynecology *Major Diagnostic Category*: Female Reproductive *Procedure Group Code*: Colposcopy; Dilation & currettage; Laparoscopy, hysteroscopy; Minor female genital procedures; Major female genital procedures; X-ray, OB/Gyn; Pap smear
Inpatient Services	*Provider Type*: Obstetrics & Gynecology; Midwife *Major Diagnostic Category*: Pregnancy, Childbirth; Newborns	*Provider Type*: Obstetrics & Gynecology *Major Diagnostic Category*: Female Reproductive

Note: The table above shows how obsterics and gynecology procedures were filtered on MarketScan inpatient and outpatient claims data. The "Procedure Group Code" is only available for outpatient service claims, while "Provider Type" and "Major Diagnostic Category" are available for both inpatient and outpatient service claims. These fields are provided by MarketScan directly which classify their claims into different categories. In cases where a claim is marked as both obstetrics and gynecology, we consider the claim as obstetrics-related only.

Appendix Table B2: Difference-in-Differences Estimates, Age Breakdown for OBGYN Services

	Obstetrics Encounters				Gynecology Encounters			
	All	18-25	26-35	36-45	All	18-25	26-35	36-45
Short-Term Post × Treated	0.102	0.144	-0.412**	0.466***	0.075	-0.035	0.041	0.164**
	(0.101)	(0.088)	(0.167)	(0.165)	(0.051)	(0.057)	(0.074)	(0.066)
Long-Term Post × Treated	-0.027	0.127	-1.117***	0.722***	-0.026	-0.002	-0.136**	0.025
	(0.151)	(0.116)	(0.299)	(0.194)	(0.049)	(0.071)	(0.058)	(0.056)
Treated Mean at $t = -1$	10.388	6.923	16.348	7.725	4.843	3.577	5.715	5.016
Percent Change, Short-Term	1.0%	2.1%	-2.5%	6.0%	1.6%	-1.0%	0.7%	3.3%
Percent Change, Long-Term	-0.3%	1.8%	-6.8%	9.3%	-0.5%	-0.1%	-2.4%	0.5%
State-Month Observations	1,568	1,568	1,568	1,568	1,568	1,568	1,568	1,568
Total Enrollees	1,369,232	374,815	464,679	529,738	1,369,232	374,815	464,679	529,738
R-Squared	0.94	0.93	0.91	0.94	0.90	0.82	0.84	0.86

Note: This table reports the impact of the Dobbs decision leak on procedure rates in the "short-term" and "long-term" post-periods. The standard difference-in-difference estimates (in percentage points) of the coefficients of interest λ_{short} and λ_{long} from Equation 2 are displayed as "Short-Term Post × Treated" and "Long-Term Post × Treated." The pre-treatment period is May, 2021 to April, 2022. The short-term post-treatment period is May, 2022 to December, 2022. And finally, the long-term post period is January, 2023 to December, 2023. The regressions are weighted by number of enrollees and the standard errors are clustered on the state level and both state and month-year fixed effects are included. The treated mean at $t = -1$ reported reflects the mean procedure rate in the treated states in April, 2022 in percentage points. Sample: Women by age group ("all" represents age 18 to 45) relative to 2021.

Appendix Table B3: Difference-in-Differences Estimates for OBGYN Services

Panel (A) - Baseline OLS Specification

	Obstetrics Encounters	Gynecology Encounters
Short-Term Post × Treated	0.102	0.075
	(0.101)	(0.051)
Long-Term Post × Treated	-0.027	-0.026
	(0.151)	(0.049)
Treated Mean at $t = -1$	10.388	4.843
Percent Change, Short-Term	1.0%	1.6%
Percent Change, Long-Term	-0.3%	-0.5%
State-Month Observations	1,568	1,568
Total Enrollees	1,369,232	1,369,232
R-Squared	0.94	0.90

Panel (B) - Poisson Regression

	Obstetrics Encounters	Gynecology Encounters
Short-Term Post × Treated	0.005	0.015
	(0.009)	(0.010)
Long-Term Post × Treated	-0.010	-0.004
	(0.013)	(0.009)
State-Month Observations	1,568	1,568
Total Enrollees	1,369,232	1,369,232
Pseudo R-Squared	1.00	0.99

Note: This table reports the impact of the Dobbs decision leak on procedure rates in the "short-term" and "long-term" post-periods. Panel (A) reports standard difference-in-differences estimates (in percentage points) of the coefficients of interest, λ_{short} and λ_{long}, from Equation 2, labeled as "Short-Term Post × Treated" and "Long-Term Post × Treated." The regressions are weighted by the number of enrollees. The treated mean at $t = -1$ reflects the mean procedure rate in the treated states in April 2022, reported in percentage points. Panel (B) presents analogous difference-in-differences estimates using an alternative specification based on Poisson regressions following Equation (3).The change in procedure rates caused by the Dobbs decision leak can be calculated taking the coefficients λ_{short} and λ_{long} and applying the transformation: $(\exp(\lambda) - 1) \times 100$. The exposure is set equal to the total number of enrollees at time t. All regressions cluster standard errors at the state level and include both state and month-year fixed effects. Sample: Women age 18 to 45 years relative to 2021.