

Sex, contraception, and abortion: Some thoughts on the potential mechanical causes of declining fertility

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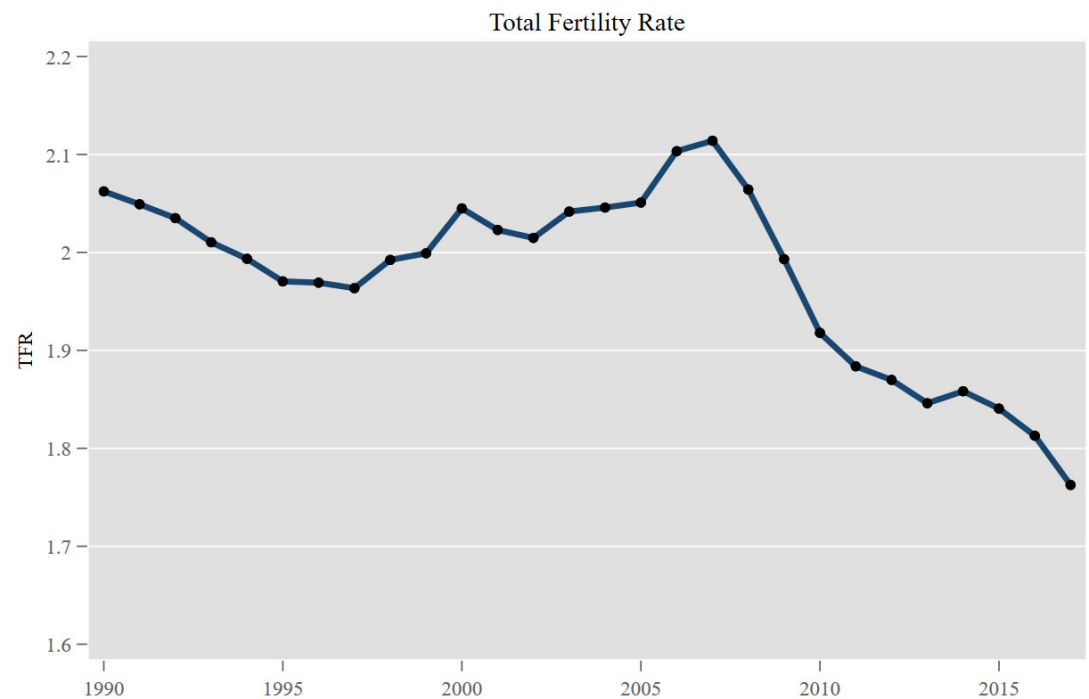
July 24, 2019

NBER Summer Institute
Panel on Fertility Trends and Implications

Consensus

The total fertility rate has fallen substantially since 2007, driven in large part by reductions in births to women aged 15-24.

Whether this trend will continue depends on the underlying cause.



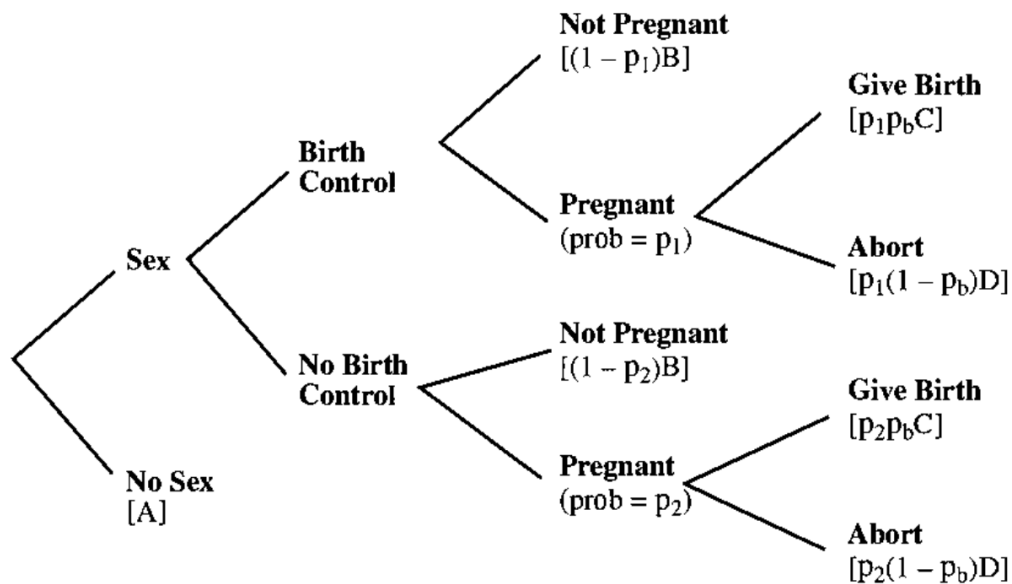
Sources: Caitlin Myers' calculations using data from Human Fertility Database.

Two questions among many

What do we know about the mechanical causes of the decline in fertility?

Is there a potential for another “abortion policy shock” to the TFR?

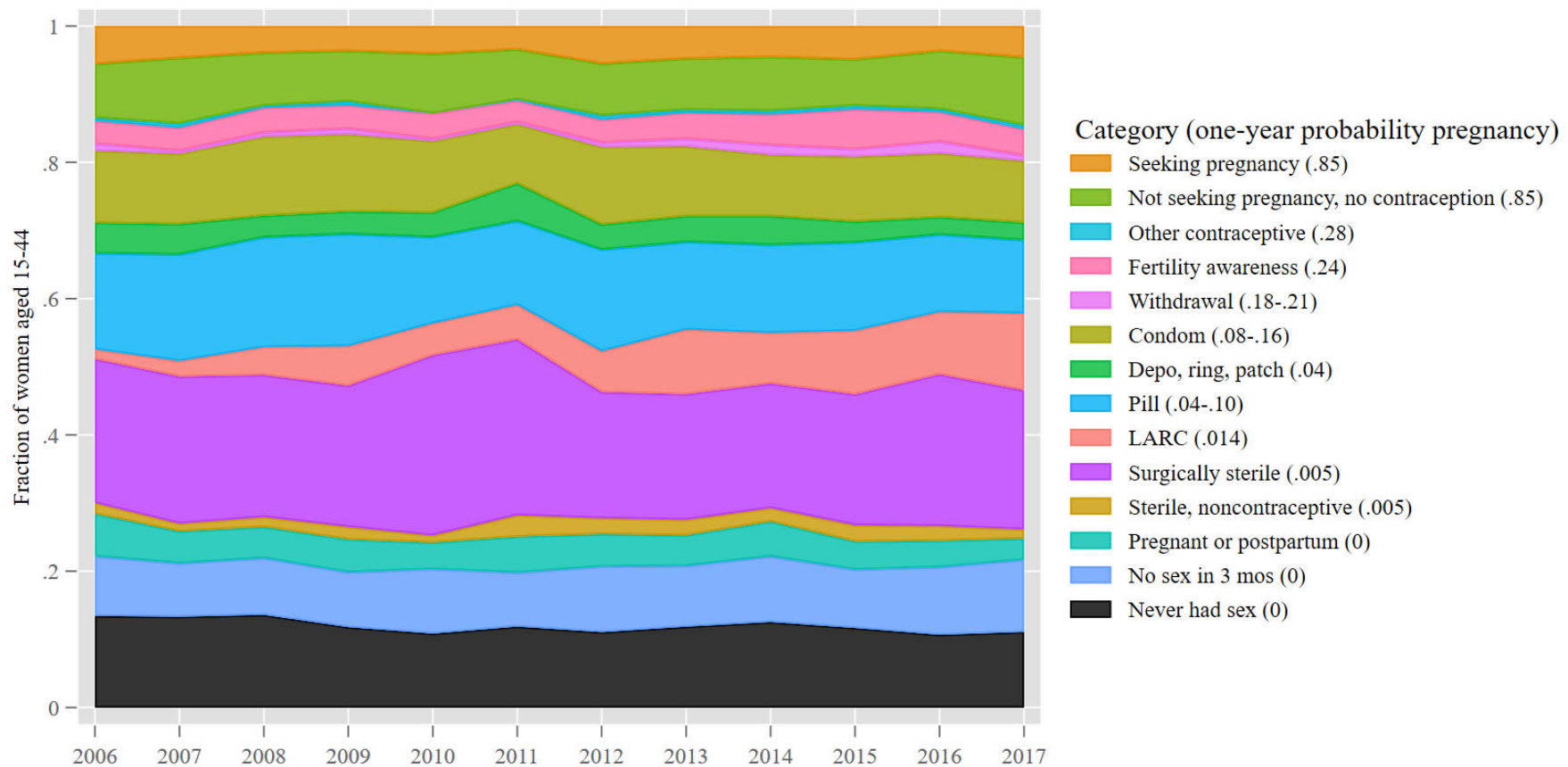
Homo Economicus in the bedroom



The “Fertility Decision Tree”

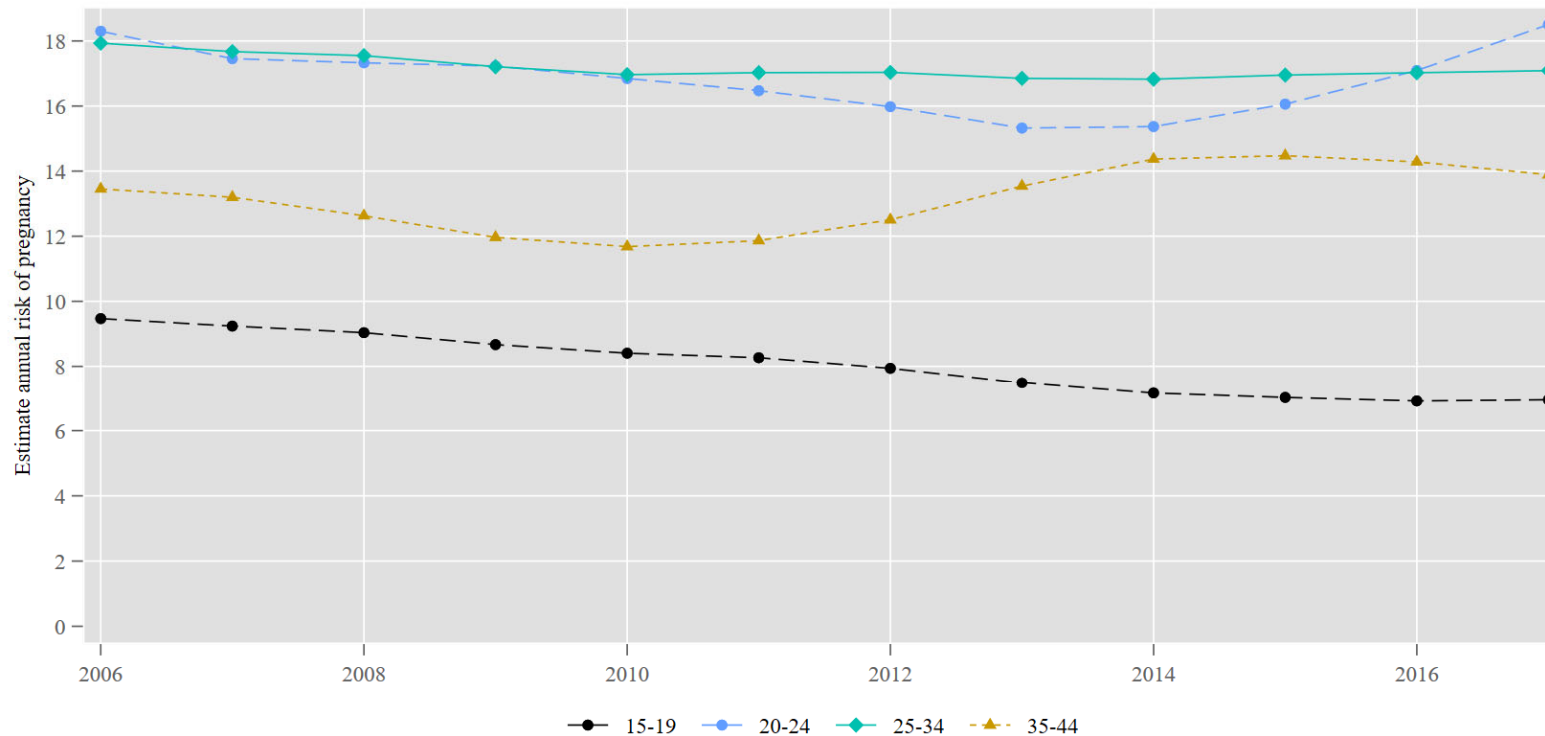
Reproduced from Phillip Levine. 2001. “The Sexual Activity and Birth-Control Use of American Teenagers.” in *Risky Behavior among Youths: An Economic Analysis*. Ed. Jonathan Gruber.

Trends in sex and contraception choices for women aged 15-44



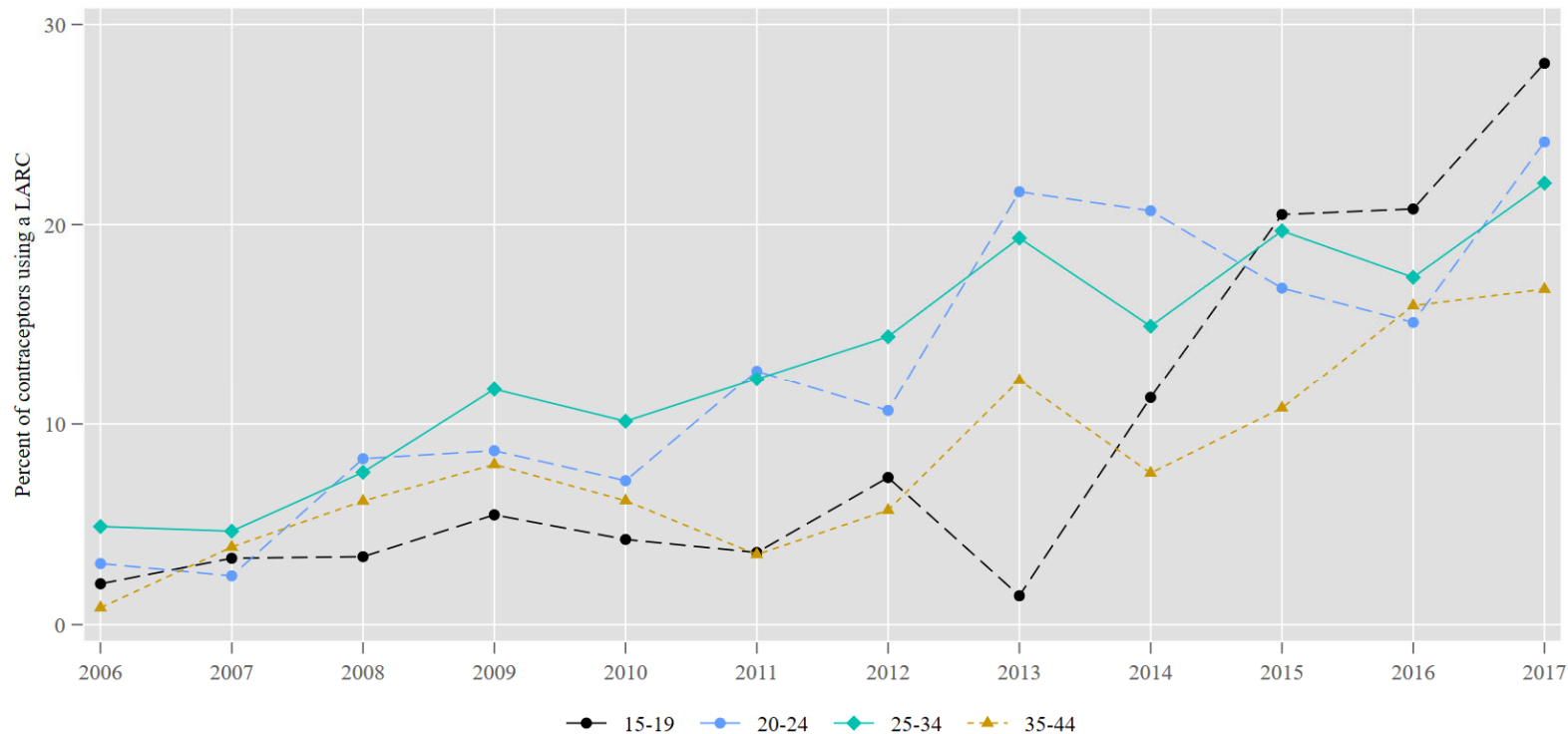
Sources: Caitlin Myers' calculations using the 2006-2015 National Survey of Family Growth. Risk of pregnancy is based on age-specific rates of failure for the pill, withdrawal, and condoms, and aggregate rates of failure for LARC and injectables published in Sundarman et al. 2017. "Contraceptive Failure in the United States: Estimates from the 2006-2010 National Survey of Family Growth." Perspectives on Sexual and Reproductive Health 49(1): 7-16. Other method failure rates published in James Trussell. 2011. "Contraceptive failure in the United States. Contraception 83(5): 397-404.

Trends in predicted risk of pregnancy, by age group



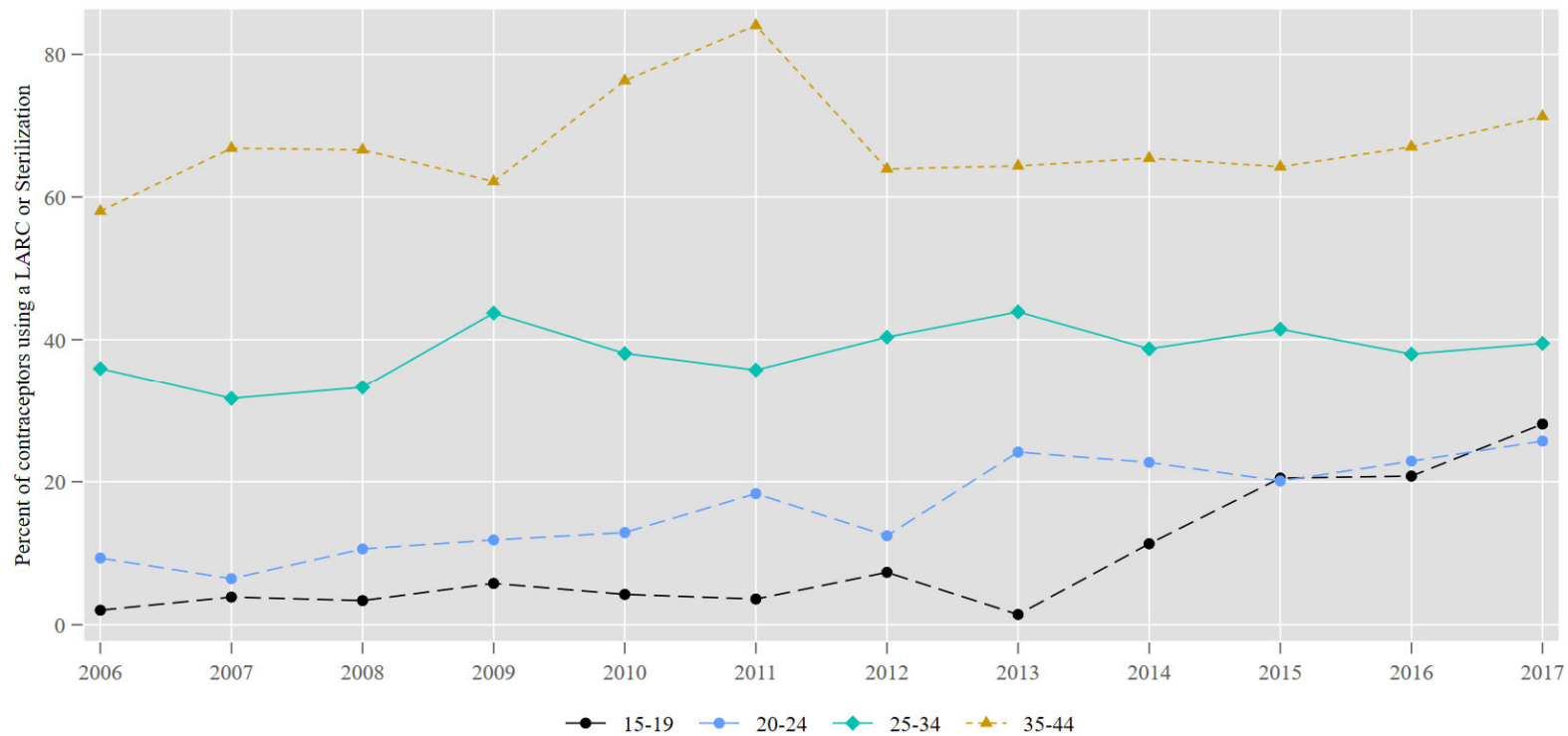
Sources: Caitlin Myers' calculations using the 2006-2017 National Survey of Family Growth and methodology to calculate pregnancy risk described in Lindbergh et al. "Understanding the Decline in Adolescent Fertility in the United States, 2007–2012." *The Journal of Adolescent Health* 59(5): 577-583. LOESS with .8 bandwidth used to smooth trend by age group.

How do we reconcile little change in pregnancy risk with large increases in LARC use?



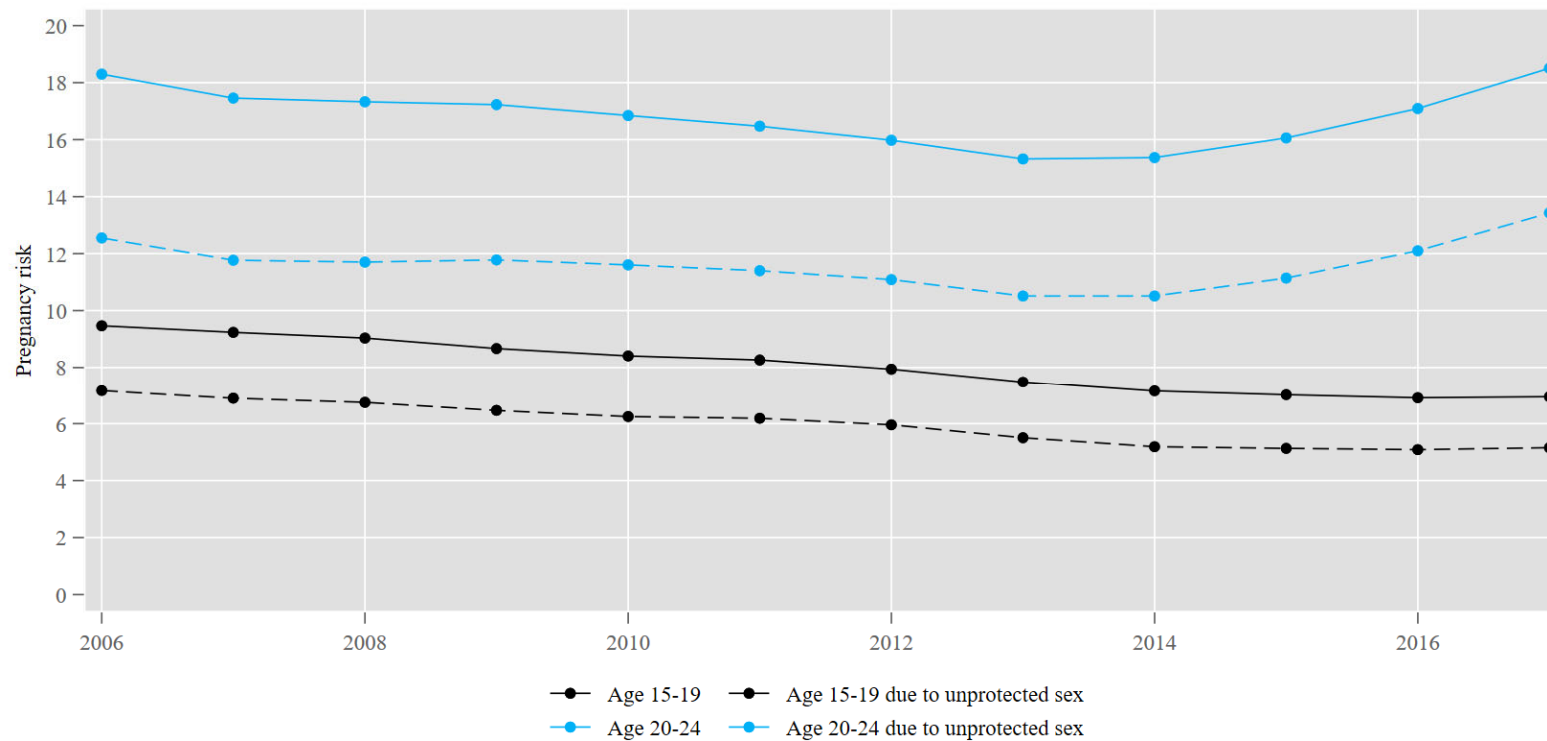
Sources: Caitlin Myers' calculations using the 2006-2015 National Survey of Family Growth. This graph replicates and extends Figure 6c in Martha Bailey and Jason Lindo. 2017. "Access and use of contraception and its effects on women's outcomes in the U.S." Manuscript prepared for Oxford Handbook of Women and the Economy.

Older women seem to be substituting LARC for sterilization



Sources: Caitlin Myers' calculations using the 2006-2015 National Survey of Family Growth.

Trends for teens suggest declining pregnancy risk due to increased use of contraception (Lindbergh et al, 2017)



Sources: Caitlin Myers' calculations using the 2006-2015 National Survey of Family Growth. Risk of pregnancy is calculated using method failure rates published in James Trussell. 2011. "Contraceptive failure in the United States. *Contraception* 83(5): 397-404.

What do we know about the mechanical causes of the decline in fertility?

Based on trends observed in the NSFG,

- Increased use of contraception is a (the?) major contributing factor to declining teen birth rates.
- But among older women, it seems like it might not just be about sexual activity and contraception use, at least as measured in this analysis

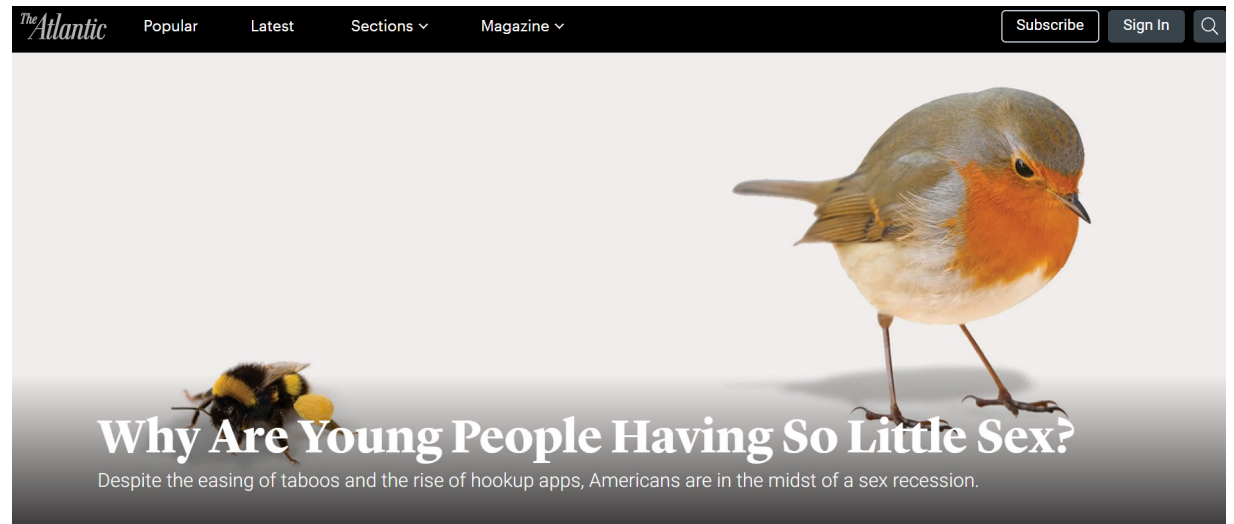
What else could be happening?

Additional direct mechanisms to consider

Decreased frequency of sex?

- Between 2000-2004 and 2010-2014, the annual frequency of sex estimated using the GSS declined from 86.6 to 78.5 among adults aged 18-29

Sources: Jean Twenge, Ryne Sherman, Brooke Wells.
“Declines in sexual frequency among American Adults, 1989-2014.” *Archives of Sexual Behavior* 46(8): 2389-2401.



Additional direct mechanisms to consider

More consistent use of contraception?

Decreased fecundity?

- One meta-analysis estimates by 54% decrease in sperm counts in western countries since 1973, and a similar rate is observed since 1995
- A recent study of 124,000 sperm donor samples from donors aged 19-38 in United States found substantial declines over an 11 year period

Sources: Levine et al 2017. "Temporal trends in sperm count: a systematic review and meta-regression analysis" Human Reproduction Update 23(6): 646-659.
Sydney Change et al. 2018. "Eleven year longitudinal study of U.S. sperm donors demonstrates declining sperm count and motility" Fertility and Sterility 110(4): E54-E55.

Looking forward

Is there a potential for another “**abortion** policy shock” to the TFR?

Intentions don't always match behavior

- 88% of unmarried women aged 15-29 say it is important to avoid pregnancy in their lives right now

But among those who are at risk of unintended pregnancy,

- 19% use no contraception at all
- 24% use contraception inconsistently
- 17% say it is “quite likely” they will have unprotected sex in the next three months

Source: Kelleen Kaye, et al. 2009. *The Fog Zone: How Misperceptions, Magical Thinking, and Ambivalence Put Young Adults at Risk for Unplanned Pregnancy*. Washington, DC: The National Campaign to Prevent Teen and Unplanned Pregnancy.

Intentions don't always match behavior

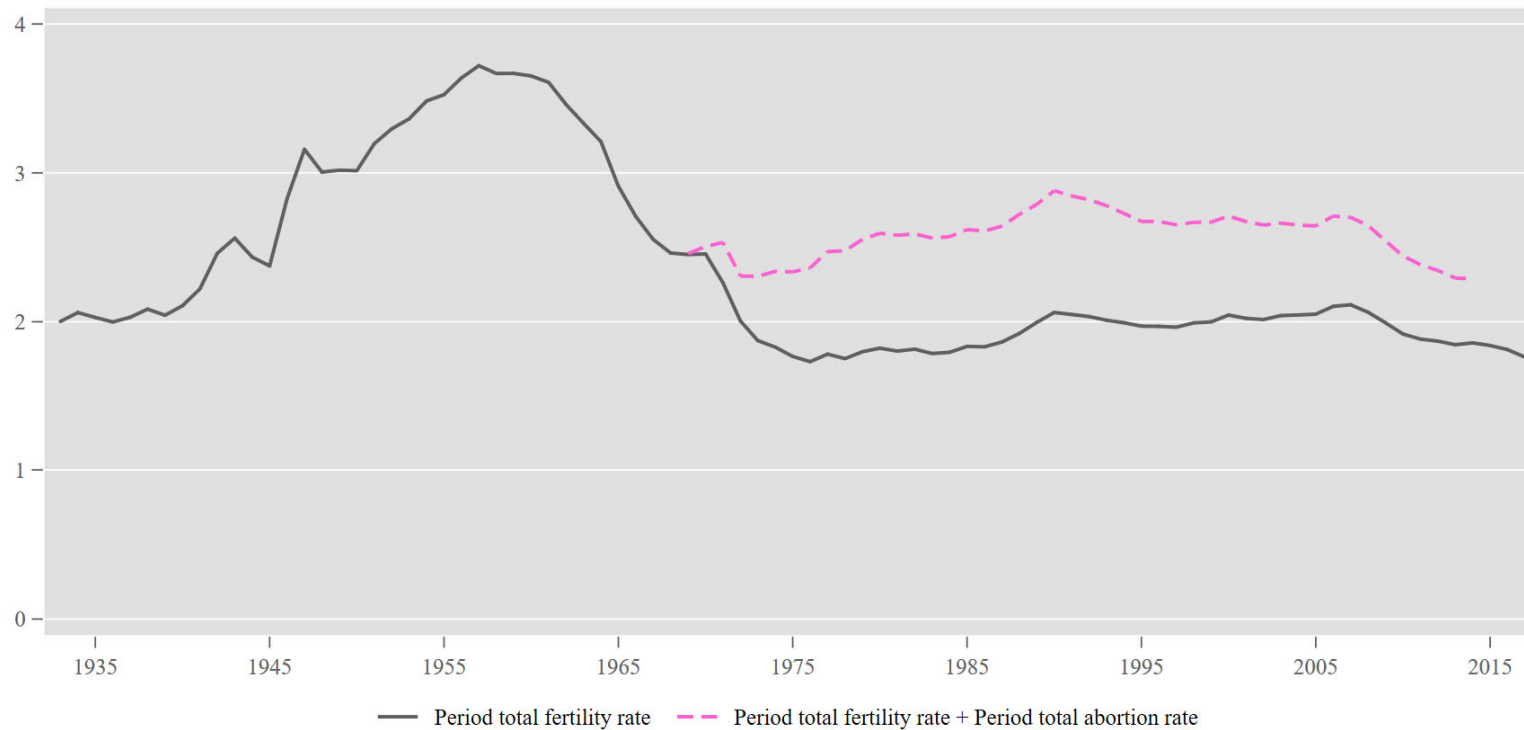
About half of pregnancies are unintended

About one-fifth of pregnancies end in abortion

At current rates, roughly 1 in 4 U.S. women of childbearing age will have an abortion by age 44

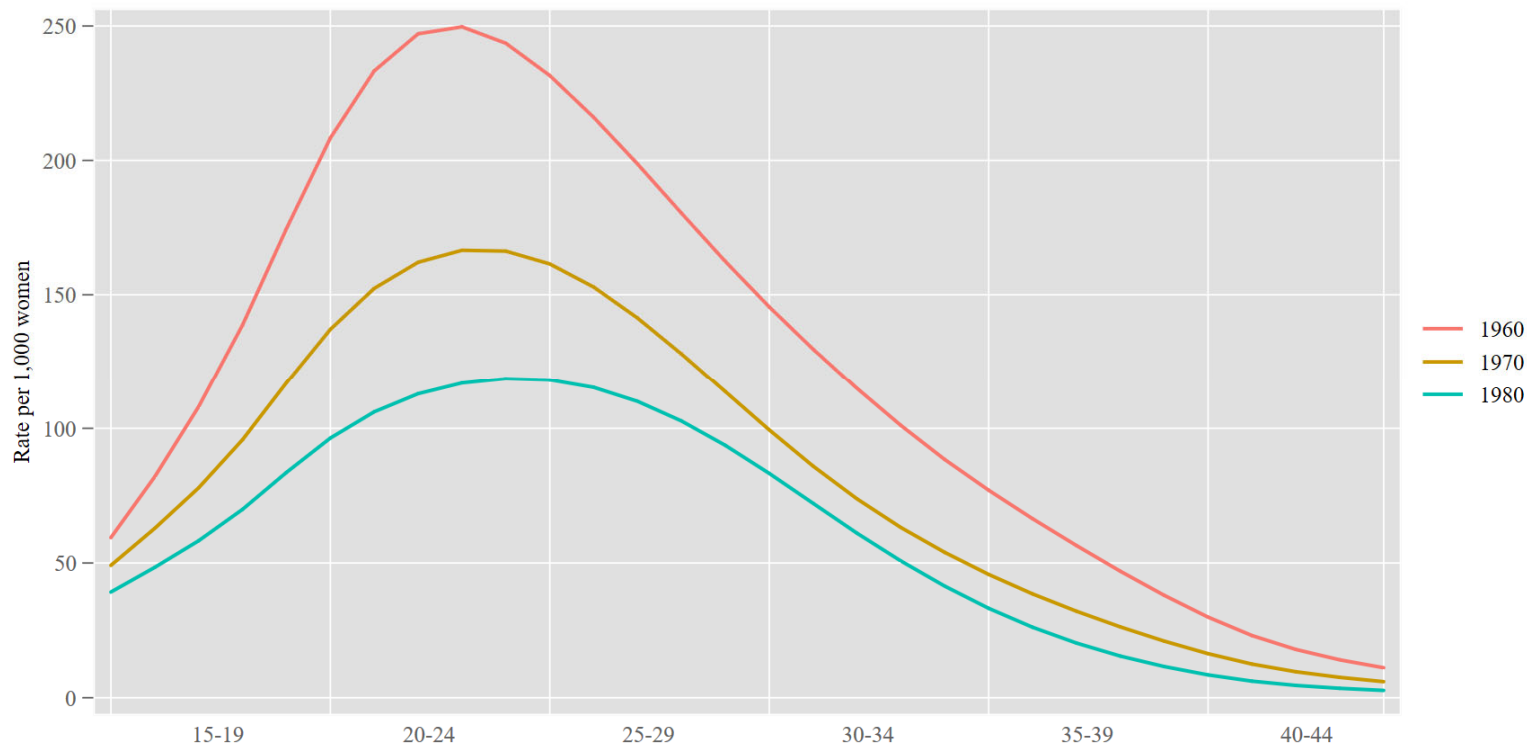
Sources: Lawrence Finer and Mia Zolna. 2016. "Declines in unintended pregnancy in the United States, 2008-2011." *The New England Journal of Medicine* 374(9): 843-852. Rachel Jones and Jenna Jerman. 2017. "Abortion incidence and service availability in the United States, 2014." *Perspectives on Sexual and Reproductive Health* 49(1). Rachel Jones and Jenna Jerman. 2017. "Population group abortion rates and lifetime incidence of abortion: United States, 2008-2014." *American Journal of Public Health* 107(12): 1904-1909.

Total Fertility Rates plus Total Reported Abortion Rate, 1933-2017



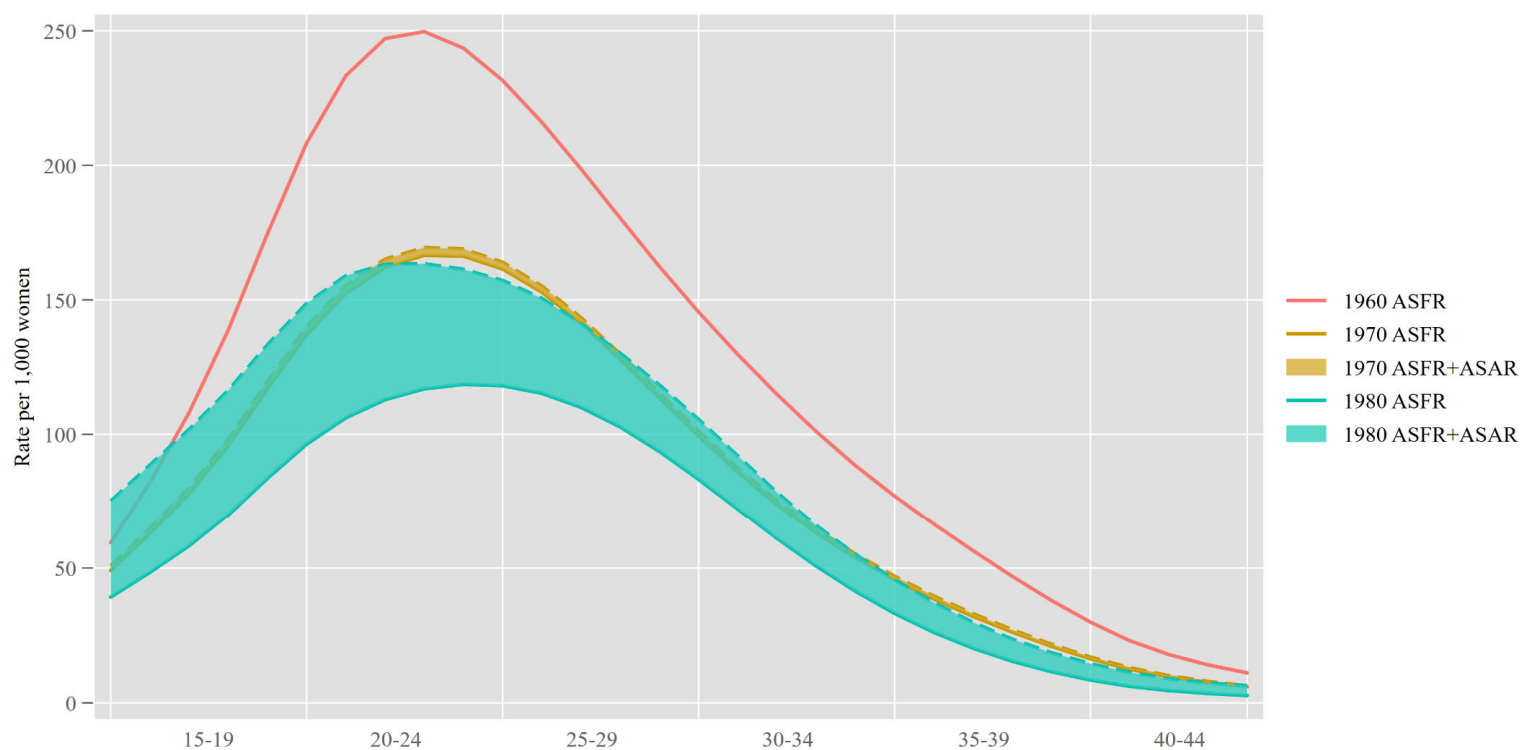
Sources: Caitlin Myers' calculations using data from Human Fertility Database and unpublished estimates of abortion rates by age provided to her by Isaac Maddow and Rachel Jones at The Guttmacher Institute.

Age-specific Fertility Rates



Sources: Caitlin Myers' calculations using data from Human Fertility Database. Max Planck Institute for Demographic Research (Germany) and Vienna Institute of Demography (Austria). Available at www.humanfertility.org (data downloaded on July 18, 2019).

Age-specific Fertility Rates and Age Specific Reported Abortion Rates, 1960, 1970 and 1980



Sources: Caitlin Myers' calculations using data from Human Fertility Database and unpublished estimates of abortion rates by age provided to her by Isaac Maddow and Rachel Jones at the Guttmacher Institute.

The liberalization of abortion policy likely played a major causal role in reductions in births in the early 70s

Joyce et al., 2013: Abortion policy explained about 82% of decline in births between 1969 and 1972.

Myers, 2017: Explained 80% of the decline in first births before age 19 between the 1940 and 1958 birth cohorts.

Source: Theodore Joyce et al. 2013. "Abortion before & after Roe." *The Journal of Health Economics* 32(5): 804-815.
Caitlin Myers. "The Power of Abortion Policy: Re-examining the effects of young women's access to reproductive control." *The Journal of Political Economy* 125(6): 2178-2224.

A lot is happening right now

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NATIONAL

Alabama Lawmakers Move To Outlaw Abortion In Challenge To Roe v. Wade

May 1, 2019 - 4:11 PM ET
Heard on All Things Considered

DEBBIE ELLIOTT



A sweeping abortion bill passed the Alabama state House Tuesday and is expected to win final passage in the Republican-majority Senate.

The New York Times

'The Time Is Now': States Are Rushing to Restrict Abortion, or to Protect It



A clinic in Montgomery, Ala. The State Legislature passed a bill on Tuesday that would effectively ban abortions. Melissa Golden for The New York Times

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U.S. NEWS

Georgia's law that blocks most abortions is unconstitutional, lawsuit says

The law bans abortions as early as six weeks into pregnancy, before many women know they are pregnant.



People protest against Georgia's recently passed 'heartbeat' bill at the Georgia State Capitol building, on May 21, 2019 in Atlanta. *U.S. News & World Report / Getty Images*

FiveThirtyEight

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Here's Why The Anti-Abortion Movement Is Escalating

By [Amelia Thomson-DeVeaux](#)
Graphics by [Sus Wezerek](#)
Filed under [Abortion](#)
Published May 21, 2019



DECEMBER 2018 POLICY ANALYSIS



State Policy Trends 2018: With Roe v. Wade in Jeopardy, States Continued to Add New Abortion Restrictions

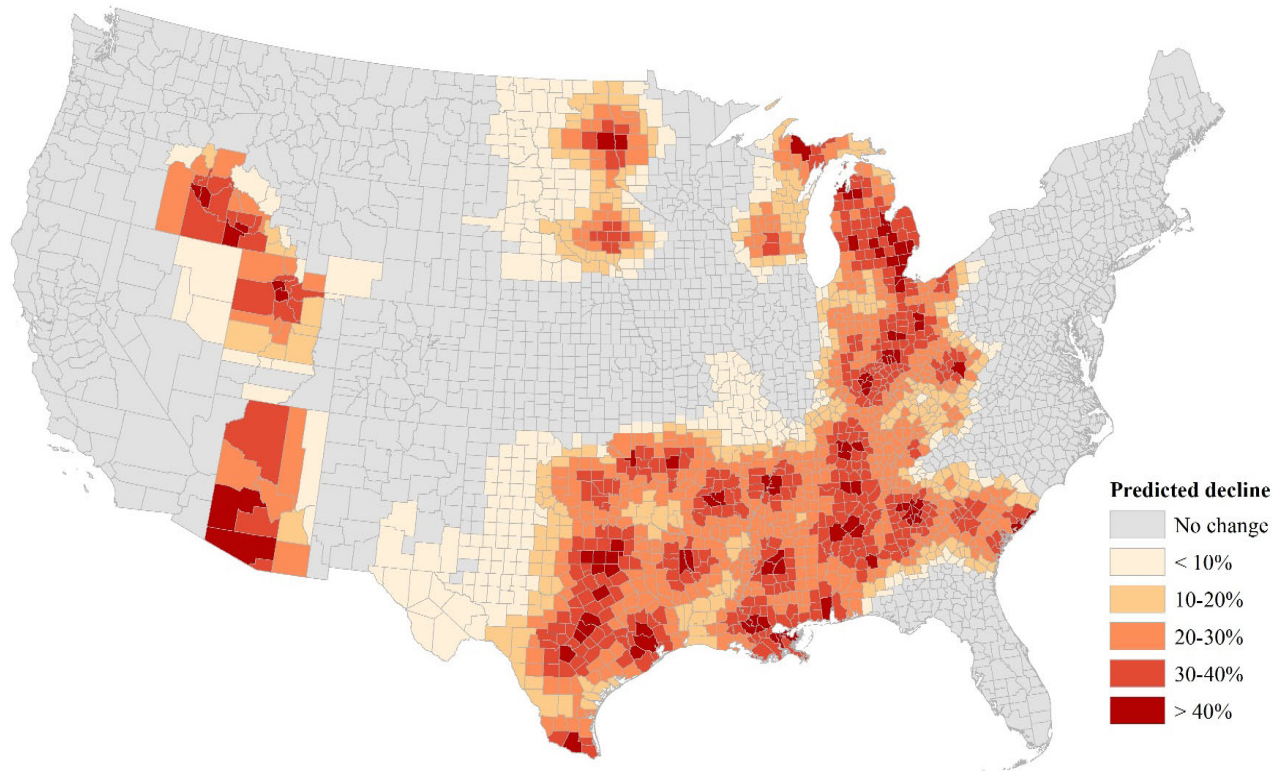
Elizabeth Nash, Guttmacher Institute
Rachel Benson Gold, Guttmacher Institute
Zohra Ansari-Thomas
Olivia Cappello, Guttmacher Institute
Sophia Naide, Guttmacher Institute
Lizamarie Mohammed, Guttmacher Institute

What would happen to abortion rates if Roe were overturned? Estimates from Myers et al. (2019)

- Step 1: Identify all abortion facilities in the United States and calculate county-level travel distance to nearest facility in ANSIRH database.
- Step 2: Identify those states that are high risk of banning abortion if Roe is overturned based on legal analysis conducted by Center for Reproductive Rights.
- Step 3: Re-calculate travel distances in a hypothetical post-Roe world.
- Step 4: Use estimated effects of travel distances on abortion rates from Lindo et al. (2019) to calculate changes in abortion rates.

Sources: Summary of methodology from Caitlin Myers, Rachel Jones, Ushma Upadhyay. 2019. "Changes in abortion access and incidence in a post-Roe world." Forthcoming in *Contraception*. Estimated effects of travel distance are from Jason Lindo, Caitlin Myers, Andrea Schlosser, and Scott Cunningham. 2019. "How far is too far? New Evidence on Abortion Clinic Closures, Access, and Abortions." forthcoming, *The Journal of Human Resources*.

Predicted changes in abortion rates if Roe is overturned

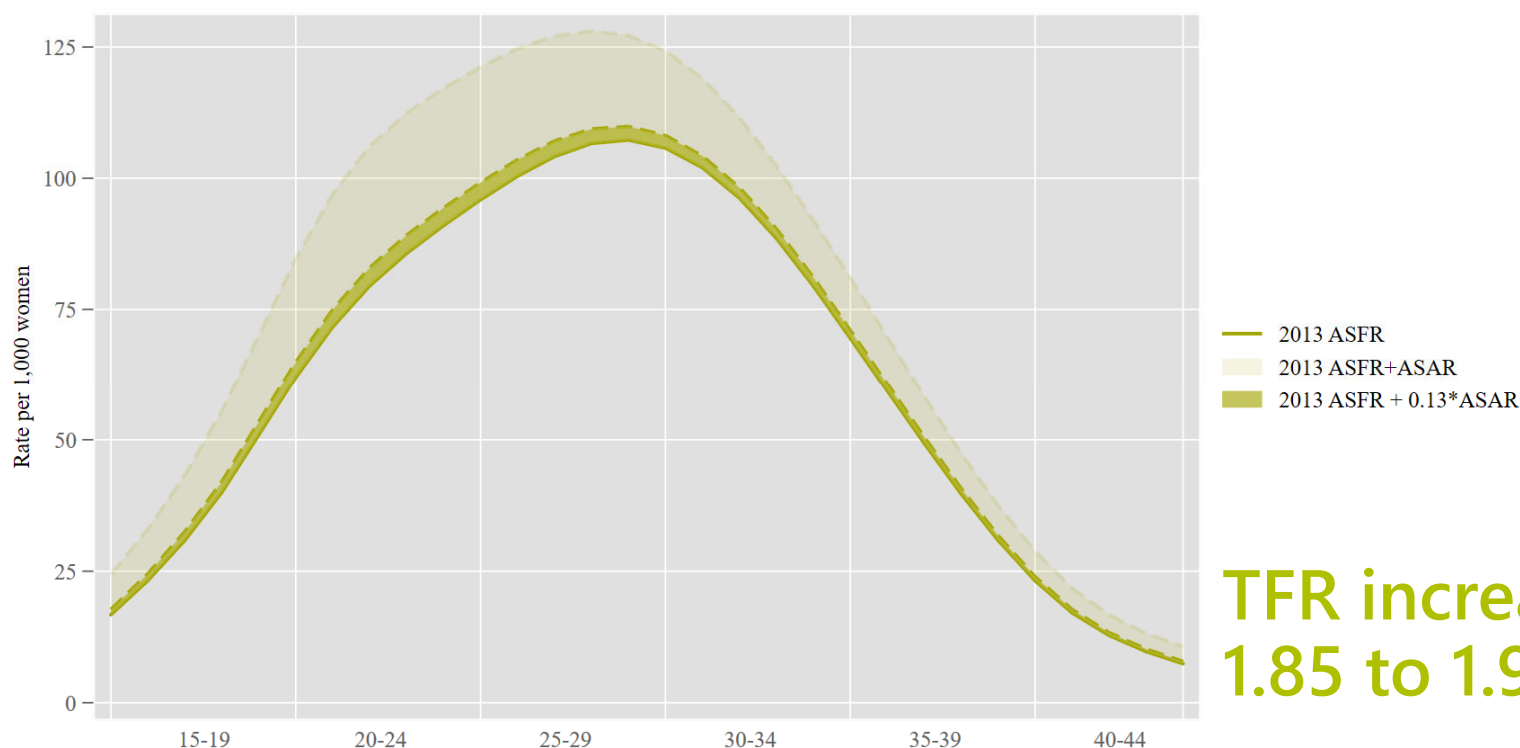


Nationwide, predict a 12.8% (± 2.7) decline in abortion rate.

Effects vary spatially.

Sources: Caitlin Myers, Rachel Jones, and Ushma Upadhyay. 2019. "Predicted changes in abortion access and incidence in a post-Roe world." forthcoming, *Contraception*.

Adjusted Age-specific fertility rate if 12.8% of abortions are prevented and all result in birth



TFR increases from 1.85 to 1.90.

Sources: Caitlin Myers' calculations using data from Human Fertility Database, unpublished estimates of abortion rates by age provided to author by The Guttmacher Institute, and estimates of abortion rate reduction based on Myers et al., 2019.

Q: What do we know about the mechanical causes of the decline in fertility?

A: The estimated risk of pregnancy using data from the NSFG is remarkably stable over the 2006-2017 period. Abortion rates are falling. This presents something of mystery. Potential explanations include declines in the frequency of sex or fecundity.

Q: Is there a potential for another “abortion policy shock” to the TFR?

A: Based on state policy environments and credible estimates of the causal effects of travel distance, I forecast a reversal of Roe would increase in TFR by 0 to 0.05. Around 0.02 seems reasonable.