

# CORE Brief

## Effects of Title X and Medicaid eligibility expansions on reproductive outcomes

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### Overview

This memo provides brief summaries of papers that examine the effects of expansions of federally subsidized reproductive health programs (e.g., Title X, Medicaid Family Planning Waivers, etc.) on fertility outcomes.

Broadly, we can think of the research on the effects of federally subsidized reproductive health programs in economics as falling into three basic buckets: increases in clinics in the 1960s, increases in insurance access in the 1990s to 2000s, and decreases in clinics in the 2000s and 2010s. One thing to note: this memo focuses on federal and state policies that affect funding for reproductive health access, not policies that affect access to specific reproductive technologies, such as the repeal of the Comstock laws which allowed more access to the Pill or the repeal of abortion legislation. There is a whole other strand of literature in economics looking at the long-term impacts of those policies (perhaps a future memo).

### A brief note on methodology and terms

In the paper summaries, I use some terminology that may or may not be familiar to those less familiar with how economists and sociologists talk about causal inference. To make sure we're all on the same page, here's a brief overview of how we can think about finding causal effects of policies.

Social science researchers are typically looking to understand how some change in the world affected some outcome they are interested in. In our case, that change would be a policy, like the federal government funding Title X clinics in the 1970s, and the outcome might be something like birth rates. When doing causal inference, we want to rule out other things that might have been changing at the same time as the policy of interest so that we can reasonably claim that the change we see in the outcome is due to our policy, rather than something else.

First, you need a change that you think is **plausibly exogenous**. Exogenous basically means random – you want where and when the change happened to be completely unrelated to other factors that might be affecting your outcome variable. For example, if a state passes a law increasing the funding for Title X clinics *because* they recently have had a huge increase in fertility that they want to address, it is not plausibly exogenous. If instead a state passes this law and then decides to give out the Title X money to different counties in different years

based on lottery unrelated to the county characteristics, we might think this is plausibly exogenous.

A common method used to then analyze the effects of such a policy is called **difference-in-differences** (or sometimes difference-in-difference-in-differences if you have three dimensions over which you have variation in the policy).

To look at the effect of our policy, you might first think to run the following regression:

$$Y_{it} = \beta_1(\text{After Treatment})_t + \alpha X_{it} + e_{it}$$

Where  $Y_{it}$  is the total fertility rate in state  $i$  in year  $t$ ,  $(\text{After Treatment})_t$  is a dummy variable equal to one if  $t$  is after the year Title X funding was passed, and  $X$  are covariates about the state that you think might affect fertility. This would basically be a ‘differences’ regression, where the effect of the policy is  $\beta_1$ , or the difference between the average birth rate before the policy is passed in year  $t$  and the average birth rate after.

But what if other policy changes happened in year  $t$ ? Then that simple ‘difference’ won’t just be telling us how Title X funding changed the birth rate, but will be incorporating *all* the things that changed birth rates in year  $t$ . To fix this, we use difference-in-differences, where we let when the policy changed vary by state:

$$Y_{it} = \beta_1(\text{After Treatment})_t + \beta_2(\text{State Treated})_i + \beta_3(\text{State Treated})(\text{After Treatment})_{it} + \alpha X_{it} + \epsilon_{it}$$

In this regression, we have a policy that was implemented in different states in different time periods. Now, the effect of the policy  $\beta_3$  is seen in the difference between the change in birth outcomes for states who received funds between year  $t-1$  and year  $t$  and the change in birth outcomes for states who *didn’t* receive funds between year  $t-1$  and year  $t$ :

$$\beta_3 = \Delta Y_{\text{treated}} - \Delta Y_{\text{untreated}}$$

This method takes care of any things that might have happened for all states in that time period that we are worried about affecting birth outcomes. For example, if a policy was passed in 2008 and we saw birth rates fall between 2007 and 2009, we might worry that it was because of the Great Recession. But if we instead compare the change in birth rates for a state that passed the policy to a very similar state that didn’t, we essentially cancel out the ‘year’ effect.

### **Increased access to federally funded clinics in the 1960s and 1970s: Title X Roll-out**

The first line of inquiry looks at the effects of the original roll out of **Title X Clinics in the 1960s and 1970s** on outcomes both at the time (i.e., number of births, health of children, etc.) and in the long run (e.g., earnings and educational attainment of potential mothers, earnings and educational attainment of the children of mothers affected by the roll out).

The first federally funded family planning programs were funded in 1964 Economic Opportunity Act (part of the ‘War on Poverty’ legislation of the Johnson administration) and provided funds to support the opening of new clinics and expansion of existing family planning programs. The first big expansion occurred in 1967 when family planning was designated a “national emphasis” program,” as well as Title V of the Social Security Act being amended to require 6 percent of funds designated for maternal and child care be used for family planning. The Department of Health, Education and Welfare (DHEW) also supplemented the EOA effort by funding family planning services through city health departments. The second expansion was in November 1970 when Title X of the Public Health Service Act was passed, which guaranteed that federal support continued once EOA phased out and increased support by 50 percent by 1974.

The rollout of these federal funds, however, was done in slightly haphazard fashion – which, while not perhaps ideal bureaucracy, is useful for research purposes. Records of how grants were given out indicate that it was not done in a systematic fashion and careful analysis by researchers suggest that receiving a grant was not correlated with fertility rates, economic conditions, average education of population, attitudes about fertility/contraception, et cetera. Researchers use this plausibly exogenous rollout across communities to look at the effects of federal funds on a variety of outcomes:

*Bailey, Martha J. 2013. "Fifty Years of Family Planning: New Evidence on the Long-Run Effects of Increasing Access to Contraception." Brookings Papers on Economic Activity (NIH Public Access) 2013: 341-409.*

Summary: This paper gives an extensive overview of the history of family planning policy in the United States, as well as a comprehensive literature review of both theoretical and empirical analyses of the impacts of contraceptive access expansions, including effects on family size, household income, selection into parenthood, and long term effects on women’s educational attainment/labor force participation. Then, Bailey runs a series of exercises to explore the effects of timing of access to the Pill and the effects of timing of Title X clinic expansions on birth outcomes. First, she exploits variation by state in the year in which the sale of the Pill became legal to estimate the effects of Pill access on fertility rates, showing that states which allowed the Pill had total fertility rate (TFR) about 6 percent lower than those without and that the Griswold Supreme Court case<sup>1</sup> decreased birth rates in states previously banning the Pill by about 4 percent. Turning to later in life outcomes, she finds that the effect of one’s mother having lived in a state that allowed the Pill is associated with higher lifetime family income, own income, and hours worked. Next, Bailey extends her 2012 analysis, described below, which exploits variation in the roll out of Title X clinics at the county-level to investigate the link between federally funded family planning in the late 1960s and child health and labor market outcomes later in life. She does not find any

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<sup>1</sup> Supreme Court case that reversed the laws that criminalized the use of contraception.

significant relationship between maternal or infant mortality, but does show that children born after their mother would have had access to family planning services have 1 to 2 percent higher family incomes as adults, as well as higher educational attainment.

*Bailey, Martha J. 2012. "Reexamining the Impact of Family Planning Programs on US Fertility: Evidence from the War on Poverty and the Early Years of Title X()."* *American economic journal. Applied economics (NIH Public Access)* 4 (2): 62-97.

**Summary:** This paper uses the roll out of Title X funding across counties in the 1960s and 1970s as a natural experiment to test the effects of access to federally subsidized family planning on fertility rates. Bailey uses both qualitative (oral history) and quantitative methods (extensive exploration of pre-trends in counties that received Title X funding) to demonstrate that the decisions on which county would receive a Title X grant was plausibly exogenous. She then analyzes the effect of family planning programs on US fertility using an event study regression design and shows that the general fertility rate fell by 1 to 2 percent in funded counties relative to unfunded counties and remained roughly 1.4 to 2 percent lower ten years after the programs began. Bailey then shows that these effects were largest for women in the 25 to 29 age range, who saw a drop of 3 births per 1000 women, or about 2.2 percent, in the period six to ten years after implementation.

*Bailey, Martha J., Olga Malkova, and Zoë M. McLaren. 2018. "Does Access to Family Planning Increase Children's Opportunities? Evidence from the War on Poverty and the Early Years of Title X."* *Journal of Human Resources:* 1216-8401R1.

**Summary:** This paper uses a similar method to Bailey (2012) – event study based on the roll out of Title X funding across counties – but looks at the impact of federally funding family planning programs on the economic circumstances of households, rather than fertility rates. They use restricted-use long form Census data from the 1970 and 1980 sample to compare economic outcomes of children born in the same county before and after roll out of the family planning federal funds. They find that cohorts born five years after the roll out of the federal programs lived in households with 2.8 percent higher household income and were 7.4 percent less likely to live in poverty. The authors show that this is not due to a pre-trend in implementation occurring in locations with lower income households, but rather due to the policies having a larger impact on low-income households' decisions to select into parenthood than higher-income households. These relationships are stronger for non-white children, consistent with the fact that nonwhite women are overrepresented among family planning patients. Additionally, the authors show evidence that the introduction of family planning programs is associated with lower shares of children born to single-headed households and lower likelihood of higher parity births. Lastly, the authors attempt to quantify how much of these effects are due to selection (i.e., lower income households selecting out of parenthood) versus resource accumulation (i.e., delay of births allowing for human capital accumulation) using a simulation of truncating births for lower income families in 1960s data to provide a lower bound for the role that selection might play.

Note: An earlier, similar analysis using public-use Census data was done in 2014:

*Bailey, Martha J., Olga Malkova, and Johannes Norling. 2014. "Do family planning programs decrease poverty? Evidence from public census data." CESifo economic studies 60 (2): 312-37.*

*Nikpay, Sayeh S. 2016. "Federal Support for Family Planning Clinics Associated with Dramatic Gains in Cervical Cancer Screening." Women's Health Issues (Elsevier) 26 (2): 176-182.*

**Summary:** This paper exploits plausibly exogenous variation in health care access due to the expansion of Title X clinics in the 1960s to test how federal funds for family planning clinics impact preventative care use. Using a similar methodology as Bailey (2014) (see above), the author finds that federal support for family planning clinics was associated with a 7-percentage point increase in annual likelihood of receiving a Pap smear and a 5-percentage point decrease in never having had a Pap smear.

### **Increased federal support for mothers' insurance: Medicaid Family Planning Waivers**

States are mandated to cover family planning through Medicaid. Federal law generally allows payment for ["family planning services and supplies furnished \(directly or under arrangements with others\) to individuals of child-bearing age \(including minors who can be considered to be sexually active\) who are eligible under the State plan and who desire such services and supplies."](#)

States can, however, apply through a waiver process to extend their services to populations beyond the federally mandated coverage groups through a process known as **Section 1115 waivers**. While these practically can be used for many types of changes to Medicaid at the state level, the relevant type for our purposes are Section 1115 waivers in which the state applies to use Medicaid funds for family planning services for populations typically not served by Medicaid. Prior to the implementation of waivers (and particularly the extensions under the Affordable Care Act (ACA)), low-income women qualified for full Medicaid coverage only if they fell into one of 3 categories of eligibility—parent, senior, or disabled. Pregnant women were eligible for prenatal, delivery, and newborn care at a somewhat higher income levels, but generally lost coverage soon after delivery unless they were very low-income.

In the 1980s, Congress first began allowing states to provide family planning services to women with incomes higher than the income limits for Medicaid (extending up to 133% of the FPL). The mid 1990s was when most such expansions happened to populations beyond just the existing eligibility requirements, with some states increasing income limits and others allowing women outside the three eligibility groups to apply.

Different states implemented these policies at different times and typically implemented them to affect different populations. For example, Wisconsin's amendment allows provision

of family planning coverage to women up to 306 percent of the federal poverty line, which is the highest of all states (typically states are at around 200% of the FPL if they have an expansion). Another common type of expansion that some states implemented extends Medicaid coverage to low-income women younger than 18.

States can also amend the population they give Medicaid to using a **State Plan Amendment**, which must be approved by Centers for Medicare & Medicaid Services (CMS). Kaiser Family Foundation has a list of all the such extensions here: [States That Have Expanded Eligibility for Coverage of Family Planning Services Under Medicaid](#) .

*Kearney, Melissa S, and Phillip B Levine. 2009. "Subsidized Contraception, Fertility, and Sexual Behavior." Review of Economics and Statistics ( The MIT Press ) 91 (1): 137-151.*

Summary: This paper explores the effects of state-level Medicaid waivers that extended coverage of family planning services to women typically not eligible for Medicaid (e.g., up to 200% of FPL and teenagers) on birth rates and sexual behaviors. They use data from NVSS and a difference-in-differences design to estimate the effects of expanded eligibility on births for teens and non-teens to show that income-based waivers reduced births by about 2 percent for non-teens and about 4 percent for teens. They then used National Survey of Family Growth (NSFG) data and predicted eligibility for these programs based on reported income to show that this effect was larger among women newly eligible for coverage under the waivers – births fell by 9 percent among newly eligible non-teens. They then complete a back-of-the-envelope cost benefit analysis and estimate that the cost of preventing an unwanted birth would be around \$6800.

*Kearney, Melissa S., and Phillip B. Levine. 2015. "Investigating recent trends in the U.S. teen birth rate." Journal of Health Economics (North-Holland) 41: 15-29.*

Summary: This paper takes an ‘everything-but-the-kitchen-sink’ approach to understanding how reproductive policy in the United States has affected teen birth rates. The authors use the variation in timing and state of implementation of a set of different policies that could plausibly impact teen birth rates to test which are significantly associated with lowering the birth rate. Policies looked at include: acceptance of abstinence education funding as part of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA) (aka colloquially the “Welfare Reform” of the 1990s), state-mandated sexual education programs, Medicaid waivers for family planning services (see 2009 paper by same authors for similar policy analysis), introduction of S-CHIP, changes in welfare generosity as a result of PRWORA, changes in child support enforcement policies, changes in abortion policies such as mandated waiting periods, and economic conditions, such as the unemployment rate. Of these policies, more generous welfare benefits are associated with higher rates of teen births and income-based Medicaid family planning waivers are associated with lower rates of teen births. Sexual education programs and abstinence only programs are unassociated with the decline in teen births.

*Arnold, Grace. 2018. "The Effect of Family Planning Access on the Education and Labor Market Outcomes of Young Women: Evidence from Medicaid Family Planning Expansions." Working Paper*

**Summary:** This paper uses variation across time and state in Medicaid family planning expansion waivers to explore the effects of federally funded family planning programs on teen birth rates, educational attainment, and labor market outcomes for women. States can choose to extend Medicaid family planning services to populations not typically eligible using a Medicaid Section 1115 Waiver; in particular, this paper focuses on the effects of state expansion waivers that extend access to teenagers. Arnold uses a difference-in-differences method to compare outcomes of expanded federal funding for reproductive care, where her treatment group includes those who are 1) female, 2) residents of a state that implemented a waiver, and 3) a teenager at the time that the waiver was in place. Arnold finds that Medicaid expansions are associated with lower teen birth rates (5 percent lower), slightly higher educational attainment (0.008 percentage points more likely to finish HS), small decreases in likelihood of neither being employed nor attending school (0.009 percentage points), and small effects on poverty rates.

### **Other policy change related to insurance and contraception, but not Medicaid**

*Dills, Angela K., and Anca M. Grecu. 2017. "Effects of state contraceptive insurance mandates." Economics & Human Biology (North-Holland) 24: 30-42.*

**Summary:** This paper uses variation in when states implemented mandates requiring private insurance markets (not Medicaid, they do control for Medicaid contraceptive mandates) to cover contraception to estimate the effects of such mandates on birth rates. The authors use both a difference-in-differences regression design and an event study regression design and National Vital Statistics System (NVSS) data at the state-level; they look outcomes of birth rates, prenatal care, delivery complications, and infant health outcomes. They find statistically insignificant effects of private insurance contraceptive coverage mandates on birth rates for white and Black women, but a significant decline in birth rates for Hispanic women (4 percent decrease) with the largest effects for women in their twenties. They also show that this mandate is associated with higher number of prenatal visits for Hispanic mothers, but not white or Black mothers. They find no significant effects on delivery complications (e.g., precipitous labor, induced labor, C-sections).

### **Changes in access to federally funded clinics in the 2000s: Texas, Colorado, and Wisconsin**

A number of very recent papers analyze policies that have changed the number or quality of family planning clinics in the 2010s, namely the closures of clinics in Texas in response to laws such as HB2 (required abortion clinics to meet onerous standards resulting in closings), state-level funding cuts to family-planning clinics in Texas and Wisconsin, and in the

opposite direction, the effect of our large anonymous donors' influx of funds into Colorado's Title X clinics to encourage the use of LARCs.

Many of these paper use the method described by Jason in the first meeting, in which the authors use a type of difference-in-differences where they identify the causal effect of the policy change by looking at differences in birth or abortion rates for geographic areas where clinic closures increased distance traveled compared to differences in birth or abortion rates for areas where clinic closures did not affect distance traveled to the nearest clinic for women.

*Cunningham, Scott, Jason M. Lindo, Caitlin Myers, and Andrea Schlosser. 2017. How far is too far? New evidence on abortion clinic closures, access, and abortions. No. w23366. National Bureau of Economic Research.*

Summary: This paper uses a difference-in-differences design to analyze the effects of abortion clinic closures in Texas due to HB2 on abortion and birth rates. In addition to using spatial variation (changes in distance from a clinic), they also include a model that uses changes in congestion at clinics due to closures (i.e., increases in population likely served due to sites closing) to capture the effects of the law in places like major cities where closures did not increase distance to the nearest clinic, but might increase the capacity ongoing clinics faced. They also do several robustness checks, including one that explores whether declines in abortion rates at clinics are higher for Hispanic women and women nearer the border to Mexico as a test of the hypothesis that some of the decline is due to women substituting towards obtaining abortifacients in Mexico. The authors find that increases in distance from abortion clinics from less than 50 miles to 50–100, 100–150, and 150–200 miles reduce abortion rates by 15, 25, and 40 percent respectively. They find that changes in congestion are also significantly associated with abortion rates. While birth rates did not change significantly in response to change in access to abortion clinics, the authors perform a simulation of the expected reduction in births based on their estimated effects on abortion and show that the effect size of these closures on abortions would not be enough to induce a significant change in birth rates.

*Fischer, Stefanie, Heather Royer, and Corey White. 2017. "The Impacts of Reduced Access to Abortion and Family Planning Services: Evidence from Texas." IZA Discussion Paper No. 10920*

Summary: This paper analyzes the effects of the reproductive policy changes in Texas between 2011 and 2014 on abortion rates, birth rates, and contraception purchases. They use variation over time in the distance from abortion clinics and publicly funded family planning clinics in a difference-in-differences design with county fixed effects. Unlike other papers which just look at HB2 or just look at family planning fund cuts, the authors look at three different policies during this time period: state budget cuts in 2011 to family planning clinics of 67%, elimination of Medicaid fee for service reimbursement for family planning at Planned Parenthood in early 2013, and HB2's regulation of abortion providers in late 2013.

They find that in-state abortions fell 20 percent and births rose 3 percent in counties that no longer had abortion providers within 50 miles. Births increased 1 percent and contraceptive purchases rose 8% in counties without a publicly funded family planning clinic within 25 miles.

*Lindo, Jason M, and Analisa Packham. 2017. "How Much Can Expanding Access to Long-Acting Reversible Contraceptives Reduce Teen Birth Rates? ." American Economic Journal: Economic Policy 9 (3): 348-376.*

Summary: This paper analyzes the effects of the Colorado Family Planning Initiative (CFPI), which provided free long acting reversible contraceptives (LARCs) to low-income women in Title X clinics through the support of a \$23 million grant from the anonymous donor between 2009 and 2015. CFPI provided Title X clinics with free IUDs and implants, training for staff on insertion and counseling about LARCs, and technical assistance to streamline billing processes. To identify the effects of CFPI on teen births, the authors use an event study approach with Title X counties in other states as the control group (as well as a specification using synthetic control group that matches on pre-implementation observables). Their main specification is a Poisson model of teenage birth rates as a function of county-time indicators for whether a county was treated (i.e., had CFPI), county fixed effects, year fixed effects, and time-varying county/state level covariates. The county-level difference-in-differences estimates indicate that the CFPI reduced teen birth rates in affected counties by 6.4 percent over 5 years, with effects concentrated among reductions for low-income women. They also note that there is a delayed effect on births, consistent with access to contraception being a leading indicator to fertility rather a contemporaneous one.

*Lu, Yao, and David J G Slusky. 2018. "The Impact of Women's Health Clinic Closures on Fertility" forthcoming in Journal of Health Economics*

Summary: This paper uses variation in distance from the nearest woman's health clinic precipitated by the cuts in funding in Texas in 2011 to estimate the effects of reduced access to reproductive health care on fertility rates. Their analysis is more granular than other papers which look at birth rates at the county level – using restricted access birth records for Texas, they estimate the effects of closings at the time of conception on birth rates at the zip code level. Like other studies, they use a difference-in-differences approach and use variation in distance to the nearest clinic to identify the effects. They find that the 2011 clinic closures that increase distance to travel of 100 miles were associated with 1.2 percent higher fertility rates and the effect sizes are 2.4 times large for unmarried women than married women.

*Lu, Yao, and David J G Slusky. 2016. "The Impact of Women's Health Clinic Closures on Preventive Care †." American Economic Journal: Applied Economics 8 (3): 100-124.*

Summary: Using the similar policy environment and difference-in-differences methodology as Lu and Slusky (2018) (see above), the authors look at the effects of women's health clinic closures on preventive care. They look at both the closures in 2011 in Texas and the 2011

budget cuts in Wisconsin to family planning clinics. They use restricted use survey data from the Centers for Disease Control and Prevention (CDC) Behavioral Risk Factor Surveillance System (BRFSS) that includes the ZIP code of residence for each respondent to measure preventative care utilization, including whether a woman has received a clinical breast exam, mammogram, Pap smear or routine checkup in the past year. They then can calculate zip code level rates of care utilization and assign distance to the nearest clinic pre- and post-closures using distance from zip code centroid. The authors find that clinic closures that increase distance by 100 miles are associated with 6 percent lower likelihood of having received a clinical breast exam in the prior year and a 8 percent lower likelihood of having received a pap smear test. The effect sizes are doubled for a sample restricted to women with lower levels of education (i.e., high school or less).

*Packham, Analisa. 2017. "Family planning funding cuts and teen childbearing." Journal of Health Economics (North-Holland) 55: 168-185.*

**Summary:** This paper looks at the effects of Texas' family planning clinic funding cuts on teen fertility and abortion rates. The author uses a difference-in-differences approach to compare teenage birth/abortion rates in Texas counties that lost funding to rates in counties with publicly funded clinics outside of Texas. The author shows that reductions in family planning services access are associated with 3.4 percent higher teenage birth rates, with effects higher for low income teenagers and large effects in the period two to three years post the implementation of the law.

*Ricketts, Sue, Greta Klingler, and Renee Schwalberg. 2014. " Game Change in Colorado: Widespread Use Of Long-Acting Reversible Contraceptives and Rapid Decline in Births Among Young, Low-Income Women." Perspectives on Sexual and Reproductive Health 46 (3): 125-132.*

**Summary:** This was the first paper to describe the results of the Colorado Family Planning Initiative analyzed in Lindo and Packham (2018). The authors just use a descriptive approach, looking at before and after rates of LARC use, fertility rates, number of at-risk births, abortion rates, and infant enrollment in WIC in counties in Colorado that received CFPI and counties that did not. They show that LARC usage increased by 5 percent more in CFPI counties, caseloads at Title X clinics increased by 23 percent over the time period, number of high risk births dropped by 24 percent in CFPI counties compared to 6 percent in non-CFPI counties. Abortion rates among 20 – 24 year-olds declined by 24 percent in CFPI counties compared to 6 percent in non-CFPI counties, for teenagers, abortion rates declines by 34 percent in CFPI counties compared to 29 percent in non-CFPI counties.